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Perceiving Credible Commitments: How Independent Regulators Shape Elite Perceptions of Regulatory Quality

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Numerous recent studies have addressed how the investment choices of firms depend on elite perceptions of the quality of national regulatory regimes. Likewise, other studies show that government structures can help to support credible commitments that protect market mechanisms. The authors provide the first analytic discussion of elite perceptions of national regulatory quality as a function of the independence of regulators in a country's political system. Their central claims are that market operations depend on perceptions of regulatory quality and that independent regulators facilitate elite perceptions of regulatory quality because they check actors in domestic political systems. Cross-national statistical evidence suggests that regulatory independence supports elite perceptions of high regulatory quality. This article also provides evidence that regulatory independence is more likely where political competition shapes incentives to intervene in business markets.

Working with economic and other social institutions, political institutions shape economic policies and outcomes. National policy regimes shape investment, employment, production and, ultimately, the decisions of consumers in the global economy. In this context, the effect of a nation's policy regime on investment depends on how market elites throughout the world perceive regulatory policy, and how those elite perceptions change investment decisions and, correspondingly, capital flows. One way regulation changes the business environment is by changing how business elites form their perceptions of regulatory quality.

Recent studies have shown direct relationships between the perceived quality of a country's regulatory regime and trade between nations,[1] per capita income[2] and foreign direct investment.[3] Many other studies find links between perceptions of quality regulation and 'good' governance, growth and productivity.[4] For example, De Groot *et al.*

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[1] Henri L. F. de Groot, Gert-Jan Linders, Piet Rietveld and Uma Subramanian, 'The Institutional Determinants of Bilateral Trade Patterns', *Kyklos*, 57 (2004), 103–23.

[2] Daniel Kaufmann and Aart Kraay, 'Growth without Governance', *Economía*, 3 (2002), 169–229.

[3] Steven Globerman and Daniel Shapiro, 'Global Foreign Direct Investment Flows: The Role of Governance Infrastructure', *World Development*, 30 (2002), 1899–920.

[4] Robert Barro, 'Determinants of Economic Growth: A Cross-Country Empirical Study', Development Discussion Paper No. 579 (Harvard Institute for International Development, 1997); Robert E. Hall and Charles I. Jones, 'Why Do Some Countries Produce So Much More Output per Worker than Others?' *Quarterly Journal of Economics*, 114 (1999), 83–116; Dani Rodrik, 'Institutions for High-Quality Growth: What They Are and How To Acquire Them', *Studies in Comparative International Development*, 35 (2000), 3–31; International Monetary Fund (IMF), *World Economic Outlook: Growth and Institutions*

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estimate that increasing perceptions of regulatory quality by one standard deviation from the mean across countries increases trade by 16 to 26 per cent.[5] Investor perceptions that regulatory quality means a better climate for capital investment and accumulation are considered a primary mechanism driving these substantial effects.[6]

The purpose of this study is to estimate the effect of regulatory independence on the perceptions of business elites regarding the quality of regulation. In so doing, we assess the manner in which an institutional arrangement – the presence of an independent regulatory agency – affects the crediblity of commitments that governments make to business elites in competing for their investment. Our theoretical argument is as follows. Business elites cannot forecast the impact of political and economic conditions on regulatory decision making perfectly, but they do understand that regulatory policy choices respond to those conditions. Business elites thus form expectations about the likelihood that regulation will favour their interests; the higher the likelihood of a favourable regulatory environment, the higher the perceived regulatory 'quality'. Independent regulators help to stabilize these expectations if they are institutionally buffered from political influence. Of course, independent regulators are not randomly assigned across nations. For this reason, we argue that the problem of stabilizing the expectations of business elites is more difficult in some political systems than in others.

Our statistical analysis accounts for multiple potential foundations for perceptions of the quality of regulation across nations. In this study, perceptions are measured by the survey responses of business elites regarding whether policies inhibit market mechanisms, restrain foreign trade and limit business development by increasing the costs of transactions. Specifically, we use a treatment–effects regression model for a panel of eighty-nine countries measured at six points in time over a nine-year period. Our results show that independent regulators are more likely to be in place in systems with moderate levels of democratization. Given this relationship between democratization and regulatory independence, we demonstrate that perceptions of regulatory quality are greater when systems have independent regulators. We also show evidence that whilst elite perceptions of regulatory quality are greater in countries with larger economies and that those perceptions have fallen over time, they remain systematically greater in countries with independent regulators. Our presentation begins with a theoretical argument grounded in the credibility of regulatory rules. From this line of reasoning, we then derive a series of hypotheses regarding the impact of political institutions on regulatory quality. We offer next a research design using data from the World Bank and describe our statistical methodology. Results are then presented and discussed, and the article concludes with some brief remarks and potential extensions of our study.

(F'note continued)
(Washington, D.C.: IMF, 2003); Hossein Jalilian, Colin Kirkpatrick and David Parker, 'Creating the Conditions for International Business Expansion: The Impact of Regulation on Economic Growth in Developing Countries – A Cross-Country Analysis', IDPM Working Paper (Manchester, 2003).

[5] De Groot, Linders, Rietveld and Subramanian, 'The Institutional Determinants of Bilateral Trade Patterns'.

[6] Philip Keefer and Stephen Knack, 'Institutions and Economic Performance: Cross-country Tests Using Alternative Institutional Measures', *Economics and Politics*, 7 (1995), 207–27; Paolo Mauro, 'Corruption and Growth', *Quarterly Journal of Economics*, 110 (1995), 681–712; Christopher Clague, Philip Keefer, Stephen Knack and Mancur Olson, 'Contract-Intensive Money: Contract Enforcement, Property Rights and Economic Performance', *Journal of Economic Growth*, 4 (1999), 185–210; World Bank, *Global Economic Prospects and the Developing Countries* (Washington, D.C.: World Bank, 2003).

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COMMITMENT, INSTITUTIONS AND PERCEPTIONS OF REGULATORY QUALITY

In their seminal work, Kydland and Prescott formally show the importance of credible commitment to policy: 'policy makers should follow rules rather than have discretion. The reason is not that they are stupid or evil, but, rather, that discretion implies selecting the decision which is best, given the current situation.'[7] Their highly influential argument implies that '[i]n a democratic society, it is probably preferable that selected rules be simple and easily understood, so it is obvious when a policymaker deviates … There could be institutional arrangements which make it a difficult and time-consuming process to change the policy rules in all but emergency situations.'[8] Our examination of the impact of regulatory independence on perceptions of regulatory quality is rooted in this notion of credibility, which has significant anecdotal support.[9] When assessing the regulatory environment in nations in which they consider investing, do business elites perceive higher quality environments where regulatory policy is less discretionary? Radaelli, for instance, notes that the European Community recently defined 'high-quality regulation' as being 'efficient, effective, coherent, and simple',[10] precisely the qualities that Kydland and Prescott suggest that regulation should have.[11] To address this question in broader empirical context, we focus our attention on the role of independent regulators in enhancing credibility.

Two conditions are necessary for a credibility problem to exist. First, if policy varies over time, commitments to a stable rule become impossible. Changing policy has consequences; Persson and Tabellini note that some policies are chosen after the private sector has made some irreversible decisions, such as accumulating an asset or signing a contract.[12] Firms investing in a country based on their expectations about the regulatory environment find their decisions easier if the government of that country commits to a stable regulatory policy over time.[13] Secondly, a conflict of interest must arise between

[7] Finn Kydland and Edward Prescott, 'Rules Rather Than Discretion: The Inconsistency of Optimal Plans', *Journal of Political Economy*, 85 (1977), 473–91, p. 487.

[8] Kydland and Prescott, 'Rules Rather than Discretion', p. 487.

[9] For example, Victor Goldberg, 'Regulation and Administered Contracts', *Bell Journal of Economics*, 7 (1976), 426–52; Brian Levy and Pablo T. Spiller, 'The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation', *Journal of Law, Economics, and Organization*, 10 (1994), 201–45; Brian Levy and Pablo T. Spiller, 'A Framework for Resolving the Regulatory Problem', in Brian Levy and Pablo Spiller, eds, *Regulations, Institutions, and Commitment: Comparative Studies of Telecommunications* (New York: Cambridge University Press, 1996); Mario Bergara, Witold Henisz and Pablo T. Spiller, 'Political Institutions and Electric Utility Investment: A Cross-Nation Analysis', *California Management Review*, 40 (1998), 18–35; Pablo T. Spiller and William Savedoff, 'Government Opposition and the Provision of Water', in *Spilled Water: Institutional Commitment in the Provision of Water Resources* (Washington, D.C.: Inter-American Development Bank, 1999); Jon Stern and Stuart Holder, 'Regulatory Governance: Criteria for Assessing the Performance of Regulatory Systems – an Application to Infrastructure Industries in the Developing Countries of Asia', *Utilities Policy*, 8 (1999), 33–50; Sanford Berg, 'Developments in Best-Practice Regulation: Principles, Processes, Performance', *Electricity Journal*, 13 (2000), 11–18.

[10] Claudio M. Radaelli, 'Getting to Grips with Quality in the Diffusion of Regulatory Impact Assessment in Europe', *Public Money & Management*, 24 (2004), 271–6, p. 271.

[11] Kydland and Prescott, 'Rules Rather than Discretion'.

[12] Torsten Persson and Guido Tabellini, *Political Economics: Explaining Economic Policy* (Cambridge, Mass.: MIT Press, 2001), p. 298.

[13] See Douglass North and Barry Weingast, 'Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England', *Journal of Economic History*, 49 (1989), 803–32; David Stasavage, 'Credible Commitment in Early Modern Europe: North and Weingast Revisited', *Journal of Law, Economics, and Organization*, 18 (2002), 155–86.

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government and business; government must have 'the incentive to undertake policy surprises' when it finds them to its advantage.[14] On the one hand, whilst politicians retain control over regulation, they maintain the authority to claim credit for short-term successes; on the other, business demands quality regulation marked by virtues of proportionality, consistency and transparency to facilitate the agreements that secure profits.[15]

A large literature suggests that independent regulators help to stabilize these expectations about regulation when their arms-length structure insulates them from responsive politics.[16] Though a politician faces electoral incentives that may induce him or her to set policy so as to maximize short-term achievements to the detriment of long-term commitments, an independent regulator is insulated from such electoral incentives. The regulator can, then, credibly commit to policies that may fly in the face of public opinion trends, electoral mandates and so forth.[17] For example, students of monetary policy have examined a government's credibility gains through delegation to explain the emergence and importance of the independent central banker.[18]

Put simply, a government's commitment to a regulatory rule creates the expectations of a predictable investment environment; regulatory independence helps to supply that commitment. Firms can contract to deliver goods and services at lower risk if they believe regulators are unlikely to change the rules of the game during the period of the contract. This diminution of risk can be seen as reducing transactions costs. By definition, regulation affects

[14] Persson and Tabellini, *Political Economics: Explaining Economic Policy*, p. 298.

[15] See Frederick Schauer, *Playing by the Rules: A Philosophical Examination of Rule-Based Decision-Making in Law and in Life*, reprint edn (Oxford: Clarendon Press, 2002); Radaelli, 'Getting to Grips with Quality in the Diffusion of Regulatory Impact Assessment in Europe'.

[16] Delegating an executive task to a cabinet department in the United Kingdom, for example, gives the minister a veto over policy choice, but locating the authority with an independent regulator such as the Water Services Regulation Authority (Ofwat) removes the incumbent government's policy veto. The creation of such independent regulators is a form of delegation, which, for example, Aghion *et al*. have operationalized as an increase in the 'share of votes that can block a leader ex post when he tries to implement legislation' (Phillipe Aghion, Alberto Alesina and Francesco Trebbi, 'Endogenous Political Institutions', *Quarterly Journal of Economics*, 119 (2004), 565–611, p. 566). In the case of a truly independent regulator, that share of votes for a given action being regulated is driven to infinity.

[17] Our approach runs parallel to recent political science literature on regulatory trust, which argues that declining trust in public institutions from scandals and strategic blame shifting by politicians has led, among other things, to more regulation of regulators by other governmental authorities (see generally: Michael Moran, 'Understanding the Regulatory State', *British Journal of Political Science*, 32 (2002), 391–413; Christopher Hood, 'The Risk Game and the Blame Game', *Government and Opposition*, 37 (2002), 15–37; Christopher Hood, Colin Scott, Oliver James, George Jones and Tony Travers, *Regulation Inside Government: Waste-watchers, Quality Police, and Sleaze Busters* (Oxford: Oxford University Press, 1999)).

[18] Generally, the primary target of monetary policy is the inflation rate; this literature shows that even a politician who accepts higher inflation rates has the incentive to delegate to a conservative (inflation intolerant) central banker because of the unforeseen contingency of economic shocks. However, delegation to a central bank is generally not optimal when the bank is completely independent, but rather when there is an 'escape clause' the politician can use under extreme conditions to reject the banker's policy choice (Susanne Lohmann, 'Optimal Commitment in Monetary Policy: Credibility versus Flexibility', *American Economic Review*, 82 (1992), 273–86). See also Kydland and Prescott, 'Rules Rather than Discretion'; Robert Barro and David Gordon, 'Rules, Discretion and Reputation in a Model of Monetary Policy', *Journal of Monetary Economics*, 12 (1983), 101–20; Kenneth Rogoff, 'The Optimal Degree of Commitment to an Intermediate Monetary Target', *Quarterly Journal of Economics*, 100 (1985), 1169–89; Philip Keefer and David Stasavage, 'The Limits of Delegation: Veto Players, Central Bank Independence, and the Credibility of Monetary Policy', *American Political Science Review*, 97 (2003), 407–23.

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the operation of a market for goods and services. This is why, for purposes of its Governance Matters project from which our data have been drawn, the World Bank bases its inferences about differences in regulatory quality on perceptions of such things as the restriction of unfair competition, the imposition of price controls and tariffs, subsidies for unprofitable firms and environmental regulations. Firms perceive high regulatory quality when the regulatory burden borne by business entities is not excessive, nor the tax burden too distortionary, and when sufficient anticipated returns to investment encourage market entry. From the perspective of the World Bank, then, a high-quality regulatory environment is good for business because it is amenable to contract. And as economists have shown, these perceptions often have observable implications for measures like economic growth, productivity, per capita income and direct foreign investment.[19]

Because of the credibility problem, international competition for business investment means that nations also compete for high-quality perceptions of their regulatory regimes. Perceptions are like hypotheses – they impose a structure on the 'accepted reality' firms face, and let them 'use limited data to remakable effect'.[20] Business invests resources on the basis of these perceptions, and it is that investment, along with the intertemporal commitment problem induced by politics, that raises the problem of credibility. What alters this expectation is the credible commitment of the government to a path of behaviour, and altering this expectation in a way that encourages capital investment is rational for governments as they compete for investment on the international stage.

We now turn to the set of hypotheses drawn from the logic just presented that we test statistically in this article. Our principal concern lies in the effect of regulatory independence on credibility: the hypothesis that market actors perceive the separation between the power of politicians and that of the policy setter/implementer as a credible commitment – a commitment that supports perceptions of a regulatory regime that is more inviting to capital investment.

Our first and principal claim regards the establishment of independent regulatory authority at the national level:

HYPOTHESIS 1: Regulatory independence is associated with perceptions of higher regulatory quality.

Other scholars have made similar claims. For example, Spulber and Besanko offer a model based on this logic, where a regulator of observable type helps to solve the commitment problem for a politician.[21] By choosing a regulator with preferences over firms' interests that are counter to his own, the politician can make credible commitments to future agency actions.

We also acknowledge that political institutions contribute to what Acemoglu *et al*. have called *de jure* political power.[22] That regulatory independence changes the landscape of *de jure* government power is central to our argument and, for a national government, the

[19] See Daron Acemoglu, Simon Johnson and James A. Robinson, 'Institutions as the Fundamental Cause of Long-Run Growth', in Philippe Aghion and Stephen Durlauf, eds, *Handbook of Economic Growth* (Amsterdam: North Holland, 2005), pp. 385–472.

[20] R. L. Gregory, 'Perceptions as Hypotheses', *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 290 (1980), 181–97, p. 181.

[21] Daniel F. Spulber and David Besanko, 'Delegation, Commitment, and the Regulatory Mandate', *Journal of Law, Economics and Organization*, 8 (1992), 126–54.

[22] Acemoglu, Johnson and Robinson, 'Institutions as the Fundamental Cause of Long-Run Growth'.

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choice of an independent regulator is a mechanism of cross-national competition for high-quality perceptions of national regulatory regimes. As we have argued, the characteristics of the political system through which politicians gain authority represents a portion of the national institutional environment that generates more or less demand for independent regulation as a result of its character. Consequently, we do not construct a research design that treats independent regulators as being randomly assigned across nations.

Our design incorporates two separate data-generating processes. The first characterizes how strategic decision making by a national government underlies its adoption of an independent regulator; the second considers the impact of having an independent regulator on business elites' perceptions of regulatory quality. We consider certain characteristics of political systems – whether a system is more or less democratic, has many or few veto players, has legislators that are elected by proportional representation, has a strong or weak president or a unitary parliament – to help us understand which nations adopt independent regulators. Regulatory independence acts as a 'treatment' in the sense of a policy experiment that conditions elite perceptions of regulatory quality: those countries receiving the 'treatment' (an independent regulator) are hypothesized to experience its benefit (higher quality perceptions) vis-à-vis the 'untreated' countries. Yet whether regulators are independent depends on the need for policy credibility as a signal to potential business investors. We must then empirically address the role of independent regulators in supporting perceptions of regulatory quality in a model that also allows for other, independent causes of those perceptions such as the effects of 'market-preserving' federalism[23] and the nature of the legal system.[24] We describe our predictions about these other effects on elite perceptions of regulatory quality below.

The Likelihood of Regulatory Independence

Evidence suggests that regulatory independence provides investors with a signal of government commitment; at the same time, formal models support claims that the broad contours of political systems determine credibility. Both approaches fail to consider possible contingent effects. In fact, constitutional choices such as the rules governing democracies, presidentialism, the presence of proportional representation and veto players are usually made *ex ante* without fully considering their effects on regulatory credibility. The choice to have an independent regulatory authority is often made given an existing government structure, with an eye towards influencing the perceptions of potential investors.[25] We examine these conditions statistically in the following manner.

[23] Yingyi Qian and Barry R. Weingast, 'Federalism as a Commitment to Preserving Market Incentives', *Journal of Economic Perspectives*, 11 (1997), 83–92.

[24] Cf. George Priest, 'The Common Law Process and the Selection of Efficient Rules', *Journal of Legal Studies*, 6 (1977), 65–82; Paul Rubin, 'Why is the Common Law Efficient?' *Journal of Legal Studies*, 7 (1977), 51–63; Robert Cooter and Lewis Kornhauser, 'Can Litigation Improve the Law without the Help of Judges?' *Journal of Legal Studies*, 9 (1980), 139–63.

[25] Consider the case of Hungarian telecommunications. The government's divestiture of a majority interest in Matáv – the national telecommunications monopoly – was completed in 1995 (David M. Eisenberg, *Linking Privatisation and Regulatory Reform* (London: European Bank for Reconstruction and Development, 1998), p. 2, http://www.ebrd.com/country/sector/law/telecoms/about/private.pdf (accessed 6 May 2007)). In 1993–98, the Telecommunications General Inspectorate served as the regulator of the telecommunications industry, but was directly controlled by the Ministry of Transport. During this period, a formal complaint was made by local telephone operators and mobile service providers alleging that Matáv unfairly influenced the Minister for Transport to gain permission to control the interconnection charges levied against other providers for each transmission originating on Matáv's network

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First, democratization increases the number of 'voices' represented in government decision making.[26] Recall that investors fear government intervention in the economy because it changes the stability of the regulatory environment; regulatory independence helps mitigate those concerns and so supports perceptions of higher regulatory quality. Only at the knife-edged condition in which business and all interests democratically represented are congruent in their support for (or opposition to) a regulatory rule would democracy not pose a problem for the stability of the 'clear rule' advocated by Kydland and Prescott.[27] In a related study, Kunicová and Rose-Ackerman argue that participation, political competition and constraints on the chief executive increase the ability of the population to monitor and legally constrain politicians from engaging in extractive behaviour (which is at the root of much political intervention in the economy).[28] Montinola and Jackman find a strong non-linear relationship between democratization and extractive behaviour (measured as corruption).[29] They find that rent-seeking behaviour increases in the early stage of democratization and falls only after a certain level of democratization is reached. Our hypotheses are then:

HYPOTHESIS 2A: The likelihood of adopting independent regulators increases in the early stages of democratization.

HYPOTHESIS 2B: The likelihood of adopting independent regulators falls at higher levels of democratization.

These hypotheses indicate a possible non-linear relationship between democratization and the likelihood of adopting an independent regulatory body.

Other recent contributions have emphasized the roles of veto players.[30] The veto player framework centres on the number of decision points that define the legislative process. The ability of political actors, acting in institutions, to change economic policy and alter the market depends on how veto players are aligned in the legislative process. Our hypothesis is:

HYPOTHESIS 3: Countries with a large number of veto points are less likely to adopt independent regulators.

(F'note continued)

(Eisenberg, *Linking Privatisation and Regulatory Reform*, p. 3). Eisenberg writes that such charges 'imposed by the dominant telecoms operator are regularly contested by competing operators. The situation in Hungary is therefore unexceptional' (Eisenberg, *Linking Privatisation and Regulatory Reform*, p. 3). In the Electronic Communications Act of 2003, an independent regulator – the National Communications Authority – was created. The Authority 'is an independent central budgetary entity with its own budget and uses its own revenues to cover the costs incurred in relation with the performance of its duties' (National Communications Authority, 'About Us', 2007, http://www.nhh.hu/index.php?id=hir&cid=891&mid=599 (accessed 6 May 2007)).

[26] See, e.g., Robert A. Dahl, *Polyarchy: Participation and Opposition* (New Haven, Conn.: Yale University Press, 1971).

[27] Kydland and Prescott, 'Rules Rather than Discretion'.

[28] Jana Kunicová and Susan Rose-Ackerman, 'Electoral Rules and Constitutional Structures as Constraints on Corruption', *British Journal of Political Science*, 35 (2005), 573–606.

[29] Gabriela Montinola and Robert Jackman, 'Sources of Corruption: A Cross-Country Study', *British Journal of Political Science*, 32 (2002), 147–70.

[30] Keefer and Stasavage, 'The Limits of Delegation'; George Tsebelis, 'Decision Making in Political Systems: Veto Players in Presidentialism, Parliamentarism, Multicameralism and Multipartyism', *British Journal of Political Science*, 25 (1995), 289–325; George Tsebelis, *Veto Players* (Princeton, N.J.: Princeton University Press, 2002). See also Matthew Soberg Shugart and John M. Carey, *Presidents and Assemblies: Constitutional Design and Electoral Dynamics* (New York: Cambridge University Press, 1992), p. 140.

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In separation-of-powers systems, regulatory independence can check the president's 'decree power' or the implementability of 'law made by the executive and not subject to congressional review'.[31] We offer the following hypotheses about strong and weak presidential systems:

HYPOTHESIS 4A: Parliamentary and weak presidential systems are less likely to adopt independent regulators than are strong presidential systems.

HYPOTHESIS 4B: Weak presidential systems are more likely to adopt independent regulators than are parliamentary systems.

Similarly, single member plurality (SMP) electoral systems make it more difficult to make policy decisions than do systems based on proportional representation (PR).[32] PR systems generally support many parties, whose preferences must be accommodated in any policy bargain; when there is a change in the governing coalition, instability can result if deals are renegotiated, along with delay and gridlock. Generally, SMP systems organize political competition between individual members of rival parties at the level of a geographic jurisdiction. According to Cox and McCubbins, PR systems are 'feeble' when compared with the 'strength' of presidential systems, and economic policy outcomes are stable in the latter and unstable in the former.

HYPOTHESIS 5: Proportional representation systems are more likely to adopt independent regulators than are SMP systems.

Other Predictors of Perceived Regulatory Quality

Recent studies argue that federalism has a role in supporting perceptions of regulatory quality.[33] Again, the essential feature of federalism is the decentralization of authority and information across multiple policy-setting units and the resulting jurisdictional competition, both of which contribute to the formation of credible commitments. For Qian and Weingast, federal systems are 'market-preserving' due to this competition between jurisdictional units. Our hypothesis is:

HYPOTHESIS 6: Federal systems produce higher perceptions of regulatory quality.

De facto political power has its root in a set of forces beyond the formal institutions of government and is extremely difficult to measure.[34] Per capita gross domestic product (GDP) is included in our models as an attempt to partial out the degree to which business can impact politics through informal channels. We state no specific hypothesis in this regard, but include these measures in our statistical model to recognize the *de facto* component of national politics in a way that facilitates broad cross-national comparisons; we also assess a possible non-linear relationship between the size of the economy and elite perceptions of regulatory quality.

Finally, we include an additional covariate to account for recent models that describe colonial heritage as a possible cause for market-supporting economic policy, which may

[31] Shugart and Carey, *Presidents and Assemblies*, p. 140.

[32] For example, Gary W. Cox and Mathew D. McCubbins, 'The Institutional Determinants of Economic Policy Outcomes', in Stephan Haggard and Mathew D. McCubbins, eds, *Presidents, Parliaments, and Policy* (New York: Cambridge University Press, 2001).

[33] For example, Qian and Weingast, 'Federalism as a Commitment to Preserving Market Incentives'.

[34] Acemoglu, Johnson and Robinson, 'Institutions as the Fundamental Cause of Long-Run Growth'.

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feed through into the perceptions held by elites about regulatory quality.[35] Many of those systems are common law regimes, which theorists say create efficiency incentives for private transactions.[36] Common law is thought to select rules that govern the behaviour of firms efficiently, and that individuals and/or firms respond to such rules efficiently (creating a general equilibrium effect). We posit this effect to exist regardless of judicial ideology or competence. We test the hypothesis:

HYPOTHESIS 7: English colonial origin (as a proxy for a common law regime) is associated with perceptions of higher regulatory quality.

Together, we argue, these structures constitute the default rules, and, of course, determine the quality of the contractual environment captured in elite assessments of regulatory quality. We next specify our empirical model and then present the estimation results.

MODEL SPECIFICATION

The foregoing hypotheses can be examined by simultaneously estimating the following models:

$$\textit{Regulatory Quality} = f(\textit{Regulatory Independence}, \textit{Federalism}, \textit{English Origins}, \textit{GDP})$$

and

$$\textit{Regulatory Independence} = f(\textit{Democratization}, \textit{Veto Points}, \textit{PR}, \textit{Parliamentary and Weak Presidential Systems}).$$

We test these hypotheses simultaneously, include our variables for economic development and colonial origin, and include a fixed effect for each year. Table 1 presents summary statistics on the variables employed in these models and which are described next.

Our dependent variable is from the World Bank's Governance Matters data collection, which includes multiple year measures for six primary areas of governance in almost 200 countries.[37] These 'benchmarks' are meant to illuminate the core themes that contribute to economic growth across disparate countries and across time. The six indicators are: Voice and Accountability, Political Stability and Lack of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. Since 1996, multinational organizations have used these measures for studying the key themes in governance and the ways citizens react to the state and its behaviour. Variables are constructed by estimating a measurement model that summarizes data provided by seventeen different organizations as detailed in the appendix (Table A1). We employ data collected in 1996, 1998, 2000, 2002, 2003 and 2004. Our models are estimated using eighty-nine countries, for which 479 observations of regulatory quality are available. Our

[35] For example, Douglass C. North, *Institutions, Institutional Change, and Economic Performance* (New York: Cambridge University Press, 1990); Daron Acemoglu, Simon Johnson and James A. Robinson, 'The Colonial Origins of Comparative Development: An Empirical Investigation', *American Economic Review*, 91 (2001), 1369–401; Acemoglu, Johnson and Robinson, 'Institutions as the Fundamental Cause of Long-Run Growth'.

[36] For example, Rubin, 'Why is the Common Law Efficient?' Priest, 'The Common Law Process and the Selection of Efficient Rules'; Cooter and Kornhauser, 'Can Litigation Improve the Law without the Help of Judges?'

[37] These data are available at http://www.worldbank.org/wbi/governance/pubs/govmatters5.html. See Daniel Kaufmann, Aart Kraay and Massimo Mastruzzi, 'Governance Matters III: Governance Indicators for 1996–2002', *Technical Report of the World Bank*, 2004, for full details.

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TABLE 1 *Descriptive Statistics*

Variable	Mean	Std. Dev.
Perceived Regulatory Quality	0.287	0.924
Subindex: World Economic Forum	0.519	0.114
Subindex: Global Insight	0.846	0.143
Subindex: Political Risk Services	0.666	0.229
Independent Regulator	0.626	0.484
Federalism	0.972	0.849
English Origins	0.298	0.458
Ln GDP	8.832	1.063
Ln GDP – quadratic	79.132	18.675
1998	0.183	0.387
2000	0.180	0.385
2002	0.178	0.383
2003	0.176	0.381
2004	0.100	0.300
Polity	15.620	5.501
Polity – quadratic	274.163	137.719
Ln Checks	1.578	0.277
Proportional Representation	0.643	0.479
System: Weak Presidential	0.067	0.251
System: Parliamentary	0.413	0.493

sample size is limited by national-level missing data for our covariates of interest as detailed in Table 2.

Our focus is the regulatory quality dimension that 'includes measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development'.[38] The variation we seek to explain is that in the perceptions of well-placed business elites (to whom the underlying surveys were administered, from which the dimensions are constructed) on the openness of the local economy to investments and market operations by private business operations. We recognize the uncertainty inherent in these ratings,[39] but one advantage over competing measures is the possibility of weighting observations to account for this uncertainty. Likewise, we are aware that numerous emerging economies are known for their good governance, such as Botswana, Chile or Slovenia. In fact, between 2000 and 2002, states exhibiting large positive changes in regulatory quality include El Salvador, Cameroon, Zambia, Bangladesh and Argentina; those with large negative changes include Afghanistan, Belarus, Iraq, Moldova, Russia and Zaire. Another advantage is that this measure has been found to correlate highly with an objective measure for regulatory quality (regulation of entry provisions).[40] Our main task is to explain variation in the subjective measures. The individual components of the dependent variable are described in detail in the Appendix.

Whilst other measures of regulatory independence are available, we choose one that emphasizes sample coverage at the expense of covering a broad range of types of regulation.

[38] Kaufmann, Kraay and Mastruzzi, 'Governance Matters III'.
[39] Kaufmann, Kraay and Mastruzzi, 'Governance Matters III'.
[40] Kaufmann, Kraay and Mastruzzi, 'Governance Matters III'.

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TABLE 2 *The Eighty-Nine Included Countries*

Albania	Ghana[a]	Pakistan
Argentina	Guatemala[a]	Panama[a]
Armenia[a]	Guinea	Papua New Guinea[a]
Australia	Guyana[b]	Peru[a]
Austria	Haiti[c]	Philippines
Bangladesh[a]	Honduras	Poland
Belarus[b]	Hungary	Portugal
Belgium	India[a]	Rwanda[j]
Benin[a]	Indonesia	Senegal[a]
Bolivia[a]	Ireland	Sierra Leone[a]
Botswana	Israel	Singapore
Brazil[a]	Italy	Solomon Islands[k]
Bulgaria	Japan	South Africa
Burundi[c]	Jordan[a]	South Korea
Cameroon[a]	Kuwait[a]	Spain
Canada	Lesotho[a]	Sri Lanka[a]
Central African Republic[a]	Lithuania[h]	Sudan[a]
Chile	Madagascar	Sweden
Colombia[d]	Malawi	Switzerland
Costa Rica[e]	Malaysia[a]	Syria[a]
Cuba[f]	Mali[i]	Tanzania[l]
Denmark	Mexico	Thailand[a]
Dominican Republic[a]	Mongolia[a]	Togo
Egypt[a]	Morocco[a]	Tunisia
El Salvador[a]	Mozambique[a]	United Kingdom
Ethiopia[g]	Nepal[a]	United States
Finland	Netherlands	Uruguay
France	New Zealand	Venezuela
Gabon	Nicaragua	Zimbabwe[a]
Germany	Norway	

Notes: Data relate to all 89 countries for the years 1996, 1998, 2000, 2002, 2003 and 2004 except: [a]not 2004, [b]2000 only, [c]1996, 1998 and 2000 only, [d]1996, 2000 and 2002 only, [e]1998 and 2000 only, [f]1996, 1998, 2002 and 2003 only, [g]1996, 1998 and 2003 only, [h]2000, 2002 and 2004 only, [i]1996 and 2004 only, [j]1998 and 2003 only, [k]not 2003 or 2004, [l]not 2002 or 2004.

We employ the Wallsten records for the year in which a country established a separate (independent) regulator for the policy arena of telecommunications, as recorded by the International Telecommunications Union.[41] The liberalization of telecommunications markets is a highly visible and important area in which independent regulatory bodies have come to play an extremely important role.[42] For example, the Office of Telecommunications (Oftel, now Ofcom) was set up as an independent regulator when the Thatcher government decided to sell off 51 per cent of British Telecom to the

[41] Scott Wallsten, 'Does Sequencing Matter? Regulation and Privatization in Telecommunications Reforms, Volume 1', World Bank Working Paper, WPS 2817, 2002.

[42] Cf. Andrew Davies, *Telecommunications and Politics: The Decentralised Alternative* (London: Pinter, 1994); Levy and Spiller, 'A Framework for Resolving the Regulatory Problem'; David E. M. Sappington and Dennis L. Weisman, *Designing Incentive Regulation for the Telecommunications Industry* (Washington, D.C.: AEI Press, 1996); Jean-Jacques Laffont and Jean Tirole, *Competition in Telecommunications* (Cambridge, Mass.: MIT Press, 2000); Paul de Bijl and Martin Peitz, *Regulation and Entry into Telecommunications Markets* (Cambridge: Cambridge University Press, 2002).

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private sector.[43] The opening of telecommunications markets requires that a new entrant lease or otherwise obtain a share of capacity on the existing telecommunications infrastructure. But at the outset, this infrastructure is controlled by the incumbent service provider or by the government, making the need particularly acute for an independent regulator placed at arm's length from both the government and the incumbent provider.

Focusing on telecommunications undoubtedly limits the inferences we can make about the policy independence in which states can engage, but also has three distinct advantages. First, as noted, telecommunications and utility regulation is a constant and present concern in academic and policy circles, as well as among economic elites, and is a useful proxy for summarizing state-level interest in establishing credible commitments. In short, the development of an independent telecommunications regulatory authority is likely to be noticed by business elites as a signal of higher quality national regulatory environments.[44] By focusing only on telecommunications, we make it less likely that we will find a significant effect of independence. Moreover, the importance of this area makes it a bellwether for perceptions generally. Secondly, this 'summary statistic' for regulatory independence changes over the 'lives' of the countries included in the six strobes: that is, the presence of independence shifts over time in our data. The adoption of independent regulators by nations during the time span of our data helps to identify the essence of the effect defined by Hypothesis 1. Thirdly, our measure is available for a very large cross-section of cases (197 countries) relative to other, competing measures,[45] which is useful since our goals are to maximize comparable combinations of commitment devices in the form of interactions and to limit the loss of observations due to missing covariate information.

We measure presidential versus parliamentary systems by categorizing a system as either parliamentary or weak presidential (=1, strong presidential systems comprise the reference category) if it features legislatures and chief executives that are elected independently of one another and whose powers are distinguished by clear executive and legislative roles; in weak presidential systems the president is elected by the assembly.[46] Checks and balances may exist between the branches of government, but the leadership in the legislature does not compete with the president in terms of executive authority.[47] Our measure for PR is whether a state uses proportional representation to elect all or a portion of its legislators (if either chamber of the legislature is elected based on the percentage of votes received by their party).[48] Our measure of whether a system is federal describes the degree to which state/provincial governments are locally elected: if neither the local executive nor the local legislature is directly elected by the population they govern (=0); if either is directly elected and the other is indirectly elected (=1); or if both local executive

[43] Leonard Waverman and Esen Sirel, 'European Telecommunications Markets on the Verge of Full Liberalization', *Journal of Economic Perspectives*, 11 (1997), 113–26, p. 118.

[44] A search of Lexis-Nexis during the period of our dataset (1996–2004) uncovers seventy-six articles on independent telecommunications regulators in the *Financial Times* alone.

[45] See Geoff Edwards and Leonard Waverman, 'The Effects of Public Ownership and Regulatory Independence on Regulatory Outcomes: A Study of Interconnect Rates in EU Telecommunications', Working paper (London Business School, 2004).

[46] Thorsten Beck, George Clarke, Alberto Groff, Philip Keefer and Patrick Walsh, 'New Tools in Comparative Political Economy: The Database of Political Institutions', *World Bank Economic Review*, 15 (2001), 165–76.

[47] Beck, Clarke, Groff, Keefer and Walsh, 'New Tools in Comparative Political Economy'.

[48] Beck, Clarke, Groff, Keefer and Walsh, 'New Tools in Comparative Political Economy'.

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and legislature are directly elected (=2).[49] Our measure of democratization comes from Gurr *et al*.[50] The Polity variable is assigned to each country based on the level of democracy versus autocracy within its political system. Scores range from −10 (most autocratic) to +10 (most democratic); we rescale this to range from 0 to 20, and include both the measure and its square. Missing data on these dimensions (especially our measure of federalism) make our sample sizes for the statistical analysis smaller than the samples for the dependent variable alone.

Our measure of colonial origins is an indicator variable for English origins. This measure helps to capture legal attributes such as judicial and legislative precedent, rights to private property and the general rights of the individual relative to the state[51] that impact economic performance.[52] Likewise we account for economic development by including the natural log of each country's per capita Gross Domestic Product for each year (in 2000 dollars and adjusted for purchasing power parity) from the World Bank's *World Tables*, *2003* and a quadratic term. We also include a dummy variable for each year in the sample to control for any unobserved phenomena imparting a temporal bias to our model.

ESTIMATION AND RESULTS

In order to understand the impact of having independent regulators on elite perceptions, we must account statistically, as does our theoretical story, for countries that do not randomly adopt regulatory independence. In quasi-experimental terms, countries are not randomly assigned to the treatment condition of having independent regulators. To account for this, we estimate the empirical model via a treatment effects regression using data for the countries listed in Table 2. The treatment effects model jointly estimates the effect of a binary treatment on a continuous variable given two sets of independent variables when observations are not randomly assigned to the treatment. The binary treatment indicates the assignment of the treatment or not; in this case, the treatment is the presence or absence of an independent regulator (as measured above). One set of independent variables affects the latent variable that underlies the assignment of the treatment effect; the second set affects the outcome equation of the perceptions of regulatory quality. The treatment and outcome equations are estimated jointly by maximum likelihood.[53]

We construct analytic weights using the inverse of the number of survey items used to construct each estimate of perceived regulatory quality in each country (attached to each measurement of the dependent variable). Ignoring this level of uncertainty would bias estimates based on varying levels of information. Each observation of the dependent variable is a summary of a collection of measurements gathered across individuals, across survey instruments, and across question wordings. The World Bank provides the standard error of each estimate, and our previously described analytic weights are appropriate in weighted regression when the outcome measurement is a

[49] Beck, Clarke, Groff, Keefer and Walsh, 'New Tools in Comparative Political Economy'.

[50] Ted Robert Gurr, Monty Marshall and Keith Jaggers, *Polity IV Project: Political Regime Characteristics and Transitions, 1800–2003*, 2003 (available online at http://www.cidcm.umd.edu/inscr/polity/).

[51] Beck, Clarke, Groff, Keefer and Walsh, 'New Tools in Comparative Political Economy'.

[52] Acemoglu, Johnson and Robinson, 'The Colonial Origins of Comparative Development'; Acemoglu, Johnson and Robinson, 'Institutions as the Fundamental Cause of Long-Run Growth'.

[53] George S. Maddala, *Limited-dependent and Qualitative Variables in Econometrics* (Cambridge: Cambridge University Press, 1983), pp. 117–22; William H. Greene, *Econometric Analysis*, 5th edn (Upper Saddle River, N.J.: Prentice-Hall, 2003), pp. 787–9.

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TABLE 3 *Treatment Regression Model of Perceptions of Regulatory Quality*

Equation	Coefficient	SE
Outcome Equation		
Independent Regulator	0.961***	0.155
Federalism	−0.013	0.055
English Origins	−0.052	0.095
Ln GDP	−2.069***	0.779
Ln GDP – quadratic	0.158***	0.045
1998	−0.122***	0.043
2000	−0.151***	0.044
2002	−0.195***	0.051
2003	−0.206***	0.068
2004	−0.157***	0.066
Constant	5.585*	3.307
Treatment Equation		
Polity	0.258***	0.095
Polity – quadratic	−0.008**	0.004
Ln Checks	0.098	0.368
Proportional Representation	−0.108	0.201
System: Weak Presidential	−0.281	0.355
System: Parliamentary	−0.014	0.186
Constant	−1.694***	0.546
ρ	−0.847	0.058
σ	0.606	0.078
λ	−0.514	0.097
Wald χ^2 Test of Independent Equations	37.08***	
N	460	
Number of clusters	89	
Wald χ^2	380.74***	
Log pseudolikelihood	−571.62	

*$p > 0.10$ (two-tailed test); **$p > 0.05$ (two-tailed test); ***$p > 0.01$ (two-tailed test).

summary statistic.[54] The model includes institutional variables, control variables and a fixed effect for each year, and employs heteroscedasticity-robust standard errors clustered by country identifier.

Table 3 presents our results. The logic of credible delegation in the Rogoff[55] and Spulber and Besanko[56] models suggests that politicians in democratic systems face the incentive to manipulate policy in ways counter to the long-term interests of investors. Knowing this, politicians have the incentive to make credible policy commitments by delegating to independent regulators with an eye towards addressing investors' concerns about their motivations. This expectation (Hypothesis 1) finds direct support in the model. As Table 3 shows, the impact of having an independent regulator on elite perceptions is larger than a one-standard deviation shift in the dependent variable. Figure 1 shows an empirical curvilinear relationship between GDP and elite perceptions of regulatory quality – that perceptions increase in GDP at an increasing rate (the quadratic term for GDP is also significant in Table 3) – but that the impact of having an independent regulator is to shift

[54] Greene, *Econometric Analysis*, 4th edn (1999), p. 512.
[55] Rogoff, 'The Optimal Degree of Commitment to an Intermediate Monetary Target'.
[56] Spulber and Besanko, 'Delegation, Commitment, and the Regulatory Mandate'.

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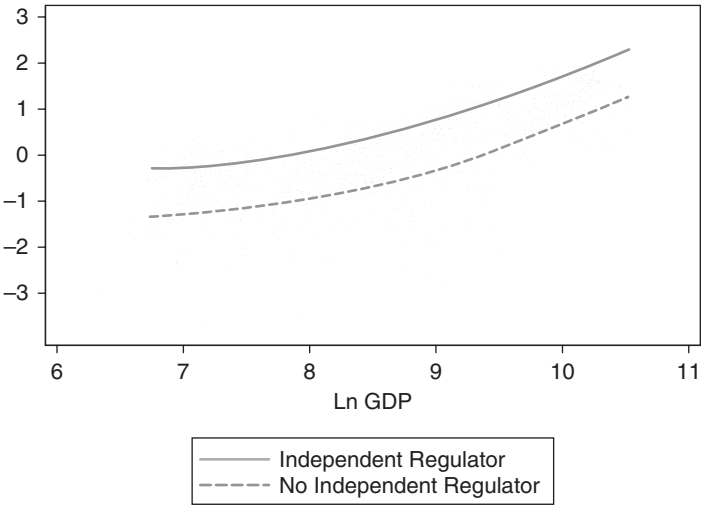


Fig. 1. Effect of having an independent regulator on perceptions of regulatory quality

the curve upwards. Indeed, the lowest average level of elite perceptions given regulatory independence (when the natural logarithm of GDP is around 7) is higher than the average level of elite perceptions in systems without regulatory independence when the natural logarithm of GDP is two standard deviations higher (around 9). Table 3 and Figure 1 show numerically and graphically that those systems where regulators are independent experience significantly higher elite perceptions of regulatory quality.

This is not to say that independent regulators are the only sources of such perceptions. Clearly, we observe higher quality perceptions when nation-states have large, wealthy economies as measured by GDP. It is unclear which direction causation runs, so we may not claim that high GDP causes those perceptions. In a related vein, we find no direct effects of either federalism or English origins, which calls into question the connection between those mechanisms (for policy credibility and for supporting economic growth) and elite perceptions of regulatory quality. Some evidence exists that elite perceptions of regulatory quality fall over time, but the adoption of independent regulators over time may represent an attempt to mitigate the impact of those trends.

What explains the non-random assignment of countries to the treatment of having independent regulators? Which countries adopt independent regulators? The lower half of Table 3 shows evidence that we can reject the null hypothesis that democratization does not increase the likelihood of having an independent regulator. Figure 2 shows our estimated curvilinear relationship between democratization and the likelihood of having an independent regulator, with the probability increasing from roughly 0.1 in the most autocratic countries to around 0.7 in the most democratic ones. However, Figure 2 also shows our estimated quadratic relationship – that there are diminishing returns to democratization. Unlike the relationship between democratization and corruption in Montinola and Jackman,[57] we observe no diminishing returns at the highest levels. Our results suggest that moderately democratic nations are most at risk (in need) of adopting an independent regulator. One implication of this finding is that, generally, the

[57] Montinola and Robert Jackman, 'Sources of Corruption: A Cross-Country Study'.

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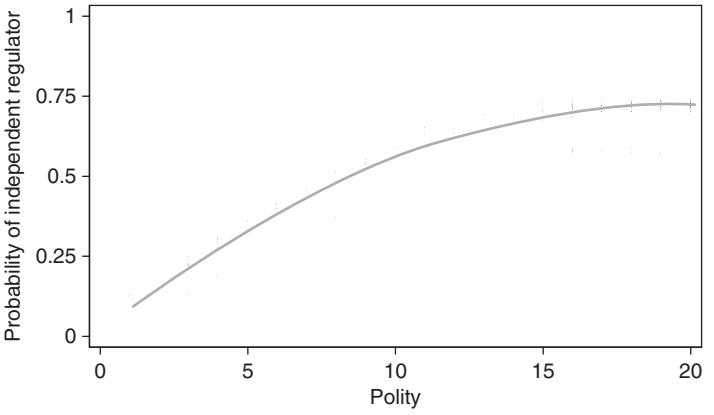


Fig. 2. Effect of democratization on having an independent regulator
Note: Quadratic fit.

mechanism of regulatory independence in the competition for elite perceptions and thus capital depends on the incentives of actors in a political system, and thus their ability (or inability) to credibly commit to the long-term protection of capital. Table 3 shows no evidence that the specific form of the system (strong or weak presidential, parliamentary, SMP or PR, or the overall number of checks) is the mechanism underpinning the choice to adopt regulatory independence.

What little wiggle room there is for regulatory policy designers is found in non-constitutional mechanisms such as the use of the independent regulator. But this result holds only in the case of presidential systems. The data provide no evidence of an added effect of regulatory independence on perceptions of regulatory quality in the case of proportional representation electoral systems.

CONCLUSION

Our empirical results suggest independent regulators substantially improve perceptions of national regulatory quality by business elites. We also show evidence that the likelihood of adopting an independent regulator increases with democratization to a point. Perceptions of quality governmental institutions are a key ingredient in attracting capital to a country. Nations with high levels of democratization have various other advantages in securing international capital flows, and their governments do not need the additional advantage of independent regulation. Yet emerging democracies can substantially increase perceived regulatory quality by creating an arms-length regulator, and they are more likely to do so.

Our results also suggest strikingly that constitutional design, specifically electoral and political institutions within nations, exerts no additional effect on perceptions of regulatory quality. Once the size of the economy and regulatory independence are considered, factors such as federalism, veto points, presidentialism, parliamentarism, electoral mechanisms and the legal system exert no additional effects on perceived regulatory quality.

The intuition behind this finding may simply lie in the nature of regulation as a constraint on business activity. Established business benefits from regulatory capture, whilst new business cannot take hold in its presence. Credible commitment to end capture through independent regulation invites new investment because national markets are now

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fertile for business success. This matters because, for many people, a key indicator of the performance of a government is its ability to provide services to citizens, and governments that sustain healthy climates for investment are usually better able to provide those services. This article shows evidence that governments that are more democratic are more likely to adopt independent regulators, and that regulatory independence supports a health investment climate. More broadly, though, our study demonstrates the link between democratization and the choice of governments to engage in vertical separation of powers, a topic that to date has garnered little academic interest. Vertical separation seems to be one mechanism that supports a social environment where economies flourish. Our research provides ample rationale for future studies of the micro-mechanisms that link democratization and growth. If we observe this mechanism in the case of regulatory independence, others are likely to exist as well.

APPENDIX

This appendix first describes the construction of the dependent variable: a measure of perceptions about the quality of a country's regulatory regime. The measure comes from the World Bank's Governance Matters data collection. This collection includes six attributes of governance (Voice and Accountability, Political Stability and Lack of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption) in almost 200 countries.[58] The World Bank has constructed these 'benchmarks' to help illuminate core themes the Bank thinks contribute to economic growth. In general, the variables measuring these attributes are constructed by estimating a measurement model that summarizes twenty-five separate data sources at eighteen different organizations. As noted above, we employ measures from 1996, 1998, 2000, 2002, 2003 and 2004.

Table A1 presents the components and sources used for constructing the measures in any given year. The number of sources subsumed in the measure varies by country. This variability in the number of components available for a given year and a given source is why our models are estimated with analytic weights that account for the amount of information used to construct the point estimate of the dependent variable for a given observation. Table A1 indicates the range of regulation covered by these components and used for constructing the dependent variable. The components indicate that the Governance Matters variable for regulatory quality is an aggregate of perceptions across the regulation of competition, capital movement, factor and final product prices, financial services, taxes and more general questions on regulatory climate. We recognize that these components touch on new social regulation like environmental and occupational safety and health regulation only obliquely through questions on the ease of starting new businesses, and so forth.

The individual indices, collected by the sources listed in Table A1 in the years noted, are aggregated into a scale indicating the respondents' views of the degree of regulatory quality present in a country in a given year. That scale is constructed by the use of an unobserved components model related to the family of item response models now widely used in political science.[59] Essentially, the model used by the World Bank starts with the observed data in each cluster and then expresses it as a linear function of the unobserved common component of regulatory quality and an error term that represents perception errors and/or sampling variation.

[58] These data are available at http://www.worldbank.org/wbi/governance/pubs/govmatters5.html. See Kaufmann, Kraay and Mastruzzi, 'Governance Matters III', for full details.

[59] Daniel Kaufmann, Aart Kraay and Pablo Zoido, 'Governance Matters', World Bank Policy Research Working Paper No. 2196, 1999.

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TABLE A1 *Concepts Contained in Perceived Regulatory Quality Dependent Variable*

Source	Concept measured	Years*
African Development Bank	Trade policy	2000–05
	Competitive environment	2000–05
	Labour market policies	2000–05
Asian Development Bank	Trade policy	2000–05
	Competitive environment	2000–05
	Factor and products markets	2000–04
Bertelsmann Transformation Index	Price stability	2004–05
	Competition	2004–05
	Competitive environment	1996, 1998, 2000
Business Environment and Enterprise Performance Survey	Information on the laws and regulations is easy to obtain	2002–05
	Interpretations of the laws and regulations are consistent and predictable	2002–05
	Unpredictability of changes of regulations	2002–05
	How problematic are labour regulations for the growth of your business?	2002–05
	How problematic are tax regulations for the growth of your business?	2002–05
	How problematic are custom and trade regulations for the growth of your business?	2002–05
Country Policy and Institutional Assessment	Factor and products markets	1996, 1998, 2000–03
	Competitive environment	1996, 1998, 2000–05
	Trade policy	1996, 1998, 2000–05
Economist Intelligence Unit	Unfair competitive practices	1996, 2002–05
	Price controls	1996, 2002–05
	Discriminatory tariffs	1996, 2002–05
	Excessive protections	1996, 2002–05
	Discriminatory taxes	1996, 2002–05
European Bank for Reconstruction & Development	Price liberalization	1996, 1998, 2000–05
	Trade & foreign exchange system	1996, 1998, 2000–05
	Competition policy	1996, 1998, 2000–05

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TABLE A1 *(Continued)*

	Commercial law extensiveness	1998, 2000–02
	Commercial law effectiveness	1998, 2000–02
	Financial regulations: extensiveness	1998, 2000–02
	Financial regulations: effectiveness	1998, 2000–02
Global Insight's DRI/McGraw-Hill	Policies non-tax: regulations – exports	1996, 1998, 2000–05
	Policies non-tax: regulations – imports	1996, 1998, 2000–05
	Policies non-tax: regulations – other business	1996, 1998, 2000–05
	Policies non-tax: ownership of business by non-residents	1996, 1998, 2000–05
	Policies non-tax: ownership of equities by non-residents	1996, 1998, 2000–05
Global Insight's Business Conditions and Risk Indicators	Tax effectiveness	2002–05
	Legislation	2002–05
Heritage Foundation/Wall Street Journal	Regulation	1996, 1998, 2000–05
	Government intervention	1996, 1998, 2000–05
	Wages/Prices	1996, 1998, 2000–05
	Trade	1996, 1998, 2000–05
	Foreign investment	1996, 1998, 2000–05
	Banking	1996, 1998, 2000–05
Institute for Management Development	The exchange rate policy of your country hinders the competitiveness of firms.	2002–05
	Protectionism in the country negatively affects the conduct of business.	1998, 2000, 2002–05
	Competition legislation in your country does not prevent unfair competition.	1996, 1998, 2000, 2002–05
	Price controls affect pricing of products in most industries.	1996, 1998, 2000, 2002–05
	Legal regulation of financial institutions is inadequate for financial stability.	1996, 1998, 2000, 2002–04
	Foreign financial institutions do not have access to the domestic market.	1996, 1998, 2000, 2002–03
	Access to capital markets (foreign and domestic) is easily available.	2002–05

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TABLE A1 *(Continued)*

Source	Concept measured	Years*
	Ease of doing business is not a competitive advantage for your country.	2002–05
	Financial institutions' transparency is not widely developed in your country.	2002–2005
	Customs' authorities do not facilitate the efficient transit of goods.	1998, 2000, 2002–05
	The legal framework is detrimental to your country's competitiveness.	1998, 2000, 2002–05
	Foreign investors are free to acquire control in domestic companies.	1998, 2000, 2002–05
	Public sector contracts are sufficiently open to foreign bidders.	1998, 2000, 2002–05
	Real personal taxes are non-distortionary.	1996, 1998, 2000, 2002–05
	Real corporate taxes are non-distortionary.	1996, 1998, 2000, 2002–05
	Banking regulation does not hinder competitiveness.	1996, 1998, 2000, 2002–05
	Political system as obstacle to development.	2002–05
	Labour regulations hinder business activities.	1998, 2000
	New legislation restricts competitiveness.	2004
	Subsidies impair economic development.	2004–05
	Ease to start a business.	2004–05
Merchant International Group	Unfair trade	2002–05
	Unfair competition	2002–05
Political Risk Services	Investment profile	1996, 1998, 2000, 2002–05
PriceWaterhouseCoopers	Regulation	2000
World Business Enterprise Survey	Regulations on starting new businesses	1998, 2000
	Price controls	1998, 2000
	Regulations on foreign trade	1998, 2000
	Foreign currency regulations	1998, 2000
	General uncertainty about regulations	1998, 2000

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TABLE A1 *(Continued)*

World Economic Forum – Global Competitiveness Survey and African Competitiveness Survey (GCSA)	Administrative regulations are burdensome	1996, 1998, 2000
	Tax system is distortionary	1996, 1998, 2000, 2002–2005
	Import barriers as obstacle to growth	1996, 1998, 2002–05
	Competition in local market is limited	1998, 2002–05
	It is easy to start company	1998, 2002–04
	Anti monopoly policy is lax and ineffective	1996, 1998, 2002–05
	Cost of tariffs imposed on business	1996, 1998, 2002–04
	Government subsidies keep uncompetitive industries alive artificially	1996, 2002–03
	Domestic banks are protected from foreign competition	1998
	Barriers to entry in banking sector are very high	1998
	Interest rates are heavily regulated	1998
	Private sector participation in infrastructure projects is not permitted	1998
	Costs of uncertain rules, laws, or government policies (GCSA)	1998
	Transfer costs associated with exporting capital as an obstacle to business (GCSA)	1998
	General uncertainty on costs of regulations as an obstacle to business (GCSA)	1998
	Openness of public sector contracts to foreign investors (GCSA)	1998
	Policies for dividend remittances as obstacles to development (GCSA)	1998
	Dominance of state owned or state controlled enterprise (GCSA)	1998
	State interference in private business (GCSA)	1998
	Regulatory discretionality (GCSA)	1998
	Price controls as an obstacle to business develpoment (GCSA)	1998
	Regulations on foreign trade as an obstacle to business develpoment (GCSA)	1998
	Foreign currency regulations as an obstacle to business develpoment (GCSA)	1998

*Covariate data missing for 2005.