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"Investor Protection and Entry"

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*presenting

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Abstract

Entry requires external finance, especially for less wealthy entrepreneurs. In countries with weak constrains on politicians, incumbents may lobby for poor enforcement of investor protection in order to limit competition. In a broad cross-section of countries and industries, we find that countries with more accountable political institutions, defined as having better private monitoring of political choices, have better investor protection and lower entry costs. Moreover, entry rates and the number of producers are positively correlated with effective investor protection and entry costs in more financially dependent sectors. We conclude that access to finance is critical to entry, and that private monitoring of political choices increases the political cost of undermining access. In general, both political and legal factors affect access to finance.

JEL classification: G21, G28, G32.

Keywords: Financial Development, Investor protection, Entry, Cost of Entry.

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Table 1. Data description

A. Variables at industry/country level:	
Entry:	Average annual percentage growth rate in the number of establishments (enterprises) operating in a sector in the 1983-92 interval, as reported by UNIDO.
Number of firms:	Average number of establishments (enterprises) operating in a sector in the 1983-92 interval, as a percentage of total number of establishments, from UNIDO.
B. Variables at country level:	
Democracy score:	It measures the "general openness of political institutions." It is a combined score based on the following six criteria. (1) How institutionalized are the procedures regarding the transfer of executive power? (2) How competitive are the elections that allocate executive power? (3) To what extent non-elites can attain executive office? (4) How independent is (de-facto) the chief executive? (5) How institutionalized is the structure for political expression? (6) To what extent non-elites are able to access institutional structures for political expression? It is produced by Polity IV for 1980 and is normalized so that it ranges between 0 and 1 (a greater number indicates more democracy).
Executive constraints:	POLCONV score produced by Henisz for 1980. It ranges between 0 and 1 (a greater number indicates more democracy) and estimates the feasibility of policy change (the extent to which a change in the preferences of any one actor may lead to a change in government policy).
Age of democracy:	Tenure of the political system as of 1980, as reported by the Database of Political Institutions 2000. For countries that were not democracy in 1980, this variable takes value 0. For democracies more than 50 years old in 1980, the age reported in the dataset is 50 years. Age is normalized (dividing by 50) so that it ranges between 0 and 1.
Democracy dummy:	Dummy variable that takes value 1 if a country was a democracy in 1980 and 0 otherwise, as reported by the Database of Political Institutions 2000.
Newspaper circulation:	The number of daily newspaper sold per 1000 people in 1980, from the Economist, World in Figures. The number is divided by 1000 so that it ranges between 0 and 1.
Political accountability:	Product of democracy dummy and political accountability.
Income inequality:	Gini coefficient of income inequality from the high-quality data produced by Deininger and Squire (1996). It ranges between 0 and 100 (a greater number indicates greater inequality).
Common law:	Dummy variable that takes value 1 if the origin of the commercial law is the English Common law and 0 otherwise (from Djankov et al., 2006).

Logarithm of per capital income:	Natural logarithm of the income per capita in 1980 from the IMF's International Financial Statistics.
Cost of entry:	Direct cost associated with meeting government requirements for entry plus the monetized value of the entrepreneur's time (as a fraction of GDP per capita in 1999), as reported by Djankov, et al. (2002).
Rule of law:	Assessment of the law and order tradition in the country based on the strength and impartiality of the legal system, and of popular observance of the law in 1980 (from International Country Risk Guide). It ranges between 0 and 6.
Shareholder protection:	Index of effective protection afforded to minority shareholders by the law. It is the product of antidirector rights produced by LLSV (1998) (the sum of six dummy variables, indicating if proxy by mail is allowed, shares are not blocked before a shareholder meeting, cumulative voting for directors is allowed, oppressed minorities are protected, the percentage of share capital required to call an extraordinary shareholder meeting is less than 10 percent, and existing shareholders have preemptive rights at new equity offerings) and rule of law. It ranges between 0 and 36.
Creditor protection:	Index of effective protection afforded to creditors by the law. It is the product of creditor rights produced by LLSV (1998) (the sum of four dummy variables, indicating if creditor's consent is required to file for reorganization, there is no bankruptcy procedure with automatic stay, absolute priority is respected in liquidation, the debtor does not have control over the assets pending a reorganization) and rule of law. It ranges between 0 and 24.
Effective investor protection:	Sum of shareholder protection and creditor protection, as defined above.
Financial development:	Sum of stock market stock market capitalization over GDP in 1980 (as reported by RZ) and domestic credit to private sector over GDP in 1980 (from Beck, Demirguk-Kunt and Levine, 1999).
Openness:	Sum of import and export as a fraction of GDP in 1980 from Penn World Tables.
C. Variables at industry level:	
External dependence:	Measure of the dependence on external capital for young firms as measured by RZ.
Growth opportunity:	Growth rate of value added by industry over the 1983-92 interval in the USA, computed using UNIDO data.

Table 2. Summary statistics

This table presents means, medians, standard deviations, minimums, and maximums for all variables used in the paper. The variables are defined in Table 1.

	Mean	Median	Std.Dev.	Min.	Max.	N.Obs.
A. Country/industry-level variables						
Entry	2.932	1.555	7.203	-10.514	18.241	1091
Number of firms	3.115	1.333	4.998	0.01	61.126	1091
B. Country-level variables						
Democracy score	0.597	0.8	0.423	0	1	37
Executive constraints	0.274	0.335	0.217	0	0.598	37
Age of democracy	0.447	0.32	0.397	0	1	37
Political accountability	0.173	0.11	0.178	0	0.562	37
Income inequality	39.599	36.185	9.518	25.98	62.3	37
Common law	0.395	0	0.495	0	1	37
Per capita income	4,799	2,651	4,623	121	14367	37
Cost of entry	0.469	0.371	0.483	0.017	2.714	36
Effective investor protection	21.27	20	12.21	3	42	33
Financial development	1.436	1.4	0.767	0.409	3.384	35
Openness	66.508	54.2	64.163	16.7	423.4	36
C. Industry-level variables						
External dependence	0.672	0.664	0.653	-1.535	2.058	33
Growth opportunity	0.047	0.047	0.026	-0.033	0.107	33

Table 3. Correlation matrix

All variables are defined in Table 1. The p-values are reported in parentheses. The number of observations ranges between 32 and 37.

	Democracy score	Age of democracy	Executive constraint	Political accountability	Income inequality	Common law dummy	Log of per capita income
Age of democracy	0.680						
	(0.000)						
Executive constraint	0.925	0.624					
	(0.000)	(0.000)					
Political accountability	0.632	0.744	0.572				
	(0.000)	(0.000)	(0.000)				
Income inequality	-0.396	-0.362	-0.470	-0.516			
	(0.014)	(0.026)	(0.003)	(0.000)			
Common law dummy	-0.080	0.022	-0.130	-0.204	0.094		
	(0.634)	(0.895)	(0.436)	(0.226)	(0.576)		
Logarithm of per capita income	0.691	0.662	0.632	0.794	-0.372	-0.3662	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.021)	(0.024)	
Effective investor protection	0.578	0.691	0.428	0.667	-0.472	0.301	0.623
	(0.000)	(0.000)	(0.013)	(0.000)	(0.006)	(0.088)	(0.000)

Table 4. Determinants of investor protection

The dependent variable is effective investor protection. *, **, *** indicate significance at 10, 5, 1 percent respectively. All regressions include a constant which is not reported. The standard errors shown in parentheses are adjusted for heteroskedasticity using Huber-White correction.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political accountability	44.262***		38.244***		30.094***		43.436***	20.925*
	(8.255)		(9.634)		(7.726)		(9.539)	(11.217)
Democracy score		12.807***	5.171					
		(3.497)	(3.608)					
Age of democracy				17.028***	8.379**			
				(3.306)	(3.269)			
Executive constraint						14.346	1.955	
						(9.391)	(7.581)	
Income inequality	-0.209	-0.373**	-0.161	-0.346**	-0.203	-0.283	-0.194	-0.206
	(0.157)	(0.170)	(0.147)	(0.138)	(0.144)	(0.171)	(0.166)	(0.137)
Common law dummy	11.269***	8.828**	10.831***	8.027**	10.025***	11.994***	11.250***	12.808***
	(2.945)	(3.579)	(2.868)	(2.967)	(2.947)	(3.374)	(2.998)	(2.713)
Logarithm of per capita								4.201**
Income								(1.532)
Observations	33	33	33	33	33	33	33	33
R-squared	0.662	0.508	0.680	0.623	0.695	0.580	0.663	0.722

Table 5. Robustness checks

The dependent variable is effective investor protection. *, **, *** indicate significance at 10, 5, 1 percent respectively. All regressions include a constant which is not reported. Education is the number of years of schooling in 1960 from Glaeser et al (2004). State ownership of press is the fraction of newspapers owned by the state from Djankov et al (2003). All other variables are defined in Table 1. The standard errors shown in parentheses are adjusted for heteroskedasticity using Huber-White correction.

	(1)	(2)	(3)	(4)	(5)	(6)
Democracy dummy	-0.748	-0.721				
	(3.746)	(4.166)				
Political accountability		20.916*		18.424*		22.751*
		(11.344)		(10.167)		(11.502)
Education * Democracy dummy			-3.618	-6.368		
			(7.060)	(8.035)		
State ownership of press * Democracy dummy					-84.812**	-98.816***
					(32.210)	(28.872)
Income inequality	-0.295**	-0.721	-0.367***	-0.309**	-0.306**	-0.219
	(0.125)	(4.166)	(0.117)	(0.124)	(0.127)	(0.136)
Common law dummy	13.187***	20.916*	15.773***	15.696***	13.387***	12.985***
	(2.889)	(11.344)	(2.555)	(2.500)	(2.849)	(2.728)
Logarithm of per capita	6.473***	4.281**	6.505***	5.108**	6.013***	3.569**
Income	(1.341)	(1.773)	(1.663)	(1.884)	(1.079)	(1.482)
Observations	33	33	31	31	33	33
R-squared	0.694	0.723	0.772	0.793	0.708	0.741

Table 6. Financial dependence, investor protection and entry

The dependent variable is entry. The independent variables are several interaction terms obtained by multiplying external dependence (which measures the industry dependence on external capital for young firms) with country-level variables: cost of entry, effective investor protection, financial development, and openness. All regressions include the industry's share of total number of establishments in the country in 1983, fixed effects for countries and industries (not reported). *, **, *** indicate significance at 10, 5, 1 percent respectively. The standard errors shown in parentheses are adjusted for heteroskedasticity using Huber-White correction.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
External dependence ×							
Cost of entry	-1.385***			-0.805**	-2.402***		-0.795**
	(0.385)			(0.367)	(0.785)		(0.366)
Effective investor protection		0.062***		0.045***		0.053***	0.041***
		(0.013)		(0.015)		(0.016)	(0.015)
Financial development			0.691***		0.296	0.244	
			(0.230)		(0.268)	(0.275)	
Openness							0.004***
							(0.002)
Observations	1060	973	1031	973	1031	944	973
R-squared	0.601	0.631	0.603	0.632	0.606	0.633	0.632

Table 7. Growth opportunities, investor protection and entry

The dependent variable is entry. The independent variables are several interaction terms obtained by multiplying growth opportunity (the level of growth in the Unites States by industry) and country-level variables: cost of entry, effective investor protection, financial development, and openness. All regressions include the industry's share of total number of establishments in the country in 1983, fixed effects for countries and industries (not reported).*, **, *** indicate significance at 10, 5, 1 percent respectively. The standard errors shown in parentheses are adjusted for heteroskedasticity using Huber-White correction.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Entry opportunities ×							
Cost of entry	-19.831*			-7.188	-32.601		
	(11.047)			(10.910)	(22.857)		
Effective investor protection		1.106***		0.951**		0.832*	0.934**
		(0.426)		(0.485)		(0.504)	(0.426)
Financial development			15.290**		10.04	9.215	
			(7.582)		(8.376)	(9.131)	
Openness							0.182***
							(0.048)
Observations	1060	973	1031	973	1031	944	973
R-squared	0.598	0.628	0.602	0.628	0.603	0.632	0.630

Table 8. Financial dependence, investor protection and number of firms

The dependent variable is the number of firms. The independent variables are several interaction terms obtained by multiplying external dependence (which measures the industry dependence on external capital for young firms) with country-level variables: cost of entry, effective investor protection, financial development, rule of law and openness. All regressions include the industry's share of total number of establishments in the country in 1983, fixed effects for countries and industries (not reported). *, **, *** indicate significance at 10, 5, 1 percent respectively. The standard errors shown in parentheses are adjusted for heteroskedasticity using Huber-White correction.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
External dependence ×							
Cost of entry	-0.508**			-0.232	-0.721**		
	(0.245)			(0.284)	(0.327)		
Effective investor protection		0.026***		0.021*		0.018*	0.023**
		(0.010)		(0.012)		(0.011)	(0.010)
Financial development			0.345***		0.226*	0.225	
			(0.133)		(0.137)	(0.147)	
Openness							0.003
							(0.002)
Observations	1060	973	1031	973	1031	944	973
R-squared	0.633	0.637	0.639	0.637	0.64	0.645	0.637

Table 9. Growth opportunities, investor protection and number of firms

The dependent variable is the number of firms. The independent variables are several interaction terms obtained by multiplying growth opportunity (the level of growth in the Unites States by industry) and country-level variables: cost of entry, effective investor protection, financial development, and openness. All regressions include the industry's share of total number of establishments in the country in 1983, fixed effects for countries and industries (not reported).*, **, *** indicate significance at 10, 5, 1 percent respectively. The standard errors shown in parentheses are adjusted for heteroskedasticity using Huber-White correction.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Entry opportunities ×							
Cost of entry	-13.098*			-3.394	-15.593		
	(7.869)			(9.131)	(10.658)		
Effective investor protection		0.744**		0.671*		0.652**	0.742***
		(0.288)		(0.354)		(0.313)	(0.286)
Financial development			7.767**		5.250	1.948	
			(3.883)		(4.129)	(4.345)	
Openness							0.002
							(0.044)
Observations	1060	973	1031	973	1031	944	973
R-squared	0.633	0.637	0.639	0.637	0.640	0.645	0.637

1 Introduction

Entry is an important form of economic renewal and appears to contribute to growth (e.g. Hause and Du Rietz, 1984; Johnson, McMillan and Woodruff, 2002). Yet, recent evidence has highlighted the existence of high barriers to entry, especially in developing countries. Fisman and Sarria-Allende (2004) and Klapper, Laeven, and Rajan (2004) show that onerous barriers appear to reduce growth and entry in naturally high entry sectors and question the notion that such barriers serve efficiency purposes.

Lack of external finance is a most serious form of entry barriers, as funding is fungible and may allow to overcome other barriers. Financial underdevelopment appears indeed to be a serious obstacle for the process of new firm creation and economic growth (Rajan and Zingales, 1998; Levine, 1999; Beck, Levine and Loyaza, 2000; Black and Strahan, 2002; Aghion, Howitt and Mayer-Foulkes, 2005). These findings raise the question whether established producers benefit from poor financial development to limit competition, and may lobby against diffused access to finance (Rajan and Zingales, 2003a). Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002) show that countries with higher entry barriers tend to be more corrupt. Friedman, Johnson, Kaufmann and Zoido-Lobaton (2000) find a larger informal sector in more corrupt countries. These findings suggest some link between entry and the quality of regulatory and political institutions. Is this the case, and if so, can financial development help overcome such obstacles ?

This paper models and tests the notion that entry and investor protection improves with political accountability, defined as the ability of informed citizens to constrain politicians. Investor protection depends both on the quality of legal rules as on their enforcement (La Porta et al, 1997, 1998). Legal rules and their enforcement are influenced by politicians and bureaucrats, so active lobbying on poor investor protection may create an effective entry barrier for emerging entrepreneurs..[1] Our main predic-

[1] Lobbying allows interest groups to exert disproportionate influence on legislators and public

tion is a causal relationship between measures of political accountability and entry rates, where access to finance is a critical mechanism through which competition is held back. Since access depends on effective investor protection, it depends on the quality of legislation as well as on its enforcement, and so has both political and legal determinants.

The political conflict in the model is simply described. Since wealthier entrepreneurs do not need much external finance for investment, they lobby for weak enforcement of investor protection, to block access to funding for other entrepreneurs. Lower entry reduces welfare, and thus requires higher political contributions ("bribes"). Thus, the entry rate reflects the lobbyists' trade off between the costs of lobby contributions against their gains from entry restrictions. The main theoretical result is that greater political accountability results in more entry and more competition. Intuitively, accountability increases the bribe required by legislators to restrict entry, and thus induces lobbyists to accept higher entry.[2]

Next, we test our predictions across a large sample of countries. As a measure of political accountability which is not subjective and thus potentially endogenous to outcomes, we construct a proxy by the interaction of democracy and newspaper readership. This combination ensures that citizens have some information on political choices and the political rights to intervene.[3] It is analogous to the notion in corporate governance that diffusion of information via disclosure combined with standard for investor protection is particularly effective at constraining governance abuse as it enables private monitoring (La Porta, Lopez de Silanes and Shleifer, 2006).

We establish that political accountability contributes to explain effective investor

officials when some affected agents are too dispersed to become active (Olson, 1965).

[2] In Acemoglu (2005), democratic societies encourage entry, while autocratic society protect only the property rights of entrenched producers. Accountability here measures intermediate positions between these two extremes.

[3] Our result extends the findings in Adsera, Boix and Payne (2003), who show that several measures of government quality (such as rule of law and corruption) are correlated with our measure of political accountability.

protection next to legal origin (LaPorta, Lopez-de-Silanes, Shleifer, and Vishny, henceforth LLSV (1997 and 1998), as well as formal entry barriers (Djankov et al, 2002).[4] Other proxies for accountability are also significant. Government ownership of the press (LaPorta, Lopez de Silanes and Shleifer, 200) has a negative effect. The effect is not due to correlation with other institutional factors, such as education levels. This is consistent with evidence that regulatory restrictions in the financial sector have negative effect in promoting efficiency or financial development, unlike policies aimed at promoting private monitoring (LaPorta, Lopez de Silanes and Shleifer, 2002; Barth, Caprio and Levine, 2006). Interestingly, the result suggests that it is accountability rather than democracy per se which improve effective investor protection. We conclude that poorly informed citizens in formal democracies are unable to ensure proper enforcement of investor protection laws against lobbying.

These results are related to Benmelech and Moskowitz (2005), who exploit variation across time and across US states in suffrage, free banking, general incorporation, and usury laws. They find that less inclusive suffrage laws were associated both with tighter usury laws (which restricted the supply of credit to risky firms) and weak incorporation laws.

We next turn to test whether investor protection supports entry. Indeed, effective investor protection and lower entry costs produces more entry in financially dependent sectors in sectors with greater financial dependence (Rajan and Zingales, 1998) and in high growth sectors (Fisman and Love, 2003). The evidence is also consistent if one looks at the number of producers. Low investment protection countries have significantly fewer producers in financially dependent sectors and in high growth sectors.

Entry thus appears affected by financial constraints. An interesting result is that financial development has a positive effect on entry, but it loses significance once we

[4] Djankov et al (2002) present two interpretations, the capture of regulation by industry insiders (Stigler, 1971) and the tollbooth view that barriers are created in order to collect bribes (Shleifer and Vishny, 1998). Our approach is consistent with both views.

control for investor protection. This suggests that diffused access to finance is more important than the size of capital markets.

Limited access may be achieved also with distortionary regulation. Barth, Caprio, and Levine (2006) show how measures of political accountability, such as the discretion of federal executives and the degree of competition for office correlate with the quality of bank regulation and its effect on bank entry. Countries with more autocratic regimes have more discretionary and restrictive bank supervision, have more state ownership of banks and do not encourage private monitoring. At the same time, they exhibit lower credit market development and less bank stability. In short, there appears to be an association between poor accountability, regulatory constraints limiting financial development and entrenched established interests which lobby to limit entry and forestall competition. Lack of transparency and control over the press may be critical to maintain control over access to finance.

We confirm empirically the positive effect of trade openness on entry, modelled in an earlier version (Perotti and Volpin, 2005). In open economies, sectors which have a comparative advantage face a larger market which can support more entry, reducing the incentives to lobby. This is consistent with the findings in Rajan and Zingales (2003a) that financial development correlates with trade openness. Similarly, Abiad and Mody (2005) and Braun and Raddatz (2004) show that trade opening has increased the pace of reform in financially repressed countries.

Greater accountability also appears to reduce financial fragility, and make firms more resilient to shocks (Feijen and Perotti, 2006). Bekaert, Harvey and Lundblad (2004, 2006) show that financial liberalization is most successful in countries with good political institutions.

The structure of the paper is as follows. In Section 2 we introduce the model and find its political equilibrium. In Section 3, contains the empirical analysis. Section 4 concludes.

2 The model

Consider an economy inhabited by a population whose size is normalized to 1. There are two types of individuals in this economy: $m < 1/2$ entrepreneurs and $1 - m$ consumers. Entrepreneurs have the human capital to set up a new firm and have an endowment of capital (apples) $\widetilde{w}$ uniformly distributed on the support $[0, W]$. Consumers have an endowment of apples w_C.

There are two goods: apples (which are also the production input and the numeraire) and apple pies (produced by entrepreneurs using apples as input). Individuals receive utility from consumption at $t = 3$ (the last period in the model). The utility of a representative individual i is:

$$U_i = k_i + u(c_i) = k_i + ac_i - 1/2\ c_i^2, \tag{1}$$

where k_i and c_i are the number of apple and apple pies consumed and $a > 1$ is a constant. The specific functional form used in (1) simplifies the analysis but is not required: the essence of the results would go through for any quasi-linear utility function.

A firm requires an investment of $I \geq W$ apples to produce 1 apple pie. The capital needed to finance the project can be raised in two ways: entrepreneurs can invest their own wealth in their own company, up to their own wealth w; and/or they can raise funds on the capital market as external equity.[5] We denote α_{ik} as the stake held by agent i in firm k, and α_{jj} is the equity stake owned by the entrepreneur j in his own firm.

As an alternative investment opportunity, individuals can access a riskless technology that produces $(1 + r)$ units of apples in $t = 3$ for each apple invested in $t = 0$. Competition in the capital market ensures that the required rate of return on equity financing is r, which we normalize to zero. We assume that the economy is closed

[5] Because there is no profit uncertainty, we do not distinguish between equity or other corporate liabilities.

(this assumption is relaxed in Appendix A). In a closed economy, the maximum number of firms in this economy (m), a measure of entry opportunities, is such that the net present value of setting up a firm equals zero. Specifically, in our setting this is equivalent to assuming that $m = a - I$.

2.1 Timeline

At $t = 0$, entrepreneurs form one pressure group to lobby politicians on the choice of the degree of investor protection δ. We assume that consumers are too dispersed to organize in pressure groups or are unable to borrow money to lobby politicians: for instance, because one can borrow money only against future profits. Let $L(\delta)$ be the schedule of political contributions as a function of the chosen level of investor protection.

The effect of investor protection in the model is as follows: an entrepreneur can raise on the market only a fraction δ of the needed capital. We will refer for simplicity to δ as investor protection, although in principle the specification captures any type of entry barriers. For instance, if entrepreneurs need to pay an up-front entry cost equal to $(1 - \delta)I$ before they can raise funding, only those wealthier than $(1 - \delta)I$ can set up an own firm. Alternatively, investors are willing to lend up to δI because only such fraction of the capital can be used as collateral and the firm's output is not verifiable.[6] In this second interpretation, improvements in investor protection relax the financial constraint.

At $t = 1$, a policymaker chooses the level of investor protection to maximize the following objective function:

$$\max_{\delta} U^P = \max_{\delta} \ (1 - \beta)L(\delta) + \beta S(\delta) \tag{2}$$

where $\beta \in [0, 1]$ is a measure of the policymaker's benevolence (inclination towards the social surplus), and $S(\delta)$ is the social surplus associated with δ. We take β to

[6] Results are not at all affected if we assume that δ indicates the verifiable fraction of output, or if we model explicitly the political choice over an ex ante entry cost.

be a measure of politicians' accountability. In an autocratic country, β will be small because politicians are not accountable to voters. In a democratic country, politicians wish to be re-elected. Hence, β indicates to what extent their voting record over issues is important relative to their spending in political promotion. As the political system becomes more accountable politicians become more "accountable" to voters, and β increases.

At $t = 2$, an individual entrepreneur can set up a firm by investing a fixed amount of apples equal to I. Each firm produces a fixed output of 1 apple pie.

At $t = 3$, the output of apple pies is produced, and distributed as dividends. The market for apple pies opens and the equilibrium price of apples pies p is determined. Individuals then choose their consumption bundle and consume. The budget constraint faced by a generic agent i is

$$k_i + pc_i \leq y_i \tag{3}$$

where y_i is the total income produced at $t = 3$. For the representative consumer c,

$$y_c = \left(w_c - \sum_k \alpha_{ck} P_k \right) + p \sum_k \alpha_{ck} d_k \tag{4}$$

where $\sum_k \alpha_{ck} P_k \leq w_c$ is total financial investment (P_k is the price of company k at $t = 2$), and d_k is the total dividends (in apples) paid by firm k. For an active entrepreneur j, there are two extra terms:

$$[(1 - \alpha_{jj})P_j - I] + p(1 - d_j) \tag{5}$$

which represent respectively the capital raised on the market net of investment by their own firm j, and the private control benefits.

2.2 Market equilibrium

At $t = 3$, each consumer i maximizes utility (1) subject to the budget constraint (3). From the first order condition (which is necessary and sufficient) and using the

no-entry condition ($a = m + I$), we obtain that $c_i = m + I - p \equiv c$. That is, all consumers choose to consume the same amount of apple pies, while consumption of apples depends on their individual income: $k_i = y_i - pc$.

With n active firms and unit production, the aggregate supply of apple pies is n, while its aggregate demand is $(m + I - p)$. Hence,

Lemma 1 *In equilibrium, $p = I + (m - n)$, and $c = n$. The indirect utility of a generic agent i is $V_i = y_i + 1/2n^2$, where y_i is his income.*

At $t = 2$, entrepreneurs need to post as collateral a fraction $1 - \delta$ of the required capital. Hence, only entrepreneurs j that are richer than $(1-\delta)I$ can setup a company. This result is consistent with the theoretical models in Modigliani and Perotti (2000) and Shleifer and Wolfenzon (2002), and the empirical evidence by LLSV (1997, 1998) on ownership concentration. With better investor protection, entrepreneurs can raise more external capital and need less personal wealth to set up a firm.

As a consequence of this, the number of active firms n is a function of δ:[7]

Result 1: *The number of active firms is strictly increasing in investor protection:*

$$n(\delta) = m\left[1 - \frac{(1-\delta)I}{W}\right] \tag{6}$$

Higher investor protection is also reflected in higher social surplus (since consumers prefer more competition). To see this, consider the indirect utility of representative consumer c. Since the capital market is competitive and there is no asymmetry of information, the value of a generic firm k must be such that the return from investing in the firm's equity, p/P_k, equals the return from investing in the alternative investment, which was normalized to 1. Hence, the income of the representative consumer (4) simplifies to $y_c = w_c$. His indirect utility then becomes:

$$V_c = w_c + 1/2\ n^2. \tag{7}$$

[7] Notice that the assumption that $W \geq I$ implies that $n(\delta) \leq m$ for all δ.

Since V_c is increasing in n and n is increasing in δ, then V_c is increasing in δ.

The income of a representative (active) entrepreneur j given in (5) simplifies instead to $y_j = w_j + (m - n)$, where the second term is the net present value of the project. Hence, his indirect utility is:

$$V_j = \begin{cases} w_j + 1/2\ n^2 + (m - n) & \text{if } w_j \geqslant (1 - \delta)I \\ w_j + 1/2\ n^2 & \text{otherwise} \end{cases} . \tag{8}$$

It is easy to show that V_j is decreasing in investor protection as long as j is an active entrepreneur, that is, if $w_j \geqslant (1 - \delta)I$. This reflects the fact that the profit decreases with the number of active entrepreneurs. If instead j is not active ($w_j < (1 - \delta)I$), V_j is increasing in δ because entrepreneur j is effectively a consumer.

The social surplus can then be written as a function of the number of active firms

$$S(n) = m\frac{W}{2} + (1 - m)w_C + 1/2\ n^2 + n(m - n). \tag{9}$$

The derivative of $S(.)$ with respect to n equals $(m - n)$, which is positive because $n < m$.

Since n is increasing in δ, we obtain that:

Lemma 2 *The social surplus is strictly increasing with investor protection. The socially optimal level of investor protection is $\delta = 1$.*

In conclusion, the economy as a whole benefits from high investor protection. However, while this is true for consumers and (to some extent) poor entrepreneurs, rich entrepreneurs prefer low investor protection.

2.3 Political equilibrium

As a benchmark, consider first the case in which individuals can directly vote on investor protection. Since consumers are the majority of the population, the political choice will be maximum entry ($n = m$) and high investor protection ($\delta = 1$). The reason is that the median voter theorem applies because preferences are single peaked

in the number of entrants n and the median voter is a consumer who stand to lose from low entry.

In our setting, the political outcome differs from the median voter choice because politicians who choose the quality of investor protection law or their enforcement do not care only about social surplus but also about lobby contributions. Since there is a monotonic relationship between δ and the number of active firms n, it is easier to think in terms of lobbyists and politicians choosing n. Hence, politicians choose n so at to maximize their objective function:

$$\max_n U^P = \max_n (1-\beta)L(n) + \beta S(n) \tag{10}$$

where $L(n)$ is the schedule of political contributions as a function of the chosen level of entry and $S(n)$ is the social surplus associated with n given in (9).

Entrepreneurs must set up a coalition to lobby politicians, who otherwise choose the social optimum. The coalition is chosen to maximizes the aggregate utility of all member entrepreneurs net of the political contributions. Since the reduction in social surplus from a choice of entry $n < m$ is $\Delta S(n) = S(m) - S(n)$, to win the lobby must pay a contribution

$$L \geqslant \frac{\beta}{1-\beta}\Delta S(n) = \frac{\beta}{1-\beta}\frac{(m-n)^2}{2}. \tag{11}$$

Since the utility function of a generic entrepreneur j with wealth w_j is given in equation (8), the sum of entrepreneurs' utility function is:

$$\sum_j V_j(n) = mW/2 + mn^2/2 + n(m-n). \tag{12}$$

The lobbyist chooses n to maximize:

$$\sum_j V_j(n) - \frac{\beta}{1-\beta}\Delta S(n) = mW/2 + mn^2/2 + n(m-n) - \frac{\beta}{1-\beta}\frac{(m-n)^2}{2} \tag{13}$$

From the first order conditions of this problem,we obtain:

Proposition 1: *The number of active entrepreneurs is*

$$n^* = \frac{m}{1+(1-m)(1-\beta)}. \tag{14}$$

This entry level is achieved by paying a contribution schedule $L(n)$ such that $L(n) = \beta(m - n^*)^2/2(1-\beta)$ if $n = n^*$ and $L(n) = 0$ for any $n \neq n^*$.

It is interesting to notice that entry is at the socially optimal level m only if $\beta = 1$ (i.e. only if the policymaker cares only about the social surplus) or if $m = 1$ (i.e., there are no consumers in the economy). In all other cases, entry is at a suboptimal level. The intuition is that as β increases, it becomes costlier for the lobby to choose a low level of investor protection, because the policymakers require a greater compensation for deviating from the median voter choice. A greater political accountability induces the lobby to allow more entry in order to reduce the contribution needed to gain legislative support. The result is higher output. In this sense, political competition drives economic competition.

Replacing the expression (14) in (6), we can find the corresponding level of investor protection:

Result 2: *Investor protection is strictly increasing in political accountability:*

$$\delta^* = 1 - \frac{W}{I}\frac{(1-m)(1-\beta)}{1+(1-m)(1-\beta)}, \tag{15}$$

The intuition is that β increases entry and more entry is only possible with better investor protection (if one keeps the wealth distribution constant).

2.4 Empirical predictions

In Section 4, first we will test Result 2 across countries:

Prediction 1: *There is better investor protection in countries where politicians are more accountable to society.*

To do so, we will develop a proxy for investor protection and propose several measures of political accountability. Afterwards, we will test Result 1, according to which entry (and the number of active companies) should be positively correlated with

investor protection. To test the latter prediction, we will adopt the approach adopted by Rajan and Zingales (1998) [henceforth RZ] for a related analysis of the effect of financial development on growth. Their approach to curb identification problems and the criticism of omitted variables is to include country- and industry-fixed effects in their regressions. Country-specific financial development is then interacted with industry-specific dependence on external finance to test whether growth is higher in industries that depend more on external capital in more financially developed countries. Our empirical strategy is to apply the same approach to data on average sectorial entry rates to test whether investor protection promotes entry, and whether investor protection and entry barriers are affected by political accountability.

Specifically, this empirical strategy requires testing for a positive sensitivity of entry with respect to investor protection when external dependence is higher. The model predicts that the second cross derivative of n with respect to δ and I (see equation (6)), is positive: that is $\partial^2 n/\partial\delta\partial I = m/W > 0$. Notice also that the second cross derivative of n with respect to δ and m is positive: $\partial^2 n/\partial\delta\partial m = I/W > 0$. The parameter m captures entry opportunities in an industry. Thus, Section 3 will use country-level data on entry costs, financial development, law enforcement, creditor and shareholder rights to proxy for δ to test whether:

Prediction 2: *There is more entry (and more active firms) in sectors more dependent on external capital in countries with greater investor protection.*

Prediction 3: *There is more entry (and more active firms) in sectors with greater entry opportunities in countries with greater investor protection.*

2.5 Extensions

This section analyzes several extensions. First, we show that our lobbying model is equivalent to the model proposed by Grossman and Helpman (1994).[8] Second, we extend the model to allow for wealth inequality across entrepreneurs. Inequality per se has no impact on entry, but will in general reduce the equilibrium level of investor protection. In the Appendix, we examine the case of an open economy. We find that open economies have more entry and better investor protection.

2.5.1 Common agency

In Section 2 we assumed that entrepreneurs can form only one lobbying group and we solved for the optimal lobby composition. The same results obtain using the Grossman and Helpman (1994) model where the assumption of a single lobby is not needed. Building on Bernheim and Whinston (1986), Grossman and Helpman (1994) model lobbying as a common agency problem and show that, if one selects only the truthful Nash equilibria out of the multiplicity of equilibria, the policy maker chooses a policy π so that to maximize:

$$\sum_j W_j(\pi) + AW(\pi), \tag{16}$$

where $W_j(\pi)$ is the indirect utility of the lobbyists, $W(\pi)$ is the social surplus, and $A > 0$ measures how much politicians care about the social surplus. In other words, their key result is that policy makers put additional weight on the lobbyists' utility function.

To apply the Grossman and Helpman framework to our model, we need only a

[8] An earlier version (Perotti and Volpin, 2004) addresses the multiplicity of equilibria and the hypothesis of exogenous agenda in Grossman and Helpman (1994), using a sequential lobbying model. This produces qualitative similar results and identical empirical predictions to the one presented in Section 2. We also confirm the result with multiple legislators, showing how the winning lobby must gain over a "supermajority" of legislators, in line with formal models in political science (Groseclose and Snyder, 1996).

few steps. First, in our setting, the relative weight that politicians put on the social surplus, A, equals $\beta/(1-\beta)$. Second, the sum of entrepreneurs' utility function is:

$$\sum_j W_j(\pi) = \sum_j V_j(n) = mI/2 + mn^2/2 + n(m-n). \tag{17}$$

Furthermore, the social surplus is:

$$W(\pi) = S(n) = mW/2 + (1-m)w_C + 1/2\ n^2 + n(m-n). \tag{18}$$

Finally, to apply the result in Grossman and Helpman, we substitute in (16) the expression for the social surplus (18) and for the sum of entrepreneurs' utility (17). Hence, the policy maker chooses n to maximize:

$$(1-\beta)\sum_j V_j(n) + \beta S(n). \tag{19}$$

From the first order conditions of this problem, we obtain the same identical results as in Proposition 1. Thus, the model that we presented in Section 2 can then be seen as a common agency model. This finding suggests a simple interpretation of common agency models. They are equivalent to models with a single lobbyist who represents the joint interests of all lobbying groups and has to convince the policy maker to choose what the lobbyists want rather than the social surplus.

2.5.2 Wealth inequality

Wealth inequality has two independent effects on the results of the model. The most important effect of wealth inequality may be to reduce political accountability. The diffusion of ownership of land may have empowered the British middle class to constrain the power of the king (Rajan and Zingales, 2003b). Colonies created around plantation economies were inherently unequal and needed a repressive system to function (Engermann and Sokoloff, 2002). If so, more unequal countries would have lower β and therefore less entry.

Yet even if wealth inequality does not affect accountability, it changes the distribution of wealth and therefore also the degree of investor protection required by the

winning lobby to exclude entry by others. To see this, let $F(\sigma, w)$ be the wealth distribution function across potential entrepreneurs and assume that σ applies a mean-preserving spread to the distribution, so that $\int w \partial F(w)/\partial\sigma = 0$. For this equality to hold (given that $w \geqslant 0$) $\partial F(w)/\partial\sigma$ needs to take both positive and negative values. Notice that for β constant, entry is constant at a level n^* given in Proposition 1 and all entrepreneurs with wealth greater or equal to the cutoff level $\widehat{w} = (1-\delta)I/W$ invest. Given a wealth distribution $F(\sigma, w)$, the equilibrium level of investor protection must satisfy the following condition:

$$n^* = m[1 - F(\sigma, (1-\delta)I/W)]. \tag{20}$$

In words, the level of investor protection must be such that n^* entrepreneurs have wealth greater or equal to the cutoff level $\widehat{w}$. Notice that inequality does not affect entry, which is purely determined by β. Yet equation (20) has implications for the relationship between investor protection δ and wealth inequality σ:

$$\frac{d\delta}{d\sigma} = \frac{W}{I}\frac{\partial F(\widehat{w})/\partial\sigma}{\partial F(\widehat{w})/\partial\widehat{w}}. \tag{21}$$

The sign of the denominator is always positive. The sign of the denominator depends on the sign of $\partial F(\widehat{w})/\partial\sigma$. This derivative will be positive if $\widehat{w}$ is small and negative for $\widehat{w}$ large. Thus, the relation between investor protection and income inequality is in general non-monotonic. However, the more realistic case is one in which entry is severely restricted so that the wealth required to set up a company, $\widehat{w}$, is large. In this case, the model predicts that higher income inequality should reduce investor protection, but not affect entry once accountability is accounted for.

3 Empirical analysis

We here test whether political accountability promotes entry via its impact on the quality of investor protection. First, we analyze the relation between political accountability and measures of entry barriers, specifically investor protection, controlling for

other institutional determinants, such as legal origin. Then, we explore the relation between entry and investor protection across sectors with different degree of financial dependence.

3.1 Data

Table 1 describes the data. Entry is the average annual percentage growth in the number of establishments during the 1983-92 interval from UNIDO.[9] As an alternative to entry (which is a flow variable) we also look a stock measure of (relative) industry competition, namely the number of establishments in a sector as the percentage of the total number of establishments in the country. We have a total of 1091 observations from 37 countries and 33 industries.[10] We classify industries using both RZ's external dependence measure and the measure of growth opportunities from Fisman and Love (2003). The latter is defined as the industry growth rate of value added in the United States over the 1983-92 interval. As in RZ, observations from the United States are excluded from the analysis.

Effective investor protection is the sum of anti-director rights and creditor rights (as defined in LLSV, 1998) multiplied by rule of law indicator in 1980 (a measure of contractual enforcement developed by the International Country Risk Guide). This variable captures the quality of investor protection as actually enforced by courts. The cost of entry is the direct and indirect cost associated with meeting government requirements for entry scaled by GDP per capita, as reported by Djankov et al. (2002).

[9] This can be roughly interpreted as the growth in the number of (independent) firms in the industry as it is defined as a "unit which engages, under a single ownership or control, in one, or predominantly in one, kind of activity at a single location."

[10] UNIDO data is available for a large set of countries only from 1983 and is interrupted in 1992 because of a major sector reclassification. The countries included in the sample are Australia, Austria, Bangladesh, Brazil, Canada, Chile, Denmark, Egypt, Finland, Germany, Greece, India, Indonesia, Italy, Japan, Jordan, Kenya, Korea, Malaysia, Mexico, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Peru, Philippines, Portugal, Singapore, South Africa, Spain, Sri Lanka, Sweden, Turkey, UK, Venezuela and Zimbabwe. The industry classification is as in RZ.

We control for the size of the capital markets, which may affect entry through the cost of raising external capital, as the sum of total market capitalization and bank lending to private companies in 1980 as a fraction of GDP. Another variable that can affect entry according to our model is openness, measured as the sum of import and export as a fraction of GDP in 1980.

We use several proxies for political accountability. We define it as the combination of access to information about political choices, and the availability of remedies for political abuse. The most natural proxy for the latter is a democracy score, which measures the general openness of political institutions (from Polity IV). This is a well regarded index, but its composition relies on subjective measures. A more objective proxy are executive constraints as proposed by Henisz (2000), which characterizes the competitiveness of the political system in terms of formal checks and balances. As a third measure of democratic redress, we consider the age of the democracy (from the Database of Political Institutions), to capture the notion that politicians are likely to be more accountable to voters in countries with a longer democratic tradition. A final measure is a simple dummy, that takes value 1 if the country was a democracy in 1980 (and 0 otherwise).

However, political accountability requires more than democracy, as politicians are only accountable to society when voters are informed enough to punish opportunistic politicians. We accordingly interact the democracy dummy with newspaper circulation in 1980, as measured by the Economist in 1980. This variable represents a priori the closest empirical counterpart to the theoretical parameter β in our model.

As alternative determinants of investor protection, we control for legal origin and per capita income, both well established determinants of investor protection in the literature (LLSV, 1998). We use as a control the Gini coefficient of income inequality (from Deininger and Squire, 1996), although probably only a poor proxy for wealth inequality. In practice, inequality is unlikely to be an exogenous institutional vari-

able.[11]

Summary statistics of all variables are reported in Table 2. Table 3 reports the matrix of pairwise correlation for a subset of variables. Effective investor protection appears highly correlated with the three measures of democracy and with political accountability.

3.2 Accountability versus democracy

Table 4 tests the relation between effective investor protection and accountability. Here the three proxy of democracy are included to verify whether there is a direct effect of democracy. The regression controls for other institutional determinants of investor protection, such as income inequality and legal origin. We also control for per capita income as an encompassing measure of institutional quality. Table 4 reports the results.

First, the regressions indicate that democracy is correlated with investor protection only via its effect on political accountability, defined as the presence or degree of democracy interacted with newspaper circulation. This confirms that investor protection is supported only when politicians are held accountable by informed voters.

Second, political accountability appear to have an independent effect after controlling for income inequality and legal origin. As already well established in the literature, common law countries have higher investor protection. An increase in income inequality decreases investor protection, although the coefficient is often not significant.

Third, the coefficient on political accountability remains significant when we control for income per capita (see column 8). This is an important result, since political accountability is highly correlated with per capita income. Although an outcome measure, income is a good proxy for any remaining institutional factor. The results

[11] The model itself implies that entry affects inequality, as low entry countries will have increasingly unequal wealth distribution as a result of limited competition.

in column (8) show that the coefficient on political accountability remains statistical significant at the 7 percent level when subjected to this control. We conclude that even as all other possible institutional factors are included, political accountability has an independent effect on investor protection.

Our results are also economically significant. Using the results in column (8), an increase in political accountability by one standard deviation (0.178 units) is associated with an increase by one third of a standard deviation in effective investor protection (3.7 units).

Since our definition of political accountability is an interaction between democracy and newspaper circulation, the relative importance of these two variables is important. Columns (1) and (2) of Table 9 show that the coefficient on democracy is not statistically significant once we control for per capita income. This suggests that democratic elections may not be enough to induce more entry and more investor protection. Voters effectively constrain politicians only if they are sufficiently aware about their actions.

This result implies that political accountability has critically to do with the degree of information that voters have. An alternative view of our variable of newspaper readership is that it may proxy for some other institutional quality, such as the degree of education. To test this alternative idea, in columns (3) and (4) we use a direct proxy for education (the years of schooling in 1960 from Glaeser et al, 2004). We find that education per se is not a significant determinant of investor protection.

Another essential aspect of press informativeness is its independence. In columns (5) and (6), we use the fraction of newspapers owned by the state from Glaeser at al (2003). This variable turns out to be significantly negatively correlated with effective investor protection. Its effect is independent from the effect of newspaper circulation: an increasing in state ownership of the press by one standard deviation (0.23 units) is associated by a decrease in effective investor protection by about a fourth of a standard deviation (2.8 units). This result confirms the importance of widely-read,

independent (and reliable) press for more effective constraints on politicians, and indirectly to sustain a level playing field in economic activity.

3.3 Poor investor protection as a barrier to entry

Having established that investor protection is affected by political accountability, we now test whether it affects entry. Tables 5 and 6 investigate the effect on entry of entry costs, effective investor protection and financial development. In both tables we interact country-level variables with sectorial external dependence (Table 5) or growth opportunities (Table 6).

The first three columns of Table 5 show that all three variables (cost of entry, effective investor protection and financial development) are correlated with greater entry in more financially dependent sectors. Columns (4) to (7) reports the result of a horse race among these variables. Entry rates in more financially dependent sectors are larger in countries with smaller entry costs, better investor protection and more open to trade. Interestingly, the size of capital markets does not matter once one controls for effective investor protection, suggesting that entry is more a matter of access to finance than market size per se.

For the economic magnitude of these effects, consider industries at the 75th percentile of external dependent (Ship) versus those at the 25th percentile (Apparel), and countries at the 75th percentile of effective investor protection (Austria) and at the 25th percentile (Turkey). Using the coefficient estimated in column (6), annual entry should be 0.6 percent smaller in Ship than in Apparel, in Turkey as compared with Austria, compared with an unconditional average entry rate of 2.9 per year %.

Table 6 interacts our country-level explanatory variables with measures of industry growth opportunities (as in Fisman and Love, 2003). The first three columns indicate that cost of entry, effective investor protection and financial development are correlated with more entry in sectors with better growth opportunities. However, only investor protection and openness survive the horse race. As before, consider the

industries at the 75th percentile of growth opportunities (Wood Products) and at the 25th percentile (Spinning). The country at the 75th percentile of investor protection is Austria, while the country at the 25th percentile is Turkey. Using the estimates presented in column (7), annual entry should be 0.5 percent greater in Wood Products than in Spinning, in Austria as compared with Turkey, economically significant when compared with average entry.

A possible weakness of our data is that it measures net entry rather than gross entry. A small change in the number of firms could arise in two very different contexts: one with a lot of entry and exit, and another with very little entry and exit.[12] To address this concern we turn to a stock measure of industry competition, namely the number of firms per sector, scaled by the total number of establishments in the country. This corresponds to a measure of relative cross sectorial density of firms. The results (reported in Tables 7 and 8) strongly indicate that effective investor protection is correlated with greater industry competition in more financially dependent sectors (Table 7) and in sectors with greater growth opportunities (Table 8). No other variable results statistically significant once we control for effective investor protection. This strongly suggests that there is indeed a financial channel strongly affecting entry even in the medium term, ultimately shaping relative industry structure within countries.

4 Conclusion

This paper makes two contributions. It shows how the level of entry is affected by access to finance, as it is higher in sectors which depend more on external finance in countries with better investor protection. The finance channel is important next to explicit entry costs and barriers. The paper also provides evidence that effective enforcement of such laws improves with political accountability, defined as the abil-

[12] In Perotti and Violpin (2004) we confirmed our results using gross entry data from a small sample of European countries.

ity of informed citizens to constrain politicians. We model empirically this variable as the interaction of democratic rule with access to information. Both factors are essential to create accountability, since citizens in a non democracy have no instruments to intervene politically, while citizens in a formally democratic country where information is not diffused will be unable to check political choices. In either case, the economic environment will be less open to entry and produce greater rents for established producers, and limited access to finance will be a significant entry barrier

Our model shows that the number of producers may emerge as a trade-off between the rents from restricting entry and the political cost caused by lower welfare. Weakening access to finance is a natural channel for blocking entry, both because less explicit than formal entry barriers, and because abundant funding can help overcome most entry barriers. As the political system becomes more accountable, lobbying to limit entry becomes expensive. As a result, enforcement of investor protection and entry improve, broadening the economic elite and increasing competition. Thus an important message is that broader access to finance may matter for growth as much as the total scale of capital markets, as it produces a more level playing field and more output.[13]

An implication of the paper is that improving formal investor protection laws while ignoring its enforcement may not improve access to finance, as reforms may be captured by the current economic elite. Privatization and liberalization of the banking system fails to deliver growth if it is undermined by connected lending and outright plundering by bank owners, as in Mexico before 1994 (La Porta, Lopez-de-Silanes and Zaparripa, 2003) and in Russia (Perotti, 2002). Feijen and Perotti (2005) model and test excess exit after financial shocks in more corrupt countries. Following financial crises, exit rates are indeed higher in more financially dependent sectors in more corrupt countries, cushioning profits for remaining producers.

[13] He, Morck and Yeung (2003) show that countries where the same companies maintain a dominant position over time have lower economic growth, worse protection of investor rights and less developed capital markets.

Some entrepreneurs who fail to raise funding may operate in the informal sector. Yet the evidence in developing countries is that smaller firms produce at very sub-optimal levels, even though they show very high productivity of capital investment (Banerjee and Duflo, 2005). As suggested in De Soto (2000), poor legal enforcement and unclear property rights limit individuals' ability to commit contractually and thus to raise funding. This affect growth because it reduces access to economic initiative to the benefit of established interests. Yet legal and regulatory reforms will produce reliable access to finance only if political accountability provides the necessary enforcement guarantee on investor protection.

A final consideration concerns the deeper determinants of political accountability, a critical issue for the recent literature on political economy. Candidates for its historical determinants include legal origin (LLSV, 1998), initial endowments or geographic conditions (e.g. Acemoglu, Johnson and Robinson, 2001; Engerman and Sokoloff, 2002). Unaccountable political institutions may persist because they choose distorted economic institutions which ultimately limit growth, but preserve control over the elite (Acemoglu, 2003, and Rajan and Zingales, 2003b).

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Appendix: Model extension with open economy

Consider two identical countries (country 0 and country 1), each populated by $1-m > 1/2$ consumers and m entrepreneurs with preferences and endowment as in the basic model. The two economies have fully integrated markets for equities and goods but do not share the same investor protection. At $t = 1$, policy makers in the two countries choose non-cooperatively the degree of investor protection applied to domestic firms. [14]

The bundle $(k_{i,c}, c_{i,c})$ indicates the consumption of individual i living in country $c \in \{0, 1\}$. Similarly, $\alpha_{i,c}^{j,0}$ and $\alpha_{i,c}^{j,1}$ indicate the stake owned by individual i living in country c in company j incorporated in country 0 and 1, respectively. Also, $P^{j,c}$ is the price of company j if incorporated in country c, n^c is the number of companies incorporated in country c, and δ^c is the quality of investor protection in country c.

As a consequence of the new notation, the budget constraint faced by a generic agent i from country $c \in \{0, 1\}$ is

$$k_{i,c} + pc_{i,c} \leq y_{i,c}. \tag{22}$$

The income of a representative consumer i, living in country c is:

$$y_{i,c} = \left(w_{i,c} - \sum_{k=0}^{1} \sum_{j=1}^{n^k} \alpha_{i,c}^{j,k} P^{j,k} \right) + p \left(\sum_{k=0}^{1} \sum_{j=1}^{n^k} \alpha_{i,c}^{j,k} \right) \tag{23}$$

For an active entrepreneur e from country c, there is one extra term:

$$y_{e,c} = \left(w_{e,c} - \sum_{k=0}^{1} \sum_{j=1}^{n^k} \alpha_{e,c}^{j,k} P^{j,k} \right) + p \left(\sum_{k=0}^{1} \sum_{j=1}^{n^k} \alpha_{i,c}^{j,k} \right) + \left[\left(1 - \alpha_{e,c}^{e,c}\right) P^{e,c} - I \right] \tag{24}$$

the third term is the capital raised on the market net of the investment in firm e. The income of an inactive entrepreneur has the same structure as the one of a consumer.

We replace the zero-profit condition in the closed economy, with the open-economy equivalent. However, given that the two economies as ex-ante identical, the condition is the same: $a = m + I$.

A.1 Market equilibrium

[14] Notice that foreign investors in domestic firms also is subject to domestic investor protection.

At $t = 3$, each consumer i maximizes utility (1) subject to the budget constraint (22). From the first order conditions for apple pies, which are necessary and sufficient, and using the assumption that $a = m+I$, we obtain that $c_{i,c} = m+I-p \equiv c$. That is, all consumers choose to consume the same amount of apple pies while apple consumption depends on income: $k_{i,c} = y_{i,c} - pc$. With unit production technology, the aggregate supply of pies is $n^0 + n^1$, while its aggregate demand is $2(m + I - p)$. Hence, $p = I + m - (n^0 + n^1)/2$.

At $t = 2$, entrepreneurs from country c need wealth $(1 - \delta^c)I$ to setup a firm. Hence, the number of firms in country c is

$$n^c = m[1 - (1 - \delta^c)I/W]. \tag{25}$$

It is interesting to notice that expression (25) is identical to expression (6). Hence, entry is not affected by openness when one controls for investor protection.

Given that the capital market is competitive and there is no asymmetry of information, $P^c = p$. As in Section 2, one can derive the expressions for the indirect utilities of consumers and entrepreneurs in each country c. The utility of the representative consumer (4) from country c is:

$$V_{i,c} = w_{i,c} + 1/2 \left(\frac{n^0 + n^1}{2}\right)^2. \tag{26}$$

The indirect utility of an entrepreneur e from country c is:

$$V_{e,c} = \begin{cases} w_{e,c} + 1/2 \left(\frac{n^0+n^1}{2}\right)^2 + [m - (n^0 + n^1)/2] & \text{if } w_{e,c} \geqslant (1 - \delta^c)I \\ w_{e,c} + 1/2 \left(\frac{n^0+n^1}{2}\right)^2 & \text{otherwise} \end{cases}. \tag{27}$$

The social surplus in country c can then be written as a function of the number of active firms

$$S^c = mW/2 + (1 - m)w_C + (1/2) \left(\frac{n^0 + n^1}{2}\right)^2 + n^c[m - (n^0 + n^1)/2]. \tag{28}$$

As in Section 2, surplus is increasing in investor protection.

A.2 Political equilibrium

By using the results in Section 3.1 about the equivalence between our model and common agency models and the monotonic relation between n^c and δ^c given in (25), the policy maker in country c for $c \in \{0, 1\}$ chooses n^c so at to solve the following problem:

$$\max_{n^c} \ (1-\beta) \sum_{e=1}^{m} V_{e,c} + \beta S^c, \tag{29}$$

where $V_{e,c}$ is the utility function of entrepreneur e given in (27) and S^c is the social surplus given in (28). After these substitutions,

$$\max_{n^c} \ m\frac{W}{2} + \beta(1-m)w_C + \frac{1}{2}[1-(1-\beta)(1-m)] \left(\frac{n^0+n^1}{2}\right)^2 + n^c \left(m - \frac{n^0+n^1}{2}\right). \tag{30}$$

In a symmetric equilibrium where both countries choose the same level of entry, the first order condition simplifies to:

$$n^{**} = \frac{m}{1+(1-m)(1-\beta)/2}. \tag{31}$$

Comparing expressions (14) and (31), it is easy to see that entry is strictly greater in an open than in a closed economy. The intuition is that domestic lobbyists allow greater entry because part of the loss of rents due to more competition is born by foreign firms. Given the monotonic relation between entry and investor protection, it follows that investor protection is better in open economies.

This result is consistent with the finding in Rajan and Zingales (2003a) that over the last century financial development correlates with trade openness. Similarly, the cross-country evidence by Abiad and Mody (2005) indicates that trade openness has increased the pace of reform in financially repressed countries.