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# Property Rights, Democracy and Economic Growth

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In attempting to identify institutional factors that influence a nation's per capita growth rate, scholarship in political science has focused almost exclusively on differences in political regimes. This article argues that if we are interested in understanding why some nations grow faster than others, then we must redirect our inquiry and focus on property rights. Using new measures for property rights protection and democracy, and building on an endogenous growth model, this study presents the first approximation of the relationship between property rights, democracy, and economic growth. These relationships are tested using cross-national panel data from 1960–90. The evidence supports two conclusions: (1) economies of nations that protect property rights grow more rapidly than those of nations that do not protect property rights; and (2) the nature of a political regime influences economic growth indirectly through its commitment to property rights.

Between 1960 and 1990, per capita gross domestic product for the nations of the world grew at an average rate of 2.3 percent. Uganda's economy grew most slowly, actually contracting by 4.3 percent; Singapore grew the fastest, a remarkable 9.3 percent. These examples obviously represent the extremes; however, even if we compare two nations that appear somewhat similar—for example Argentina and Brazil—the conclusion is the same. During this time period, Argentina grew at 0.56 percent and Brazil at 3.32 percent. Finally, if we select countries based on their growth rates, nations that have similar growth rates can be very different. Two nations close to the worldwide mean of 2 percent are Algeria (2.11 percent) and the United States (2.10 percent).

How can we best explain these differences? What role do political institutions play in the process of economic development? These questions have occupied social scientists for decades. Nevertheless, an examination of the

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empirical evidence reveals no clear answer, only confusion. In their recent review of 21 quantitative studies investigating the relationship between regime type and economic growth, Przeworski and Limongi explain that “eight [studies] found in favor of democracy, eight in favor of authoritarianism, and five discovered no difference.” They lament that “social scientists know surprising little”; they know that “political institutions do matter for growth, but thinking in terms of regimes does not seem to capture the relevant differences” (1993: 51). Such a conclusion surely sobers those of us interested in piecing together the empirical puzzle outlined above. It proves a little more than disheartening if we view political science as a cumulative enterprise.

This study argues that the outlook is not so bleak. Previous studies have undoubtedly made significant contributions to our understanding of the growth process. However, the conclusions and implications of this research appear somewhat obscure due to problems of theoretical and empirical specification. To put it bluntly, in attempting to isolate political prerequisites for economic growth we have focused on the wrong institutions. The literature has generally concentrated on whether a democratic or authoritarian regime governs a given country. Most studies have examined regime type to the exclusion of other institutions that allocate and enforce property rights, a central factor in the process of economic growth. Interestingly, as we will demonstrate below, a far from perfect relationship exists between a regime’s protection of political freedom and its support for private property rights. As a result, it would seem appropriate to determine which institutions play a more significant role in the growth process.

The following section explores the relationship between property rights and economic growth, and discusses the variables and data used to operationalize property rights and democracy. Section three introduces an endogenous growth model that serves as the foundation upon which we add these institutional variables. We evaluate the relative significance of democracy and property rights across approximately fifty countries over three decades. The panel evidence supports the argument that property rights have a positive and significant effect on economic growth. Further, once we take account of property rights, the direct effect of a nation’s regime type in the growth process becomes insignificant. This should not suggest, however, that democracy proves irrelevant or, as some would suggest, destructive, in the process of economic development. Section four investigates the relationship between democracy and property rights and finds, not surprisingly, that democratic nations tend to protect private property rights to a greater extent than non-democracies. Section five presents conclusions and discusses avenues for future research.

## PROPERTY RIGHTS: THEORY AND MEASUREMENT

### *Property Rights and Economic Growth: The Argument*

To say that an individual has a property right over something simply means—in a legal and practical sense—that an individual can say that a thing belongs to him and others will act accordingly. More specifically, we say that an individual has a property right over something if he has the right to control that property, consume that property, and alienate (sell) that property. An individual has a property right over an orange, for example, if he can consume or sell it. We can argue simply enough that property rights must precede economic growth, since private property rights provide the incentive required for production and exchange. They help to stabilize individual expectations about the behavior of others. Though intuitively plausible, these arguments require elaboration.

We begin with the simple question: Why must the establishment of efficient property rights precede growth? Explicitly defined and enforced property rights considerably diminish transaction costs. If no established or institutionalized property rights over assets exist, societies would have no mechanism capable of constraining an individual's actions. Incentives to engage in production rather than in leisure activity depend upon a degree of certainty that the individual will be able to profit from “the fruit of her labor.” Property rights also provide the individual with some degree of security. They serve to stabilize expectations regarding the behavior of others.

In essence, property rights help to define individual incentives. They serve to decrease the shadow of the future and the risks associated with it by providing a stable environment within which exchange can occur. A market environment requires property rights because individuals have “the propensity to truck, barter, and exchange one thing for another” (Smith 1937: 13). If “two or more persons exchange goods with each other, then the result for each one will depend in general not merely upon his own actions but on those of the other as well” (von Neumann and Morgenstern 1953: 11). Since preferences are not uniform across individuals, market failure can result from any number of causes including asymmetries of information, incentives to shirk and cheat, and motives for free-riding (see Olson 1965; Alchain and Demsetz 1972; North 1981; and Williamson 1975). Property rights help to mitigate these risks by providing institutional constraints and by clarifying the parameters of exchange. They solve the problem of cooperation without changing the individual's preferences over outcomes; rather, they change the individual's expectations about the actions of others (Taylor 1987).

Institutionalized property rights help to resolve three distinct yet interrelated problems within a market: measurement of assets, monitoring of activity, and enforcement of agreements. The extent to which markets can tackle these determines how efficiently factor inputs will be converted into outputs. Property rights become essential because they structure the environment within which exchange is repeated, information is collected, and incentives are delineated. In this context, the costs of transacting and the institutional arrangements designed to minimize them, furnish the key to understanding economic growth.<sup>1</sup> Thus, we should expect that a significant difference in economic growth rates should exist between those nations that protect property rights and those that do not.

How does this change existing theories about economic growth? The simplest story of economic production assumes away the problem. The environment within which individuals engage in economic exchange, according to neoclassical general equilibrium models, is characterized by well-defined property rights, perfect information, and frictionless exchange, i.e., zero transaction costs. In this "classical environment," individual and social returns become indistinguishable; individual maximization, due to the aggregating function of the market, leads to net improvements in social welfare. As a result of these assumptions, the two classic optimality theorems of welfare economics become attainable within a market.<sup>2</sup> These paired assumptions contain a truly powerful implication. Alternative institutional arrangements for the allocation of scarce resources not only become irrelevant and unnecessary, but frivolous and wasteful as well. In the classical environment, where actors have perfectly defined property rights, face no transaction costs, and enjoy costless enforcement, institutions become unnecessary. Given these assumptions, differences in political institutions or political regimes approach irrelevance.<sup>3</sup>

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<sup>1</sup> The literature on the economics of institutions has examined the reasons for the emergence of firms, rather than markets in certain production activities. This literature begins with Coase's work (1937) and has been extended by Alchain and Demsetz (1972), Jensen and Meckling (1976), Williamson (1975), and others. According to this view, firms are developed as a means of reducing transaction and information costs in the process of production.

<sup>2</sup> See Baumol (1952). The results are first, given perfect competition, the allocation of resources within the market is Pareto-optimal. That is, perfect competition will cause prices to adjust rapidly enough to clear all markets. The implication is that, given a level of production technology, a producer cannot increase his profits at the present equilibrium price, the consumer cannot improve his welfare given his budget constraint, and that there is balance between the supply and demand of factors and commodities. The second theorem says that associated with any technically feasible Pareto-optimum is a set of prices that will sustain it as a competitive equilibrium so long as there are free markets and an appropriate pattern of factor ownership.

<sup>3</sup> It is difficult to improve on the words of Douglass North (1981: 5): "From the view-

Within this pristine environment we have all the factors necessary for economic growth. Neoclassical models of economic growth rely primarily upon capital deepening (an increasing capital-labor ratio) and exogenous technological change. Given the assumption that there are identical commodities and stable preferences across consumers, poorer countries should grow faster than richer countries since poorer nations have lower capital-labor ratios and thus have higher marginal products of capital. The ability of poorer countries to “catch-up” with richer countries improves with the prevalence of mobile technology.<sup>4</sup> These models, then, anticipate that growth rates across countries will converge because reproducible capital has diminishing returns to scale.

These theoretical expectations are not consistent with the empirical evidence. As a prominent advocate of endogenous growth theory put it, the neoclassical theory of growth does not explain either the “failure of low-income countries to catch up with high-income countries [or] the fact that returns to capital do not seem to vary with capital per worker by as much as theory would suggest” (Romer 1987: 163). Given that endogenous growth theory has gone a long way toward improving growth theory, why introduce institutions into this environment? Douglass North (1990: 133–34) provides an answer:

[R]ecent neoclassical models of growth built around increasing returns (Romer 1986) and physical and human capital accumulation (Lucas 1988) crucially depend upon the existence of an implicit incentive structure that drives the models. . . . To attempt to account for the diverse historical experience of economies or the current differential performance of advanced, centrally planned and less-developed economies without making the incentive structure derived from institutions an essential ingredient appears to me to be a sterile exercise.

We might proceed, then, by looking at differences in growth rates between those nations that protect property rights and those that do not. As indicated earlier, political science literature has not done this. Studies have focused on differences in growth rates between democratic and authoritarian regimes. The literature draws on a wide variety of theoretical, ideological, and empirical observations and arguments. Some feel that democracies should or do grow

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point of the economic historian this neoclassical formulation appears to beg all of the interesting questions. The world with which it is concerned is a frictionless one in which institutions do not exist and all change occurs through perfectly operating markets. In short, the costs of acquiring information, uncertainty, and transaction costs do not exist.”

<sup>4</sup> This technology-as-public good argument presupposes that all nations are equally capable of adopting technological innovations. A natural extension of the argument we make in this study is to suggest that technological innovation and adoption requires an appropriate structure of property rights.

faster than authoritarian regimes, while others argue that authoritarian governments better provide the environment for economic growth.<sup>5</sup>

We thus have two competing hypotheses: (1) growth rates differ according to regime type, and (2) nations that protect property rights grow faster than nations that do not protect property rights. Before testing these hypotheses, we must operationalize these variables.

### *Property Rights and Democracy: The Data*

One of the greatest challenges facing the current inquiry lies in the identification of data for operationalizing the independent variables of interest. Not only do we require measures that capture the essence of property rights and democracy, but we also want measures available over time and across countries. We begin by discussing the two variables used to operationalize property rights and then turn our attention to the democracy variable.

In their 1982 survey of freedoms around the world, Freedom House compiled cross-national data on economic and property freedoms.<sup>6</sup> Their classification of property rights rests on the idea that "property refers to (1) the means of production—land, labor, and capital; (2) personal possessions—incomes from the use of one's own labor and possessions attained through income and labor; and (3) intellectual property—one's thoughts, beliefs, ideas, and conscience" (Wright 1982: 55). Two problems preclude the use of this data set, however. First, Freedom House employs a dichotomous measure of property rights. That is, the data simply indicates whether or not a nation has the characteristic "property freedom." As such, this measure fails to provide useful information pertaining to the actual variance in property rights that exists across countries. Second, the data set is only available for a single point in time. This limits opportunities not only to explore the relationship between property rights and growth over time, but also to observe how changes in property rights affect changes in economic growth.<sup>7</sup> We will, however, use Freedom House's survey data to assess the validity of our chosen measures of property rights.

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<sup>5</sup> Some of these arguments are discussed in section 4. The interested reader should consult Przeworski and Limongi (1993), Whiteley and Muller (1992), and the sources cited therein.

<sup>6</sup> They indicate that most of the information for their classification is gathered from Amnesty International Reports, *The Europa Yearbook*, *The Encyclopedia of the Third World*, the Inter-American Press Association, and other regional and international journals.

<sup>7</sup> Using the Freedom House measure of property rights (Wright 1982) and the Summers and Heston (1991) data set for per-capita growth rates, the effect of property rights on economic growth over the 1960–85 time period is significant. Nations that protect property rights ( $n = 47$ ) grew at an average rate of 2.73 percent per year. Nations that

Absent cross-temporal survey data, we turn to two proxy variables to measure property rights. The first variable attempts to account for the extent to which the government regulates market transactions. The variable exchange controls indicate whether a government has imposed any type of control on current account transactions. While a number of ways exist for a government to restrict current account transactions, one of the most significant and pervasive means lies in the allocation of foreign exchange. We could think about a government collecting all the foreign exchange sold to it, funneling it into a central pool, and then distributing it according to various criteria. The alternative view depicts the supply of and demand for foreign exchange driven by market forces. The implementation of restrictions gives rise to a host of problems including multiple exchange rates for different products, price distortions, and the emergence of parallel markets for the purchase of foreign exchange. In markets where controls on current account transactions exist, individuals face limitations on the availability of foreign exchange and will likely encounter licensing fees, administrative measures, and other barriers to economic transactions (see Flickenschild et. al 1992). When controls are present private actors must factor the risk of credit rationing into their decisions. These conditions decrease certainty and inhibit productive exchange.

Data on exchange controls is available yearly from the IMF's *Exchange Arrangements and Exchange Restrictions Annual Report*. They define a dummy variable equal to one if a country has imposed controls on current account transactions and equal to zero otherwise.<sup>8</sup> How well does this measure compare with the explicit indicator of property rights defined by Freedom House? For a sample of fifty-four countries in 1982, the correlation between the Freedom House measure of property rights and the IMF's indicator of exchange controls is -.51 and is significant at the .0001 level.

The second proxy for property rights attempts to capture the extent to which resources are available for private sector activity. An unconstrained

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did not protect property rights ( $n = 58$ ) grew at an average rate of 1.36 percent per year. A difference of means test allows us to reject the null hypothesis of no difference at the .0001 level of significance ( $t = 4.41$ ).

<sup>8</sup> It should be noted that this variable is qualitatively and quantitatively different from measures commonly used to assess government intervention in the economy. Typically, scholars have used government consumption as a share of GDP ( $g^c/y$ ) to measure this idea. The qualitative difference is that the exchange controls variable indicates how the government shapes expectations and influences transactions costs within the market. A measure of government consumption would indicate whether or not government consumption has a distortionary effect on economic growth. Quantitatively, the correlation between ( $g^c/y$ ) and exchange controls over three decades for forty-nine countries is .28 with a p-value of .0008.



financial sector obviously indicates the government's commitment to protect private property rights. By unconstrained we mean that this sector does not simply funnel resources to state-run enterprises. We measure this variable as total credit allocated to private enterprises as a percentage of GDP.<sup>9</sup> The extent to which the private sector can solicit and obtain capital from the financial sector demonstrates the scope of and support for private enterprise. In addition, this measure sheds light on the relative importance of state-owned enterprises and the size of the public sector. The larger this ratio, the more likely that firms and investors can overcome problems of asymmetric information, moral hazard, and high transaction costs.<sup>10</sup> The correlation between revenue allocated to the private sector and Freedom House's measure of property rights for 1982 for one-hundred-one countries is .63 and is significant at the .0001 level.

What about the data for democracy? Many studies that use an indicator of political rights or regime type as an independent variable use the data on civil and political rights collected by R. Gastil (1990) for Freedom House and/or the measure of political democracy constructed by K. Bollen (1990).<sup>11</sup> The Freedom House measures are issued yearly, but only began publication in 1976. Bollen has only formulated indicators of political democracy for 1960, 1965, and 1980. Minimally, we would want to measure democracy in 1960, 1970, and 1980 so that we could explore variation across decades. The POLITY II data set constructed by Gurr (1990) allows us to undertake this exploration.<sup>12</sup>

According to Gurr, democracy or institutionalized democracy comprises four elements: (1) the competitiveness of political participation; (2) the competitiveness of executive recruitment; (3) the openness of executive recruitment; and (4) the existence of constraints on the chief executive. This measure of democracy is a ten-point scale with ten indicating that the polity is relatively the most democratic. How does this measure of democracy compare with the existing literature? Given the lack of time-series data for the other two indicators, the best way to answer this question lies in examining the relationship between the Bollen

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<sup>9</sup> Credit allocated to private enterprise is line 32d of the International Monetary Fund's *International Financial Statistics*, various years.

<sup>10</sup> The correlation between (g/y) and the percentage of total credit allocated to private enterprises is -0.16, but is statistically insignificant.

<sup>11</sup> See Gastil (1990), and Bollen (1990, 1993).

<sup>12</sup> As the description of the data set indicates, POLITY II was "designed to develop longitudinal indicators of political structures and regime change . . . and consists of annual codings of regimes' structural characteristics, institutional change, and the directionality of changes on underlying dimensions of democracy, autocracy, and power concentration."

and Gurr measures. In 1960, the correlation between these measures was .79 ( $n = 92$ ) and in 1980, the correlation was .94 ( $n = 104$ ). These correlations are significant at the .0001 level.

## PROPERTY RIGHTS AND ENDOGENOUS GROWTH

### *Endogenous Growth*

In this section we turn our attention to the specification of the economic portion of the model. An improper specification of the relationship between economic factors and growth will lead to spurious conclusions about the importance of either political regimes or property rights. Here one faces an incentive not only toward parsimony and consistency with the latest generation of economic growth theories, but also the desire to test the hypotheses on the largest sample of countries possible.<sup>13</sup>

In specifying the base-line model of economic growth, we begin by including the initial level of development: the country's "starting point." This captures the "convergence" hypothesis of neoclassical economics. As De Long (1988: 1138) put it:

Economists have always expected the "convergence" of national productivity levels. The theoretical logic behind this belief is quite powerful. The per capita income edge of the West is based on its application of the storehouse of industrial and administrative technology of the Industrial Revolution. This storehouse is open: modern technology is a public good. The benefits of tapping this storehouse are great, and so nations will strain every nerve to assimilate modern technology and their incomes will converge to those of industrial nations.

In order to employ this technology productively, a nation must have a sufficiently developed population. This notion lies at the heart of the endogenous growth literature exemplified by Barro (1990, 1991), Lucas (1988), and Romer (1986, 1990).<sup>14</sup> This literature breaks with neoclassical growth models which argue that reproducible capital has diminishing returns to scale. Endogenous growth theories assume that there are constant returns to a broad range of reproducible inputs, including human capital. Romer (1986), for example, has viewed human capital as the key to new technological developments which result in increasing social returns to knowledge. Expansion of human capital in terms of both education and learning-by-doing also plays a pivotal role in Lucas's (1988) examination of economic development. Barro's (1990) empirical model uses

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<sup>13</sup> A review of different models of economic growth that have been empirically tested on a cross-section of countries can be found in Levine and Renelt (1991).

<sup>14</sup> Ehrlich (1990) and Verspagen (1992) provide useful surveys of this literature.

school-enrollment rates as proxies for the initial level of human capital. This approach is consistent with both neoclassical theory and the expectations of the endogenous growth literature.

The baseline economic model, then, comprises variables specifying the initial level of real per capita gross domestic product and proxies for the initial level of human capital. Following Barro and Lee (1993), the model operationalizes human capital investment in terms of initial primary and secondary school attainment ratios.<sup>15</sup> Drawing on underlying census and survey information from UNESCO, the World Bank, and the United Nations, Barro and Lee conceive of human capital in terms of the years of completed schooling for persons aged 25 and over.<sup>16</sup> While school enrollment and literacy stand as the first steps to human capital formation, other aspects of human capital development significant to productivity include technical knowledge, analytical reasoning, and numeracy. These attributes of a population receive a more appropriate operationalization in this model because we focus on educational attainment.<sup>17</sup> Thus, the baseline economic model will include initial levels of wealth and human capital investment. Table 1 contains descriptive statistics for all the variables used in the multivariate analysis that follows.

### *The Evidence*

In order to make inferences regarding the relationship between political institutions and economic growth both across countries and over time we employ a pooled cross-sectional and time series design.<sup>18</sup> The dependent variable is a nation's average rate of per-capita economic growth for each decade during

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<sup>15</sup> In a recent paper Levine and Renelt (1992) demonstrate that the initial level of wealth and proxies for human capital investment are robustly correlated with economic growth; that is, their standard errors do not change significantly when other explanatory variables are included in the regression.

<sup>16</sup> Barro and Lee argue that measures of educational attainment are superior indicators of human capital investment because variables such as literacy and school enrollment ratios do not "measure accurately the stock of human capital that is available for current production. School enrollment ratios reflect current flows of education, and the accumulation of these flows will be one element in the stocks of human capital that will be available later" (1993: 354).

<sup>17</sup> The correlations between measures of educational attainment and school enrollment ratios at the primary and secondary school level are all significant and above .5.

<sup>18</sup> All equations were estimated with decade dummies to control for the presence of time specific effects. Standard errors were computed using White's procedure for estimating consistent standard errors in the presence of heteroskedastic residuals. In order to maximize the total number of observations available, we decided against throwing away observations, and were thus left with an unbalanced design; that is, one in which the number of cross-sectional units changes over time. This ruled out the application of more

**Table 1**

## DESCRIPTIVE STATISTICS

VARIABLE	OBS	MEAN	STD.DEV.	MIN	MAX
Per Capita Growth Rate	147	2.29	2.22	-4.29	9.31
Initial Level of Per Capita GDP	147	3789	2906.65	208	11404
Primary School Attainment	147	20.43	14.14	0	67.1
Secondary School Attainment	147	7.94	7.98	0.1	49.1
Exchange Control	147	0.48	0.44	0	1
Credit Allocated to Private Enterprise	147	0.29	0.20	0.012	0.95
Democracy	147	6.25	4.06	0	10

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the period 1960–90. A list of nations included in the analysis appears in Appendix 1. The results of this analysis are contained in Table 2. Equation 1 serves the baseline economic model based on endogenous growth theory. To begin with, the results of this model are consistent with the expectations derived from the conditional-convergence hypothesis: for a given level of human capital, richer nations grow more slowly than poorer nations. Holding the proxies for human capital constant, a country's starting level of GDP per capita has a significant negative effect on its subsequent rate of economic growth. The expectation of convergence owes to the belief that countries behind in their economic development (as measured by per capita income) will, due to diminishing returns to scale, grow faster than more developed countries.

We now turn to the proxies representing human capital. We expect nations that invest in human capital to be more capable of utilizing technological innovations necessary for more efficient production. The estimates in Equation 1 square with these expectations. We see a positive and significant coefficient on proxy for primary educational attainment. Results support endogenous growth theories that stress increasing returns to some forms of investment. Romer's (1990) argument pertaining to the importance of human

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sophisticated techniques such as those advocated by Beck and Katz (1994). However, the models in Tables 2 and 3 were all re-estimated using an error components procedure for incomplete panels developed by Baltagi (1985). Those results are available from the author upon request.

capital relies on the argument that human capital is the key input in the research sector, which provides the new ideas that underlie technological progress. In the neoclassical case, the exogenous rate of population growth acts as a constraint on sustained economic growth due to diminishing returns. An increase in educational attainment, by stimulating technological innovation, will have the long-term effect of significantly increasing the rate of economic growth.

Equation 2 adds the first proxy for property rights, the indicator of exchange controls to the baseline model. This variable is a count of the number of years during each decade that the country had implemented controls. As

Table 2

GROWTH REGRESSIONS

Equation #	1	2	3	4	5	6
	BASELINE					
Constant	-0.07 (0.15)	0.79 (1.36)	-0.71 (1.70)	-0.04 (0.07)	-0.13 (0.27)	-0.08 (1.54)
Initial Level of GDP	-0.0001* (2.5)	-0.0001* (2.03)	-0.0002* (2.50)	-0.0002* (2.22)	-0.0004* (4.00)	-0.0003* (3.33)
Primary Education	0.039* (3.25)	0.043 * (3.58)	0.020 (1.67)	0.023* (2.09)	0.04* (3.08)	0.021* (2.10)
Secondary Education	0.034 (1.42)	0.033 (1.38)	0.042* (2.00)	0.041* (2.05)	0.03 (1.67)	0.034* (2.20)
Exchange Controls		-.104* (2.48)		-.080* (2.03)		-.082* (2.10)
Credit to Private Sector			5.52* (5.58)	5.01* (4.96)		5.01* (4.98)
Democracy					0.05 (1.00)	0.06 (1.50)
SC	1.46	1.44	1.29	1.27	1.49	1.31
F	11.03	13.35	16.55	17.10	10.08	15.44
Prob F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R <sup>2</sup> -adj	.25	.31	.40	.44	.26	.41
SEE	1.92	1.88	1.73	1.70	1.92	1.71

Absolute values of *t* statistics, in parentheses, are computed using White's procedure for estimating consistent standard errors in the presence of heteroskedastic residuals. H. White, "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity," *Econometrica* 48 (1980): 149-70. All equations are estimated with decade dummies. \**p* < .05

expected, this variable is significant ( $t = 2.48$ ) and is of the expected sign. Nations that restrict current account transactions experience less rapid growth than those that impose no restrictions, even when taking into account the other factors that affect economic growth. The coefficient indicates that, holding constant the baseline economic variables, protection of property rights increases a nation's growth rate by approximately 1 percent per year. We add the second proxy for property rights—the ratio of total credit allocated to the private sector as a percentage of GDP—to the baseline model in Equation 3. The provision of credit to the private sector has a significant and positive effect on a nation's rate of economic growth. Individually, then, both proxies for property rights have a significant effect on a nation's rate of economic growth.

Equation 4 includes both property rights variables and all the endogenous growth variables. The parameter estimates for the endogenous growth variables are all significant and have the correct sign. The property rights variables are both individually significant. In addition, a test of their joint significance produces an F-statistic (2, 139) of 18.43, allowing us to reject the null hypothesis of no effect. Adding both of these variables to the baseline model increases the overall explanatory power of the model and decreases the standard error of the estimate. This model, then, suggests that we can improve growth models both theoretically and statistically by explicitly recognizing the importance of property rights.<sup>19</sup>

What about democracy? Equation 5 adds the variable for a nation's level of democracy to the baseline economic model. Controlling for economic factors, the degree to which a polity is democratic does not have a statistically significant effect on a nation's growth rate. Adding both the property rights variables and the democracy variable to the endogenous growth model—in Equation 6—further supports this conclusion. This specification allows a direct comparison between regime type and property rights within an endogenous growth context.<sup>20</sup> The

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<sup>19</sup> As noted above, these variables for property rights should not be seen as substitutes for the ratio of government consumption to GDP ( $g^c/y$ ). As further evidence for this argument, we reestimated Equation 6 including  $g^c/y$ . The results are (absolute value of t-statistic in parenthesis):

$$\begin{aligned} \text{Growth} = & 1.07 - 0.33 \text{ GDP} + 0.12 \text{ PRIM} + 0.39 \text{ SEC} - 0.05 \text{ CONTROL} + \\ & (3.35) \quad (1.09) \quad (1.98) \quad (2.01) \\ & 5.45 \text{ CREDIT} + 0.07 \text{ DEMOC} - 0.06 \text{ } g^c/y. \\ & (5.87) \quad (1.63) \quad (2.61). \end{aligned}$$

The adjusted  $R^2$  for this model is .42 and the SEE is 1.67. Including the ratio of government consumption to GDP improves the overall fit of the model. However, its inclusion does not cause the coefficient for either property rights variable to become insignificant. I would like to thank a referee for suggesting this line of investigation.

<sup>20</sup> A possible reason for the democracy variable to be insignificant could be that there is

results from equation 6 reinforce two of the earlier findings. First, the presence of private property rights has a significant and positive effect on growth, regardless of regime type. Second, the inclusion of a regime type variable does not help explain cross-national and cross-temporal variations in growth rates.

Which of these models is the best? Theoretical considerations are obviously the key determinant when it comes to model selection. However, in Table 2 we report three alternative ways to evaluate these models based on statistical criteria: the adjusted  $R^2$ , the standard error of the estimate (SEE) and the Schwarz Criterion (SC).<sup>21</sup> All three criteria—maximize  $R^2$ , minimize SEE, and SC—direct us to select model 4 as the superior specification. From a theoretical point of view, Equation 4 also proves the best choice: once we accurately specify the economic portion of the model, the protection of property rights has a significant, positive effect on economic growth rates across countries. On the other hand, regime type—the crucial variable in so many studies—has no significant effect. Rather than examine a nation's institutions in terms of regime type, a more accurate specification of the government's role in making a market may enhance our understanding of economic growth. These findings support Nelson's (1991: 275) suspicion that "[a] good deal of attention has been focused on regime type, but the contrasts between democratic and authoritarian regimes may be less important than some more precisely specified institutional variables that cut across types of regimes".

#### PROPERTY RIGHTS, DEMOCRACY AND GROWTH

Does the evidence in the previous section suggest that political regimes have absolutely nothing to do with the growth process? One of the most convincing arguments forwarded by proponents of democracy suggests that democratic institutions provide a check on the arbitrary power of the state. Democratic regimes will less likely confiscate possessions and are more likely to provide a stable environment governed by efficient property rights structures. Olson (1993: 572) recently framed the question in the following manner: "What do

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a high degree of collinearity between it and the property rights variables. This is investigated in the next section.

<sup>21</sup> Adjusted  $R^2$  and SEE are familiar in political science research. See Lewis-Beck and Skalaban (1990) and the response by Achen (1990). The Schwarz Criterion can be used to check for omitted variable bias. Because it is based on an explicit consideration of a loss function, the SC provides a way to evaluate the tradeoff between a model's explanatory power and parsimony. Variables can be dropped from a model as long as the SC continues towards  $-\infty$ . The SC minimizes  $\ln(SEE/N) + (K \ln N)/N$ , where  $N$  = sample size and  $K$  = number of regressors. Amemiya (1980) provides a comparison of various criteria that can be used to select regressors. For a discussion of the Schwarz criterion, see Judge et al. (1985). For an application in political science, see Granato (1991).

the individuals in an economy need if they are to have the maximum confidence that any property they accumulate will be respected and that any contracts they sign will be impartially enforced?" In answering his question, Olson suggests that individuals "... need a secure government that respects individual rights. But individual rights are normally an artifact of a special set of governmental institutions. There is no private property without government!" He thus concludes that "... the only societies where individual rights to property and contract are confidently expected to last across generations are the securely democratic societies."

Olson does not stand alone in his belief that democracies grow faster than autocracies because of their commitment to the protection of private property. Among its arguments, the literature suggesting that democracy promotes economic growth always includes the positive relationship between democracy and property rights (e.g., Przeworski and Limongi 1993). Autocratic government, while theoretically capable of committing to stable property rights, cannot provide the credibility required for long-term and contract-intensive economic activity. Building on the work of North and Weingast (1989), Olson (1993: 572) argues that the reason for this inability goes beyond the short time-horizon inherent in dictatorships: "Even the ever-present possibility that an autocracy will come to be led by someone with a short time horizon always reduces confidence in investments and in the enforcement of long-run contracts".

These arguments suggest that democratic regimes influence economic growth indirectly via the property rights channel. That is, democratic regimes tend to protect property rights more than dictatorships and nations that protect property rights grow faster than those that do not. In order to evaluate the merit of this claim, we regress the measures of property rights—exchange controls and credit allocated to private enterprise—on the democracy variable. Table 3 contains the results of these regressions. The dependent variable in Equations 1 and 2 is exchange controls. The empirical evidence supports the argument that as nations move from less democracy to more democracy, they tend to remove restrictions on the current account. Equation 2—where the negative effect of democracy remains significant controlling for the other indicator of property rights—supports this conclusion.

We can draw the same conclusions from Equations 3 and 4. Here the percentage of GDP allocated to private enterprise serves as the dependent variable. As expected, democratic nations tend to channel more revenue to the private sector than do autocratic nations. Again, the coefficient on democracy remains significant even after we control for current account restrictions. It appears that political decisions about the security of property rights have a direct effect on individual incentives within a market. As noted earlier, property rights provide individuals with stable expectations about the future behavior of others,



Table 3

PROPERTY RIGHTS REGRESSIONS

	1 XCONTROL	2 XCONTROL	3 PRIVATE	4 PRIVATE
Constant	6.40* (8.09)	7.90* (8.89)	0.23* (6.60)	0.31* (7.81)
Democracy	-0.30* (3.23)	-0.15* (2.10)	0.02* (5.03)	0.02* (4.10)
Credit to Private Sector		-6.98* (3.70)		
Exchange Controls				-0.013* (3.70)
SC	3.02	2.94	-3.31	-3.37
F	5.28	6.96	11.86	13.1
Prob F	(0.000)	(0.0000)	(0.0000)	(0.0000)
R <sup>2</sup> -adj	0.11	0.16	0.20	0.27
SEE	4.3	4.0	0.18	0.17

Absolute values of *t* statistics, in parentheses, are computed using White's procedure for estimating consistent standard errors in the presence of heteroskedastic residuals. H. White, "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity," *Econometrica* 48 (1980): 149–70. All equations are estimated with decade dummies. \**p* < .05

including the government. If a high degree of uncertainty prevails—if property rights do not exist or are not well defined—then the incentive for immediate consumption will exceed the incentive to save and invest.

Theoretically, these results seem quite obvious. It does not make sense to talk about an individual having a property if no entity exists that can enforce and protect that right. Further, we do not often associate efficient market economies with autocratic regimes. While the empirical evidence does support this conclusion, we must stipulate an important qualification: the presence of democracy does not equate with the protection of property rights. If so, then all democratic governments would have well-specified and enforced property rights, and all autocratic governments would have poorly specified and enforced property rights. All the results in Table 3 suggest that while democracy does have something to do with the enforcement of property rights, the nature of a political regime does not explain the lion's share of variance in this variable. This would seem to suggest that the manner by which a government can credibly commit itself to the protection of property rights far surpasses that which can be summarized by discussions of regime type.

## DISCUSSION AND CONCLUSION

This article began by arguing that the effect of political institutions on economic growth goes beyond an investigation of a nation's institutions of representation. In order to understand why growth rates differ, we must not only understand the institutions that regulate political behavior, but we must examine those institutions that govern economic behavior as well. This owes to a lack of interchangeability between democracy and protection of property rights. On one level this means that studies that use a democracy variable as a proxy for property rights have made a fundamental mistake. On another level it points to a qualitative difference between political and economic reforms. Today, one need only look at countries such as China, Poland, or Russia to see evidence regarding this conclusion.

Secondly, this research has demonstrated empirically that nations that protect property rights grow faster than nations that do not protect property rights. This finding is robust across different specifications of the growth process. Thirdly, we have illustrated that regime type does not tell us much about cross-national differences in economic growth. However, regime type does influence the growth process indirectly by affecting the type of property rights institutions that are in place.

We can also identify two broad theoretical conclusions from this research. First and foremost, we must take great care in specifying our models. If we seek institutional determinants of economic growth, then we should specify them. Second, the institutional context does affect economic growth; market activity such as production and exchange does not occur in a vacuum. If a nation wants to grow, then it has to muster the political resources to reform the market and protect property rights. This remains a definitively political decision.

Obviously, this study follows work in the new institutionalism. In fields of political science as diverse as public administration (Moe 1984), international politics (Keohane 1984), and political economy (Alt and Shepsle 1990), scholars have begun paying attention to institutions, transaction costs, and property rights. It seems a natural extension to focus on these issues in an investigation of economic growth. Additionally, scholars have linked micro-level behavior and beliefs to macro-level outcomes (eg., Granato et al. 1996).

This study has only begun to develop an understanding of the growth process. Future research will undoubtedly include the search for alternative ways to examine private property rights. For example, a nation may possibly have great respect for property rights while maintaining a very high rate of taxation (eg., Sweden) or have a very low rate of taxation and have no property

rights (e.g., Burma). Research along these lines can go in at least two directions. First, following Taylor and Jodice and Banks, we can collect events data that focus specifically on governmental attempts to expropriate or arbitrarily seize private property. Similarly, additional studies could code government laws and regulation with regard to a government's active support for (or opposition to) privatization and market reforms. Another avenue for measures of property rights runs along the use of aggregate data as in this article. Fiscal and monetary indicators provide a valuable source of information about the preferences of both government officials and individual investors. With property rights indicators that demonstrate both temporal and cross-sectional variation, we will attain a richer understanding of the process of political change and economic development.

# APPENDIX 1

DECADE 1	DECADE 2	DECADE 3
Argentina	Argentina	Argentina
Australia	Australia	Australia
Austria	Austria	Austria
Belgium	Belgium	Belgium
Bolivia	Bolivia	Bolivia
Brazil	Brazil	Brazil
Canada	Canada	Canada
Colombia	Colombia	Chile
Costa Rica	Costa Rica	Colombia
Denmark	Denmark	Costa Rica
Finland	Finland	Denmark
France	France	Finland
Germany	Germany	France
Ghana	Ghana	Germany
Greece	Greece	Ghana
Honduras	Honduras	Greece
Iceland	Iceland	Honduras
India	India	Iceland
Indonesia	Indonesia	India
Ireland	Ireland	Indonesia
Israel	Israel	Ireland
Italy	Italy	Israel
Japan	Japan	Italy
Malaysia	Kenya	Japan
Mexico	Malaysia	Kenya
Netherlands	Mexico	Malaysia
New Zealand	Nepal	Mexico
Nicaragua	Netherlands	Netherlands
Norway	New Zealand	New Zealand

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Pakistan	Nicaragua	Nicaragua
Panama	Norway	Norway
Peru	Pakistan	Pakistan
Philippines	Panama	Panama
Portugal	Peru	Peru
Singapore	Philippines	Philippines
South Africa	Portugal	Portugal
Spain	Singapore	Singapore
Sweden	South Africa	South Africa
Tanzania	Spain	Spain
Thailand	Sweden	Sweden
Turkey	Tanzania	Tanzania
UK	Thailand	Thailand
USA	Turkey	Turkey
Uganda	UK	UK
Uruguay	USA	USA
Venezuela	Uganda	Uganda
Zaire	Uruguay	Uruguay
	Venezuela	Venezuela
	Zaire	Zaire
	Zambia	Zambia

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