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Institutional Obstacles to Entrepreneurship

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This chapter focuses on institutional obstacles to entrepreneurship. An entrepreneur carries out a highly complicated composite act. She needs intelligence to collect and digest information about business opportunities. She needs foresight about the possibilities new technologies and other developments create. She needs judgment and leadership skills to found a company and guide its growth. She needs communication skills to enthuse financiers to back her vision. The number of active entrepreneurs therefore depends on how many individuals possess these skills. But skills are not endowments. Individuals decide to develop those skills that advance their well being and to forego developing those that do not.

The prospects of a career as an entrepreneur depend on the economic environment, which can be facilitative or detrimental. A multitude of factors determine this environment: rules and regulations, the quality of government, the availability of education, and the ambient culture. Many of these factors fall under the heading of *institutions*, by which we mean the *constraints on behavior* imposed by the state or societal norms that shape economic interactions. This is the often cited definition in North (1990). At its most general, an institution is any *predictable pattern of behavior*, including "culture".

Of particular importance in determining the abundance of entrepreneurs are the following:

1. Rules, regulations, and property rights, and their enforcement matter because they affect what we call *transactional trust*: the degree of trust the parties to a business transaction place in each other. Entrepreneurship requires long term transactions, such as skilled employees or financial backers investing their time and money now for rewards in the distant future. If they typically cannot trust the entrepreneur to fulfill her obligations, their time and money are not

proffered, and the entrepreneurial venture is unviable. Property rights matter, for example, because De Soto (2000) shows that home mortgages are a key source of entrepreneurial financing in much of the world. More complicated financial dealings also require well enforced property rights. For example, stock markets require legal protection of investors' property rights over their investments.

2. Government matters because it establishes and enforces rules, regulations, and property rights. Good government raises transactional trust and so facilitates entrepreneurship. Insufficient government fails to protect the rights of the weak, and this discourages entrepreneurship. What impoverished entrepreneur would work day and night to build a new firm knowing that robber barons will seize it at the first signs of profit? But excessive government can be just as bad. Cumbersome regulations and burdensome rules can raise the costs of running a new business to the point where acquiring the skills needed to be an entrepreneur seems pointless. And governments of any size can follow bad policies: Subsidies to ill governed firms run by cronies can crowd out private investments and volatile macroeconomic policies can create uncertainties that make long term investments unnecessarily risky.

3. The distribution of control over corporate assets matters because elites with concentrated control of large swaths of the large corporate sector have political influence. Those on top most appreciate the *status quo*, of which entrepreneurship is innately disruptive. Established elites can preserve the *status quo* by, for example, lobbying for policies that check the financial system's ability to back upstart firms. Rules and regulations with high compliance costs also disproportionately burden small, new firms, as do high tax rates with complicated loopholes.

4. Culture matters, for the literature shows that authoritarian and hierarchical societies fail to honor self-made success, and social status is surely part of the payoff to entrepreneurs.

5. Very basic institutions matter profoundly. Universal basic education lets latent entrepreneurs realize that opportunities exist. Openness to the outside world lets in foreign ideas and opportunities along with foreign goods and capital. Diversity also matters because it opens minds to new ideas. These factors all affect entrepreneurship because they stimulate information exchange. New ideas are a necessary condition for successful entrepreneurship.

These institutional constraints may seem almost trivial to the inhabitants of some developed economies, but they are largely lacking in many poorer countries and regions and are surprisingly limited even in many otherwise developed economies. All are fundamentally important, and a deficit in any can impede entrepreneurship throughout a region, a country, or a civilization. To clarify this, we first explore the economics of entrepreneurship more deeply and then provide some preliminary empirical investigation of the validity of these arguments.

II. What is an entrepreneurial act?

A common perception of an entrepreneur is as an innovator, who starts and operates a thriving upstart business. Many well-known entrepreneurs are innovators, or successful business persons who commercialize innovations. But entrepreneurship encompasses more than invention.

Schumpeter (1934) suggests that an entrepreneur is not a pure inventor; and need not even be an inventor at all. Often, she adopts new inventions devised by others, or merely creates new combinations of old activities to fulfill familiar economic purposes more efficiently and effectively. Similarly, Hayek (1937) and Kirzner (1973) view an entrepreneur as an arbitrageur:

a middleman who recombines productive activities to produce more valuable outputs and/or use cheaper inputs. An entrepreneur collects and digests information and makes a judgment about the payoffs from using a new combination of activities, instead of an old one. This act of creativity requires uncommon foresight and judgment, as well as more mundane skills. Hayek (1948) points out that this form of arbitrage drives increasing economic efficiency, which can intuitively, but essentially correctly, be defined as 'always producing the most valuable outputs from the cheapest possible inputs.'

In addition, an entrepreneur directs work processes and resource allocation, which Coase (1937) refers to as entrepreneurial coordination. Hence, an entrepreneur can be distinguished as having the managerial skills and insights to devise and implement new work processes or procedures, or to apply old ones in new businesses. Henry Ford I was a hugely successful entrepreneur, whose assembly-line production process revolutionized the automobile industry and many others. Sam Walton, the founder of Walmart, was another, who revolutionized retailing on a global scale. Arora *et al.* (2004) document that, in the U.S., new industry leaders were often highly concentrated geographically, and spawned other successful firms, typically in the same region, that become leaders in related industries. For example, the TV receiver industry developed from the radio industry in this way.

Another facet of entrepreneurial activities is risk-taking. To implement an entrepreneurship, an entrepreneur has to accept the risk that her investment of money, time and energy may not pay off. Cantillon (1755) emphasizes that an entrepreneur is a specialist in taking on risks. Much new work confirms that entrepreneurs are less risk-averse than others. Gentry and Hubbard (2001) show that entrepreneurs have poorly diversified portfolios. Moskowitz and Vissing-Jorgensen (2002) show that entrepreneurs bear high risks. Evans and

Leighton (1989) show that entrepreneurs typically believe their firms' performance largely depends on their own actions. Puri and Robinson (2004) use U.S. survey data to show that entrepreneurs are unusually risk-loving and optimistic.

That entrepreneurs seldom start out independently wealthy, and so need financial support to break through market entry barriers is long recognized since Schumpeter (1942). Recent work confirms that liquidity constraints limit entrepreneurship and financial market development facilitates it. For example, Evans and Jovanovic (1989) show that individuals founding new businesses typically faced liquidity constraints and had to accumulate personal wealth first. Holtz-Eakin, Joulfaian, and Rosen (1994b) show that individuals with inherited wealth are more likely to become sole business proprietors. Holtz-Eakin, Joulfaian, and Rosen (1994a) show that inheritance-induced relaxation in liquidity constraints raises entrepreneurs' business survival and performance rates.

In summary, an entrepreneurial act is a composite. To conduct a Schumpeterian entrepreneurial "recombination," an entrepreneur must be a risk taker. Yet, she cannot be foolhardy. She needs information, including information about technological innovations and new business practices. She needs the foresight to see where these might lead, and the judgment to get there. She needs the business skills to found a firm and manage its market entry. And she needs the skills to persuade capitalists to back her venture. All of these traits are, in part at least, skills that individuals must develop. An economy's institutional environment can either encourage or discourage this, and so determines, in part at least, its level of entrepreneurial activity. Of special importance are institutions that permit transactional trust: trust between the parties of a transaction whose outlay and return are far separated geographically or temporally.

III. Institutions affect entrepreneurship

Before investigating the role of institutions further, we need to clarify the term. North (1990, p. 3) defines institutions as "the rules of the game in a society or, more formally, … the humanly devised constraints that shape human interaction." A government is an "institution" because it is normally responsible for setting up and enforcing "the rules of the game." This technical definition is not far off the standard dictionary definition of an institution as "an organized pattern of group behavior, established and generally accepted." Both include the subject matter above: Laws, rules, regulations, and cultural constraints on behavior, like religions. Hence, "institution" is a succinct term for "the rules of the game," "government," and "organized patterns of behavior" that includes culture, religions, and even "markets."

The incidence of entrepreneurial acts, shown above to be composite in nature, depends not just on the incidence of capable individuals, but also on a variety of institutional factors that may facilitate or hinder entrepreneurship.

For example, institutional features that impede information flow, raise information costs, and erode the gains from information limit entrepreneurial activity. These can include lax accounting standards and disclosure requirements, weak property rights protection, an inefficient judiciary, and ambient corruption. Besides their direct negative impact on the information seeking aspect of entrepreneurial activity, these institutional deficiencies also retard capital market development, which further dampens entrepreneurial activity. They render markets less competitive, diversified, and developed, and this also reduces economic pressures on established firms to explore new opportunities, like innovatively entering vertically related lines of business.

Many institutional features that influence entrepreneurship, like laws and regulations, are directly controlled by the state and hence by those who influence it. Others, like law

enforcement and judicial efficiency, are heavily influenced by the state. Yet others, like culture and religion, probably lie outside the control of the state, except perhaps in the very long run. This may explain why some emerging economies, like China and Poland seem more entrepreneurial than others.

Systematic investigation of these matters is difficult within the confines of a single economy because these factors, once established, usually change very slowly. Recent years have produced a surge of cross-country studies relating economic development to institutions, especially those affecting capital market development and functionality.[1] This attention arose as formerly socialist command economies sought to develop market economies. Their experiences exposed how limited economists' knowledge was about the formation and functionality of markets. Economic theories based on mature and highly developed economies were quickly proved inadequate guides, for they implicitly assumed institutional constraints that had to be constructed in most transition economies.

As researchers grappled with a new appreciation of the critical role of institutions, their fundamental connection to entrepreneurship grew apparent. Different transition economies quickly came to display vastly different levels of entrepreneurship (e.g. McMillan and Woodruff, 2002). Even among developed economies, the variation is non-trivial and statistically related to the institutional environment (e.g. Desai, Gompers and Lerner, 2003). A growing literature sheds light on this relationship.

There are two ways we could organize our discussion. We might organize the literature along "functional" lines following the entrepreneurial process: – information acquisition, economic foresight, risk tolerance, property rights, financing, and market entry. This would let

[1] The literature grows almost exponentially. A good starting point would be La Porta *et al.* (1997, 1998), King and Levine (1993a and b), and the recent surveys in Levine (1997), Durnev *et al.* (2004) and Beck and Levine (2005)

us consider how institutional factors affect each function. However, each institutional feature typically affects all the components of this chain. We therefore take the more succinct (and less repetitious) approach of exploring how each relevant institutional feature affects the composite chain of entrepreneurial activity.

III. A. Two general comments

The type of government

Practically all economies have a government charged with laying down rules, laws, and regulations, and with administering a judicial system to enforce them. By these activities, the government fosters the development of markets and shapes economic behavioral norms. The government also directly affects resource allocation and market behavior through its tax, fiscal, monetary, and other economic policies.

Frye and Shleifer (1997) conceptually sort governments into three basic styles, characterized by an invisible hand, a helping hand, or a grabbing hand.

> *"Under the invisible hand model, the government is well-organized, generally uncorrupted, and relatively benevolent. It restricts itself to providing basic public goods, such as contract enforcement, law and order, and some regulations, and it leaves most allocative decisions to the private sector." "Under the helping-hand model, bureaucrats are intimately involved in promoting private economic activities, they support some firms and kills off others, pursue industrial policy, and often have close economic and family ties to entrepreneurs. … Bureaucrats are corrupt, but corruption is relatively limited and organized." "In the final, grabbing-hand, model, government is just as interventionist, but much less organized, than in the helping-hand model. The government consists of a large number of substantially independent bureaucrats pursuing their own agendas, including taking bribes." (p. 354)*

The three styles articulate a continuum of possible stances for the government – from setting up rules and regulations to facilitate economic transactions through meddling more than necessary to blatantly corrupt politicians and bureaucrats treating the economy as prey. Our theme below is how the costs and benefits prospective entrepreneurs envision shifts as we move

from invisible to helping to grabbing hand governments. It seems that entrepreneurship is most viable if the government offers an invisible hand and least if the state reaches out with a grabbing hand.

A deep question at the intersection of economics and political science is why the hands of different states take different forms, and how these can be changed. Recent work uses political economy frameworks to analyze the determinants of governments' hands and their enthusiasm for different sorts of institutional development, e.g., see Morck, Wolfenzon, and Yeung (2005) and Perotti and Volpin (2004). Much more work along these lines is needed.

Stages of development

Which institutional factors most significantly affect entrepreneurship probably depends on an economy's stages of development. For example, state-of-the-art accounting disclosure rules are of little use in an economy where most of the population is illiterate or judges are irredeemably corrupt.

Entrepreneurial activity in low-income developing countries often entails an individual setting up a small business to earn a living. At this stage, the state can promote entrepreneurial activity by offering entrepreneurs secure ownership of their businesses, legal enforcement of business contracts they enter, basic communication and transportation infrastructure, and an educated population from which to hire.

This can ignite economic growth as small business owners and employees develop business skills and the broader society comes to appreciate their achievements. Individuals who succeed in these endeavors save from their earnings and invest further in the human capital of their children, in their own businesses or more broadly. The last creates opportunities for

developing a financial system, which extends entrepreneurial career opportunities to people lacking personal or family wealth. This sows the seed for the next stage of development and for more intense entrepreneurial activity.

A typical entrepreneur now starts a business hoping to build a successful enterprise with a national or even global market share. Accounting disclosure standards, bank regulation, and corporate governance now take prominence as entrepreneurs' needs for large-scale capital grow. The quality of local universities, constraints due to labor laws, and the attractiveness of the country to foreign experts now also all acquire importance as entrepreneurs seek ever higher quality human capital.

While the above dichotomization is artificial, empirical results corroborate with it, for developed and developing countries differ starkly in the institutional factors that predict firm entry (e.g., Desai, Gompers, and Lerner, 2003) and firm turnover (e.g., Fogel, Morck, and Yeung, 2004). Detailed empirical work in this area is difficult, and hindered by a lack of reliable and publicly available data, especially for developing nations.

III.B. Specific considerations

We now turn to more specific institutional features that affect entrepreneur supply.

- Rules, regulations, property rights, and the legal environment

Entrepreneurial activity relies on individuals taking advantage of arbitrage opportunities, bearing risks, raising capital, and entering markets. An entrepreneur needs to trust her information. She also needs to be able to earn the trust of her financiers and build trusting business relationships

with transacting partners. That is, entrepreneurship critically relies on the ability to secure transactional trust.

These sorts of trust do not come easily. Successful entrepreneurship requires intangible skills and effort. Intangibles like information processing skills, foresight about changing markets, insight about the viability of new combinations of production processes, risk assessment, and managerial skills are difficult for others to verify *ex ante*. This difficulty is exacerbated by the very long term nature of the contracts and commitments involved in building a business. Supporting entrepreneurs requires committing resources now and hoping for returns in the far distant future. These long delays unavoidably create uncertainty and give cheaters cover to behave opportunistically. Long term transactions based on information based skills are often untenable because information asymmetry, moral hazard, adverse selection and agency problems undermine transactional trust.

Entrepreneurs find it difficult to be trusting, too. Stand alone entrepreneurs are often inexperienced market entrants with limited recourses to punish people or organizations who cheat on them or discriminate against them. This is particularly the case if the offenders are bureaucrats, powerful financiers, or dominant established suppliers or distributors.

Well enforced rules and regulations strengthen transactional trust. Clearly laying out what is acceptable and what is punishable gives transacting parties stronger property rights by letting them more readily detect and punish cheating. More importantly, it lets people commit to "verifiable honesty" and thus enables long term transactions. Examples of these rules and regulations include mandatory disclosure requirements, specified investor and creditor rights, definitions for performance clauses in trade contracts, and the like. Well enforced rules and regulations of these sorts facilitate the use of legal contracts to create transactional trust.

The absence of transactional trust advantages individuals who can overcome the resulting institutional deficiencies. For example, an absence of transactional trust weakens the financial system, giving an advantage to individuals who can raise money from family members. A family member who cheats relatives can be punished by the family in many ways, up to and including ostracization. Repeated interactions can also create transactional trust because an accumulated reputation for honesty is a valuable asset for future transactions, and even minor cheating greatly dissipates its value. This explains why, in many developing economies, a 'relationship' must precede any substantial business dealings. High profile demonstrations of choosing honesty over opportunistic behavior also help build valuable reputations. Fulfilling unfavorable contractual obligations may cost money in the short term, but it builds a reputation that serves as a durable asset.

If the cost of a damaged reputation outweighs the gain from cheating, people do not cheat. But much business involves one time incidental transactions between strangers, where cheating has no real reputation cost. Moreover, these methods of overcoming low ambient levels of transactional trust are not available to most people. Individuals from small and poor families cannot amass enough family wealth to start a business. Transactional trust based on long term relationships or demonstrations of honesty is an advantage to the established, but a barrier to upstarts. For these reasons, formal and freely accessible mechanisms that engender transactional trust can spur entrepreneurship. Without them, entrepreneurs emerge only from the privileged and established. (See also John, McMillan and Woodruff, 2002a.)

Entrepreneurial activity also depends on how well entrepreneur's property rights are protected from the grabbing hands of bureaucrats and from established elites with political influence. Any one of the following scenarios discourages entrepreneurship. Consider a

business venture that is about to become eminently successful, thanks to the founding entrepreneur's insight, skills, and years of hard work. The business can lose its value overnight if the government suddenly requires a hitherto unneeded operating license. A corrupt bureaucrat can demand a bribe of anything up to the value of the business for granting the license. Or, the corrupt bureaucrat can grant an operating license to a relative, friend, or even himself; and the license holder can then buy the entrepreneur out at a fire sale price, force a joint venture upon her, or bankrupt the entrepreneur and then set up a copy cat operation. In these ways, bureaucrats or parties with political influence can grab the lion's share of the gain the entrepreneur would otherwise have earned. A rational prospective entrepreneur, foreseeing this, would opt for another career – perhaps as a bureaucrat. And even if she did not, rational technology experts and investors would doubt her ability to pay high returns in the future and withhold their time and money. This sort of corruption certainly also occurs in developed economies, but it is tragically commonplace in much of the developing world and the former East Bloc. The consequence of these failures to safeguard entrepreneurs' property rights is a paucity of entrepreneurship.

The laws and regulations that deter such behavior and thereby permit transactional trust must be enforced to have a real effect on entrepreneurship. Obviously, an honest, independent, and efficient judicial system is needed. Several considerations merit note.[2]

First, law enforcement is a government's job. Generally, a more constrained government is less attractive to corrupt bureaucrats and less useful to powerful elites. As the bank robber Willy Horton replied when asked why he robbed banks "That's where the money is." Constrained governments with smaller budgets and fewer regulatory powers are therefore likely to be less corrupt and better at administering an efficient and effective court system. The

[2] The literature is long; interested readers should consult, e.g., Morck *et al.* (2004, section VII).

constraints can stem from a strong constitution, mass media created social transparency, a well educated populace, or plain social culture and values.

Second, the origin of a country's legal system may matter. La Porta *et al.* (1998) show that a legal system derived from British common law best protects property rights protection and promotes judicial efficiency. The reasons for this are unclear. Common law legal systems may well coincide with other less tangible institutions derived from a British colonial heritage. Or, common law may actually better protect weak outsiders from powerful insiders. Further work is needed to illuminate these issues.

Thus, limited and well-defined rules and regulations, well-protected property rights, good government, and an efficient and effective judicial system all promote entrepreneurship. The empirical literature offers support for all of these links.

Desai, Gompers and Lerner (2003) gauge entrepreneurship in European Union members and Central and Eastern European countries using entry rates, average firm size, average firm age, and the skewness of the firm size distribution. They regard higher entry rates, a smaller average firm size, a greater average firm age, and a more symmetric size distribution as evidence of more active entrepreneurs. Using these measures, they report more entrepreneurship in less corrupt countries and in countries that better protect private property rights. They also show a less consistent link between less interventionist courts and more entrepreneurial activity.

All of these linkages are far less statistically significant in developed countries than in transition economies. This means either that these institutional features are more important in developing countries or that exceeding a threshold level of institutional development is very important, but further refinement is less critical. Morck, Yeung, and Yu (2000) find evidence of such a threshold effect in the impact of property rights protection on asset price informativeness.

Johns, McMillan, and Woodruff (2002b) use a 1997 survey of recently formed and relatively small manufacturing firms in Poland, Slovakia, Romania, Russia, and Ukraine. They infer the lack of property rights by respondents' answers about the need to make "extralegal payments" for government services (e.g., fire and sanitary services, registration renewal) and licenses, and to pay exorbitant "protection" fees. Their survey also asks how effective the courts are at resolving commercial disputes. They find that established firms earn significantly higher after-tax profits in countries with weak property rights and ineffective courts. Since high profits should be eroded by the entry of new competitors, they conclude that these institutional deficits discourage entry. They also report that weak property rights and lack of faith in the courts discourage firms from re-investing their profits, even if potentially profitable reinvestment opportunities exist.

Johnson, McMillan and Woodruff (2000) measure also these same countries' market infrastructure as of about 1997 using (i) firms' typical sales outside their immediate localities, (ii) the extent to which private firms do not depend on state-owned enterprises as suppliers or customers, and (iii) the importance of wholesale traders. They report that countries' rankings in these metrics correspond well to their rankings in measures of government quality, including the legal system's effectiveness, the rule of law, the absence of corruption, and the general level of economic freedom. They report Poland leading other transition economies in both the development of both its legal and regulatory environment and its market infrastructure. Slovakia follows closely and Ukraine tends to guard the rear. They conclude that the control of corruption is an essential institutional reform if entrepreneurship is to develop.

- Regulatory burden

Not all well-enforced laws and regulations facilitate entrepreneurship. "Invisible hand" governments impose and enforce laws and regulations to define property rights and create transactional trust, and might err on the side of too little regulation. "Helping hand" and especially "grabbing hand" governments impose economically inefficient regulations that burden entrants to protect incumbents with political influence or to extort bribes. Overall, empirical work suggests excessive laws and regulations are the more general problem. Countries with higher regulatory burden support less entrepreneurship.

De Soto (1990) painstakingly documents every detail about the bribes, delays, and regulatory headaches confronted by anyone without political influence attempting to establish a legal small business in Peru.

Djankov *et al.* (2002) document the number of regulatory hurdles on the path to establishing a small business in 85 countries. The number of required procedures range from 2 in Canada to 21 in the Dominican Republic, and the average is 10. They also show that the minimum time required to meet these hurdles ranges from 2 days (Australia and Canada) to 152 (Madagascar), with a world average of 47. More burdensome entry regulations correlate with more corruption, but not with higher goods quality, less pollution or better health outcome. Controlling for per capita income, countries with more closely held political power, fewer political rights, and fewer constraints on their executives have more burdensome entry regulations. This is consistent with grabbing hands imposing excessive regulatory burden in much of the world.

Desai, Gompers, and Lerner (2003) report that these same "*regulatory burdens*" data correlate positively with higher average firm sizes in European countries, indicating that the burdens probably protect large incumbents' market shares. "*Regulatory burdens*" are positively

correlated with entry in Central and Eastern European countries, but this may be a statistical artifact of an unusual negative correlation between regulatory burden and corruption in those countries.

Fogel, Morck and Yeung (2005) examine the staying power of dominant firms from 1975 to 1996 across different countries. They find that higher regulatory burdens correlate with lower turnover of top firms, particularly in high income countries.

- Crowding out

"Helping hand" governments proactively manage their economies to advance social and economic development. These governments typically have large budgets and direct many state controlled enterprises. While these activities are probably covers for "grabbing hand" politics in some countries, they reflect genuinely benevolent government in others. Even so, "helping hand" governments impose costs upon the economy. Their activities bid up factor costs, including capital costs, and crowd out private investment. This is particularly unfavorable to upstarts.

Generally, direct government activism favors large established corporations. Högfeldt (2005) describes in detail how Sweden's social democratic governments forged *de facto* partnerships with large established corporate groups, essentially offering protection from competitors in return for cooperation in implementing new social policies. Politicians quite understandably find dealing with the controlling owners of a few large corporate groups simpler and more predictable than dealing with the managers of many smaller independent firms. To the extent that this preference leads to government favoritism towards large established corporations,

it adversely affects entrepreneurship. Fogel *et al.* (2005) present evidence consistent with Högfeldt's hypothesis across a broad cross-section of countries.

But governments can and do allocate direct subsidies, loan guarantees, and the like to small businesses and even to businesses in the process of formation. Gompers and Lerner (1999) describe a variety of such schemes in the United States and elsewhere and conclude that most are surprisingly ineffective, but that there are occasional qualified successes. For example, small firms backed by the United States Small Business Innovation Research grew faster than otherwise similar businesses. The qualification here is that this must be balanced against the drag on the economy due to the higher taxes and government debt the program required. This sort of counterfactual analysis is very uncertain.

Gompers and Lerner (1999), after an extensive and detailed analysis of such programs, offer relatively simple advice to policy makers: Keep public funds out of overheated 'chic' sectors already flush with private money. Instead, fund out-of-fashion but promising ventures. Overall, they conclude that venture capital financing is best accomplished by specialized funds with accumulated technological and managerial expertise. Governments (and large established corporations) have great difficulty matching such funds' ability to distinguish sound from unsound ventures early on, and to reallocate capital swiftly.

Finally, government subsidy programs of any sort are tempting targets for political lobbying. Stigler (1986), Krueger (1993) and others present plausible arguments about how self-interested civil servants can slowly change "helping hand" bureaucracies into "grabbing hands" and much empirical evidence now supports this view. These transformations do not require corrupt civil servants, only a degree of self-interest similar to that of everyone else.

- Economic stability

Entrepreneurship entails inter-temporal exchange – investing time, effort, and money now for returns in the distant future. Such exchanges are more tenable if the future is more "predictable." A fundamental internal contradiction arises here in that entrepreneurship disrupts the status quo, making the future less predictable. Entrepreneurial activity thus ought to be self-regulating: entrepreneurship that disrupts the economy sufficiently discourages further entrepreneurship until things settle down.

But entrepreneurship is not the only source of unpredictability – especially at the macroeconomic level. Ill conceived or erratic macroeconomic policies make foreign exchange rates, tax rates, interest rates, and inflation rates unnecessarily unpredictable. These risks make promised future payments less valuable to entrepreneurs, their prospective financial backers, and technology experts they might otherwise compensate with future claims, like stock options.[3] Large, established firms are likely less damaged by this uncertainty than upstarts, for their ongoing earnings let them deal in cash, rather than promises in the distant future.

Macroeconomic volatility thus discourages entrepreneurship. Financial backing becomes more expensive, for even highly sophisticated investors using financial hedging instruments cannot escape such risks entirely. No analogous techniques let the entrepreneur or her technology experts evade the risks in their undiversified investments of time and effort. Also, such risks impede transactional trust. McMillan and Woodruff (2002) propose that macroeconomic volatility makes it harder to decipher whether or not transaction partners behave honestly. This discourages the long term contracts and relationships necessary for successful

[3] A rigorous treatment of the problem in a general equilibrium framework is available in Angeletos and Calvet (2003). They build a neoclassical growth economy with idiosyncratic production risk and incomplete markets where each agent is an entrepreneur operating her own neoclassical technology with her own capital stock. They show that idiosyncratic production shocks, which we link here with macroeconomic volatility, introduce a risk premium on private equity and reduce investment. The steady state is characterized by a lower capital stock.

entrepreneurship. While the well-known empirical link between high macroeconomic volatility and low growth (consistent with low entrepreneurial activity) supports this contention, we are unaware of empirical work linking macroeconomic volatility directly to entrepreneurship.

Macroeconomic volatility is, however, linked to "grabbing hand" government. Acemoglu *et al.* (2003) find greater macroeconomic volatility in countries that place fewer constraints on politicians. Controlling for the constraints imposed on politicians' freedom of action in standard regressions explaining growth with macroeconomic volatility actually renders the latter insignificant.[4]

- Financial Development

Schumpeter (1914) proposed that a well-developed financial system is a prerequisite for widespread entrepreneurship because most potential entrepreneurs lack extensive personal or family wealth. Levine (2004) reviews a substantial body of empirical work confirming this, and Perotti and Volpin (2004) explicitly link financial development to the entry of new, entrepreneurial firms.

The law and finance literature, pioneered by La Porta *et al.* (1997a and 1998), argues that institutions – property rights honoring government, investor and creditor rights, and efficient judicial enforcement – are critical to capital market development. Morck, Yeung, Yu (2000), Wurgler (2000), Durnev *et al*. (2004) and many others add to a growing empirical literature demonstrating that sound political institutions, as well as sound financial regulation, are important to the efficient functioning of financial markets.

[4] In Acemoglu *et al.* (2003) macroeconomic volatility is measured with government spending, inflation, and exchange rates.

Research into entrepreneurship, most notably Gompers and Lerner (1999, 2000, 2001) pay special attention to venture capital funds. These financial intermediaries accumulate rare combinations of technological and managerial expertise that gives them an advantage in screening prospective entrepreneurs and monitoring entrepreneurial ventures. In essence, venture capital funds specialize in bridging gaps in transactional trust between entrepreneurs and investors. Of course, they also provide their investors more mundane financial services, like diversification into syndicated offerings by other venture capital funds. But these are secondary to their primary advantage: distinguishing technologically and financially sound undertakings from unsound ones. This requires in-house pools of scientific and managerial talent not available elsewhere.

Venture capital activities are highly geographically concentrated. This does not seem driven by financial development, for hotbeds of venture capital activity, like California and Massachusetts, do not correspond to financial centers, like New York. However, Gompers and Lerner (1999) suggest that considerations involving human capital, rather than financial capital, are key. Highly skilled individuals prefer to locate amid many possible employers so if one firm fails, other openings are available without the costs of moving. Clusters of universities and research foundations created these pools of employers in a few specific localities. Entrepreneurial start-ups exploiting new technology require highly skilled employees, and so prefer to locate where such pools of skill already exist. Venture capital funds, needing such experts too, also locate in these labor markets.

- Concentrated Corporate Governance

In recent years, the literature offers another relevant perspective, surveyed in Morck, Wolfenzon, and Yeung (2005). Most large American and British corporations are owned by multitudes of small shareholders, and lack controlling owners; but elsewhere, most large firms do have controlling owners – often extremely wealthy families (La Porta *et al*., 1999). These families typically use pyramidal ownership structures, in which a family firm controls many listed firms, each of which controls yet more listed firms, and so on *ad valorem infinitum*. Super voting shares and crossholdings let many such families leverage substantial family wealth into control over vast swathes of their countries' large corporate sectors.

Khanna and Palepu (2000) and others show that firms belonging to such business groups often outperform independent firms in developing economies. This may be because business groups substitute for missing institutions in these economies. If group firms can obtain credit from each other, the absence of a sound financial system actually becomes a competitive advantage for them. Inefficient managerial or technical labor markets are likewise not a problem if group firms hire from each other as needed. But business groups do become a problem if the elite families who control them use their political influence to stymie financial development to preserve these advantages. Of course, a paucity of sound arm's-length investments in countries with weak financial systems might also deter these families from selling control, as suggested by Casson (1999) and Burkart, Panunzi and Shleifer (2003). Quite plausibly, both directions of causality combine to lock in weak institutions that impede financial development.

Pyramidal business groups plausibly contribute to both microeconomic and macroeconomic inefficiency. At the firm level, group firms are mostly controlled, but not directly owned by wealthy families. The actual financial investment of wealthy families in the indirectly controlled members of their pyramidal groups can often be surprisingly trivial

(Bebchuk *et al*. 2000). This creates agency problems of the sort described in Jensen and Meckling (1976).

Macroeconomic inefficiency results because economies whose large corporate sectors are controlled by a handful of wealthy families suffer from strong political lobbying and weak competition. Morck and Yeung (2004, 2005) argue that families controlling numerous large listed companies have extremely low lobbying costs because they can use the resources of firms they control, but in which their actual investment is small, to lobby for policies that benefit firms in which their investment is large.

Morck and Yeung (2004) argue that such families also have a direct interest in suppressing technological change that would disrupt the status quo. Schumpeter (1914) argues that entrepreneurship is a process of creative destruction. A stand alone entrepreneurial entrant treats the destruction of stagnant firms with obsolete assets as an ignorable externality. But an elite, whose wealth is tied up in the assets of established firms, cannot ignore such costs. Innovation that adds value to one firm, but destroys value in another is of problematic value to a family that owns both firms. Consistent with this, Morck, Stangeland, and Yeung (2000) report spending on innovation to be lower in countries where inherited billionaire family wealth is a large fraction of GDP.

If weak institutions retard financial development in these countries, entrepreneurs without ties to leading families are thwarted by transactional trust problems. Of course, entrepreneurship backed by wealthy families is possible, and Khanna and Palepu (2005) document the involvement of one old moneyed Indian family, the Tatas, in that country's software boom. But such cases are remarkable for their rarity. Moreover, family members and associates may not be the best people to run such entrepreneurial ventures. Almeida and Wolfenzon (2003, 2005)

argue that intragroup financing arrangements of the sort Khanna and Palepu (2000, 2005) document can be quite inefficient because projects by business group companies are overfunded and projects by outsiders are underfunded.

Elites with concentrated corporate control over their economy's large corporate sector also plausibly have capital market power (Morck, Stangeland and Yeung, 2000). By virtue of the sheer volume of corporate earnings they control, such elites face a downward sloping demand curve for the capital they may bring to the capital market. Likewise, by virtue of the sheer volume of corporate investment projects they can bring to the market, elites have market power as a user of external capital. The market power leads to preferential capital access for units inside the groups controlled by these elites. Understandably, such elites may be disinclined to finance upstarts that would erode their capital market dominance. After all, if too many successful entrants grow wealthy, capital markets naturally grow more competitive. Morck, Stangeland, and Yeung (2000) show that firms controlled by old money families enjoy preferential access to capital.

In practical terms, this capital market power could arise in several ways.

First, weak investor property rights keep small players out of equity markets. The low ambient level of transactional trust raises the cost of equity capital, as only the very wealthy supply capital. Upstarts are negatively affected.

Second, rich families could directly own banks, the other major financing alternative. Examining the ten largest banks in forty-four countries in 2001, Caprio, Laeven and Levine (2003) find most to have controlling owners and most of these to be wealthy families. Wealthy families can use their banks to channel capital to the corporations they own. Lopez-de-Silanes and Zamarripa (2003) show that such related lending accounts for 20 percent of Mexican

commercial loans, that related borrowers pay lower interest rates than unrelated borrowers, but nonetheless are more likely to default. Such abuses understandably induce governments to oversee bank lending more overtly. But Beck, Demirgüç-Kunt, and Levine (2005) show that empowering official supervisory agencies to monitor, discipline, and influence banks engenders corruption.

Third, elites can plausibly use their formidable political influence to forestall capital market reforms, or even reverse them (Rajan and Zingales, 2004). Their means include directly seeking public office, financing politicians or parties, controlling the mass media, and bribing public policy decision makers, etc. (see Acemoglu *et al.* (2004), and Morck, Wolfenzon, Yeung, 2005).

- Culture and values

Entrepreneurs are different from ordinary people. They are often well connected in social networks. They are able to see opportunities others can not. They take risks others shun. They are optimistic while others are conservative. The think outside the box, challenge orthodoxy, and make profits doing so.

Mark Casson (1993), in defining entrepreneurship, wrote[5]:

> *The supply of entrepreneurs depends not only on reward and status, but also on personality, culture, and life experience. An entrepreneur will often find that his opinion is in conflict with the majority view. He needs the self-confidence that, even though in a minority, he is right. … In identifying profitable opportunities the entrepreneur needs to synthesize information from different sources."*

The population of entrepreneurs is higher in some societies than in others. Political and economic environments affect people's tendency to be entrepreneurial. For example, Chinese in

[5] See http://www.econlib.org/library/Enc/Entrepreneurship.html

the 2000s are more commercially entrepreneurial than Chinese in the pre-reform 1970s. Allegedly, Americans in the Silicon Valley area are more entrepreneurial than Americans in New England (*Economist*, Feb 20th, 1999, "Silicon Envy"). Possibly, the "entrepreneurial spirit" is a part of a collective "personality trait" and determined by social "culture" and "values." Casson (1993) continues:

> *"The culture of a community may be an important influence on the level of entrepreneurship. A community that accords the highest status to those at the top of hierarchical organizations encourages "pyramid climbing," while awarding high status to professional expertise may encourage premature educational specialization. Both of these are inimical to entrepreneurship. The first directs ambition away from innovation (rocking the boat), while the second leads to the neglect of relevant information generated outside the limited boundaries of the profession. According high status to the "self-made" man or woman is more likely to encourage entrepreneurship."*

Casson articulates the societal factors most likely to affect entrepreneurship. Dominance by hierarchical organizations that demand docile respect for status and ladder climbing discourage the values demanded for entrepreneurship. Such societies encourage theological orthodoxy and rhetorical elegance rather than commercially oriented innovation. But societies that emphasize meritocracy and reward "self-made" success encourage entrepreneurship. Unsurprisingly, societies more dominated by hierarchical religious organization are shown to have lower levels of ambient trust and less developed capital markets (La Porta *et al*., 1997b and Stulz and Williamson, 2003). At present, whether sparse rewards for innovators or low transactional trust (or something else) best explains the lack of entrepreneurship in societies with hierarchical religions remains unclear.

Another factor that could affect behavioral norms is the mass media. The media can vigorously expose opportunistic behavior by the political and business elite, or uncritically sing their praises. The former discourages dishonesty in government and big business. By contributing to social transparency, it raises people's willingness to challenge established elites.

This gives rise to patterns of thought that stimulate entrepreneurial discovery and lock in a meritocracy (Dyck and Zingales, 2003).

- Other factors: education, diversity, and openness

A country's education institutions contribute to entrepreneurship both indirectly and directly.

Given that entrepreneurial discovery involves "re-combination" of ideas and practices, entrepreneurship is affected by the education level of the populace and the diversity of ideas they can entertain. Higher general levels of education make a greater fraction of the population available as entrepreneurs or as the skilled technology experts they often need.

In addition, institutions of higher education in particular can contribute more directly to entrepreneurship. America's high technology clusters of entrepreneurial firms correspond to clusters of leading research universities. Since other top research universities lack accompanying clusters of entrepreneurial firms, the particular characteristics of the universities that spawn them are of interest. Intellectual property rights policies seem critical here. Most universities claim intellectual property rights ownership of any ideas developed by their researchers. Researchers at such universities reap meager rewards from commercialized innovations, so few ensue (Digregorio *et al.*, 2004). Universities surrounded by high technology clusters tend to let individual researchers retain ownership of their innovations and grant them freedom to contract with any external parties to develop those innovations. At present, it is unclear if the latter universities come out ahead because of gifts and bequests from their wealthy alumni entrepreneurs. Certainly, a strong case can be made that their intellectual property rights policies better advance social welfare.

Education is but one way to promote diversity in thinking. Jacobs (1985) shows that cities with industrially diversified economies are better able to sustain prosperity over the very long term. She argues that a diverse mixture of businesses give the local economy more resilience against industry shocks, but also stresses that a diverse cross-section of industries lets ideas from one cross-pollinate others. Glaeser *et al.* (1992) provide econometric evidence on US cities showing that she is probably right.

Finally, by easing cross border exchanges of ideas and best practices, openness in the form of international trade and investment stimulates competition and entrepreneurship[6]. (Caves, 1996).

IV. A tentative empirical effort

This section undertakes a preliminary empirical investigation of the above thoughts. We gauge entrepreneurial activity by firm entry rates in a cross-section of 34 European countries. It then introduces proxies for each institutional factor. By examining how these institutional variables correlate with entrepreneurship, we can test the basic plausibility of the ideas raised above. We emphasize that our intension is to explore correlations, not to conduct an exhaustive empirical investigation that would overcome intrinsic statistical problems like endogeneity.

[6] We note here that openness is itself a policy variable which is affected by constraints on government, distribution of economic power, and possible other concerns. Admitting the possible, we include openness here as an economic environment variable.

IV.A Entrepreneurship

Our entry rates are based the Amadeus dataset of European corporate activity.[7]. Amadeus, produced by the Bureau van Dijk, covers nearly seven million companies, both public and private. Because of the variety of information sources and disclosure requirements across countries and over time, data coverage varies in depth and completeness. To create comparable samples across countries, we remove countries with fewer than one hundred firms and firms with fewer than twenty employees, following Desai, Gompers and Lerner (2003). We also remove all firms that are inactive (bankrupt or merged) as of 1995.

We define "entry" in year ***t*** as active firms that are not in the database at time ***t-1*** but present at ***t***. Some newly included firms in period ***t*** have an incorporation date from an earlier year. Some others are included even if they are inactive due to bankruptcies or mergers. Their inclusion merely reflects a change in database coverage, so we exclude them from our entry calculation.

An entry by a firm with only one or two employees is not the same as an entry by a firm with, say, fifty employees. We therefore construct two entry measures: equally weighted and labor weighted. The equally weighted entry rate in period ***t*** is defined as the total number of entries in ***t*** over the total number of firms in ***t-1***. The labor weighted entry rate of period ***t*** is the total number of employees of new entrants in ***t*** over the total number of employees of existing firms in ***t-1***.

We calculate an entry rate for every two consecutive years starting in 1996. We thus have biannual entry rates ending in 1997 through 2001 for every country. Entry rates in some

[7] Comprehensive global entry data are unfortunately not yet available.

countries vary widely from period to period, possibly due to changes in disclosure requirements that result in widening of data coverage. For example, the equally weighted entry rates of Austria range from 5.1% in 2001 to 23.6% in 1999. We use the median entry rate from 1997 to 2001 to remove such swings. Using average entry rates for each period yields similar results to those shown below.

Table I panel A lists $\boldsymbol{E_V}$, the labor weighted entry rate, and $\boldsymbol{E_E}$, the equally weighted entry rate, for each of our 34 countries. The two indices are, unsurprisingly, highly significantly correlated ($\rho = 0.76$). Table I panel B shows the usual summary statistics.

[Insert Table I about here]

IV.B Institutional variables

Our institutional variables to can be divided into sub-categories: "rules, property rights, and legal regime," "government quality and actions," "distribution of control of corporations," "culture," and "education, market diversity, and openness."

Rules, property rights, and legal regime

These variables proxy for the institutional features conducive to sound property rights and transactional trust. "*Respect for the rule of law*" is a comprehensive index estimated by Kaufmann, Kraay, and Mastruzzi (2002), a higher value indicating more widespread law and order. "*Judicial efficiency,*" produced by the country risk rating agency Business International Corp, is an assessment of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms." These data are from La Porta *et al.* (1998). "*Property rights protection*" is a survey result from Freedom House, a higher value indicating better perceived protection for private property rights. "*Absence of Bribery*" comes from a survey by the Global Competitiveness Report, 1997, a higher value indicating fewer incidents of bribery.

This variable differs from government corruption because bribery can affect dealings between businesses as well as between businesses and the government. However, the two are very highly correlated ($\rho = 0.84$).

We also include "*French legal origin*" – an indicator variable set to one for legal systems descending from that of France and to zero for all other legal origins. We incorporate this variable because the law and finance literature (e.g., La Porta *et al.* 1997, 1998) indicates that countries with a French legal origin have the least developed property rights protection and the lowest levels of transactional trust.

Well-defined regulations, efficient judicial systems, and clean governments that respect property rights are all institutional features critical for the development of transactional trust. Countries with these features should support more entrepreneurial activity. French legal systems are associated with weaker property rights and lower ambient trust, so these countries should exhibit less entrepreneurial activity.

Government quality and actions

The quality of government can be divided into sub-categories. One dimension of government quality is its respect for property rights (e.g., lack of corruption) and effectiveness. A second reflects its regulatory stances. A third concerns government activism. A fourth gauges the volatility of government macroeconomics policies. Some of these variables potentially double as measures of the quality of the legal system. This seems unavoidable.

- Quality of government

We use "*government accountability*", "*government effectiveness*", and "*control of corruption*" to gauge the quality of government. All three indices are from Kaufmann, Kraay, and Mastruzzi

(2002), who use statistical methods to aggregate a large collection of governance indicators from various international organizations, think tanks, political and business risk-rating agencies, and non-governmental organizations. "*Government accountability*" measures citizens' political rights in selecting their governments. "*Government effectiveness*" speaks of the ability of governments to produce and implement policies independently and competently. "*Control of corruption*" measures the limits on politicians' freedom to use of public power for private gains. For all these indices, a higher value indicates better outcomes, i.e., more representative, autonomous, effective, honest, and property rights respecting governments.

We expect these variables to be positively associated with entrepreneurship.

- Regulatory stances

"*Regulatory quality*" is also from Kaufmann, Kraay, and Mastruzzi (2002). A high value indicates fewer anti-market policies, such as price controls, and lighter regulatory burdens on trade and commerce. We obtain from the World Competitiveness Report (1997) our "*absence of bureaucratic hindrance to business"* variable. This assumes a higher value for lighter bureaucratic burdens on businesses. From the World Bank's Doing Business Report we obtain the variable "*rigid employment laws*", which gauges the difficulty firms encounter in hiring and firing employees and the rigidity of working hours. A higher value indicates more rigid employment regulation.

The first two of these variables plausibly lower costs to entrepreneurs and the last raises them. We expect "*regulatory quality*" and "*absence of bureaucratic hindrance to business"* to be positively associated with entrepreneurship, and "*rigid employment laws*" to be negatively correlated with entrepreneurship.

- Government activism

We capture government activism in several ways. First, we use the "*size of government*," the average of government spending over GDP from 1991 to 1996. This variable is from the Penn World Tables 6.1. Our second measure is "*government ownership of banks*," the fraction of the country's top ten banks owned by the government. The variable is from La Porta *et al.* (2000). We expect both variables to be negatively related to entrepreneurship.

Third, we use "*absence of price control*," an inverse index of government intervention in imposing price control from the *Fraser Institute*. We expect this index to be associated with more entrepreneur entry.

"*Successful subsidy targets*" assumes a higher value if government subsidies are awarded to commercial winners. Similarly, "*openness in awarding public contracts*" takes a higher value if public contracts are open to foreign bidders. The last two variables are from the Global Competitiveness Report and plausibly indicate whether or not government subsidies are granted based on competence and merits. We expect these indices to be positively related to entrepreneurship.

- Volatility of economic policies

We use "*average inflation*" and the "*variance of inflation*" to capture the volatility of monetary policies, and the "*variance of government spending*" to capture the volatility of fiscal policies. The inflation rate we use is the GDP deflator from the World Development Indicators. Both the average and the variance of inflation are calculated for the years 1994 to 1997. The variance of government spending is calculated using the government share of real per capita GDP in 1996 constant prices from the Penn World Tables 6.1. Volatile government macroeconomic policies by themselves raise investment risks and also make it difficult to identify opportunistic

transactional behavior. Thus, volatile macroeconomic policies may be negatively related to entrepreneurship.

Concentration of Corporate Governance

We use two measures of the distribution of corporate control rights. "*Oligarch family control*" is the fraction of top ten corporate groups majority controlled by a wealthy family in 1996, from Fogel (2004). This measures the extent to which wealthy families control the large corporate sector of each country. "*Firm size Herfindahl*" is the median from 1991 to 1996 of the employee-based Herfindahl Index of all firms included in the Amadeus database for each country. It measures the skewness of the firm size distribution in each country. A higher Herfindahl index means that large firms are more dominant.

The arguments above suggest that both variables reflect conditions unconducive to upstart firms and so out to correlate negatively with entrepreneurship.

Culture and the Influence of Mass Media

We follow Stulz and Williamson (2003) and use the dominant religion of a country to proxy for cultural influence. Our data are from the CIA World Factbook[8]. We define a "hierarchical religion" indicator variable set to one if a country's dominant religion is Roman Catholic, Muslim, or Eastern Orthodox, and to zero otherwise. The literature suggests that hierarchical religions encourage respect for traditional ideas and impair ambient trust, so the indicator should correlate negatively with entrepreneurship.

We follow Dyck and Zingales (2003) and use "*newspapers per capita*" to measure the influence of the mass media. Our raw data are the total average circulations, or copies printed, of daily newspapers per thousand inhabitants in each country in 1997, and are from the online

[8] http://www.cia.gov/cia/publications/factbook/

statistical section of UNESCO. Dividing that number by 1000 gives us the per capita figure. The discussion above suggests that social transparency directly stimulates entrepreneurial discovery and also fosters transactional norms conducive to entrepreneurship. We therefore expect entrepreneurship to be positively related to "*newspapers per capita*."

Of course, this measure is an imperfect proxy for a genuinely free press because newspapers could be controlled by the state or rich tycoons. If so, the mass media might laud the achievements of the elite, rather than criticize its foibles. Thus, newspaper circulation in countries controlled by such elites might actually be negatively related to genuine social transparency.

Education, market diversity, and openness

We use "*education attainment*", the logarithm of the average years of education for people aged 25 or over, to proxy for the initial stock of human capital in each country. These data are for 1990 and are from Barro and Lee (2000). Higher levels of education attainment should be related to more entrepreneurship.

We measure "*market diversity*" by counting the total number of three-digit SIC codes in each country in the Amadeus dataset. To sidestep potential problems caused by changes in database coverage over time, we use the median of the SIC counts from 1991 to 1996.

We capture product market openness by "*trade openness*", imports plus exports as fraction of GDP in 1996. The effects of trade openness on entry are twofold. On the one hand, since trade openness expands markets, constrains local monopolists, and introduces new ideas, it should encourage entrepreneurship. On the other hand, intense competition from abroad may increases the capability requirement for entrepreneurship and could have a negative effect.

We measure capital market openness by "*capital restrictions*", the number of types of capital flow restrictions (out of a maximum of 12) each country had in 1997. Capital restrictions apply to both cross-border portfolio flows and direct investment. Capital account openness allows local prospective entrepreneurs access to a broader array of investors, and thus should correlate positively with entrepreneurship. Foreign direct investment especially should stimulate entrepreneurship more directly by undermining domestic market power and by introducing foreign technologies and management ideas. We therefore also measure capital market openness by "*Gross FDI flows*", the gross foreign direct investments as a fraction of GDP in 1996. We expect entrepreneurship to be negative related to *capital restrictions* but positively related to *gross FDI flows*.

Appendix 1 summarizes the description, data year, and data source of each variable.

IV. C Method and Results

We first present simple correlation between *entry* and our institutional variables. To capture central tendencies, we use each country's median entry rate in 1997 through 2001. Our institutional variables are all dated before 1997, except the "*rigid employment laws*" indicator, for which we cannot find early data.

The institutional variables could easily proxy for basic economic development. For example, entrepreneurship might simply be more evident in richer countries. Hence, simple correlations between the institutional variables and entrepreneurship could be spurious. To address this, we regress *entry* on the various institutional variables one at a time, but including initial per capital GDP (1996 data) as a control.

We re-iterate that the results below are illustrative only. We hope to stimulate future more systematic efforts as better data become available.

Results on rules, property rights, and legal regime

The left columns of Table II show the simple correlation coefficients of labor weighted and equally weighted entry rates with our institutional variables. The correlation coefficients between labor-weighted entry rates and variables measuring "*respect for the rule of law*," "*judiciary efficiency*," "*property rights protection*," and "*the absence of bribery*" are all positive and highly significant. This is consistent with better institutions, which nurture transactional trust, encouraging entrepreneurial entries. Equally-weighted entry rates are also positively related to respect for the rule of law, judiciary efficiency, and property rights, but the correlation coefficients are less significant.

The right columns of Table II present regressions of entry on institutions controlling for initial GDP per capita. Only the regression coefficients for the institutional variables are shown. The coefficient for "*respect for the rule of law*" is .0203 and is highly statistically significant at 1%. The coefficient on "*property rights protection"* and *"absence of bribery"* are also positive and significant. However, the coefficient for the judicial efficiency variable is insignificant, albeit positive.

Legal origin seems to matter. The simple correlation coefficient of *entry* with the "*French legal origin*" dummy is negative and insignificant. However, the indicator becomes significant once we control for initial per capita GDP.

[Insert Table II about here]

In summary, Table II supports institutions conducive to the development of transactional trust facilitating entrepreneurship. In particular, countries in which the rule of law is more respected, property rights better protected, and bribery less commonplace have more entrepreneurship. Also, countries whose legal systems descend from that of France seem less conducive to entrepreneurship.

Results on government quality and actions

The top panel of Table III shows that higher entry rates are associated with higher quality government, characterized by greater accountability, greater effectiveness, and less corruption. All three measures are highly statistically significantly related to the labor weighted entry rate in simple correlations, and the regression coefficients on the corruption and effectiveness measures remain significant after controlling for 1996 per capita GDP. Simple correlation and regression coefficients of the equal weighted entry rates tell a similar story, albeit less significant statistically.

[Insert Table III about here]

The next panel relates entry rates to regulatory stances of the government. The positive and significant correlations indicate that higher *regulatory quality* promotes entrepreneurship. Similarly, the *absence of bureaucratic hindrance to business* encourages startups. Employment laws that impose strict restrictions on hiring and firing workers and on working hours hinder entrepreneurship. These laws plausibly raise both the entry and exit costs of offering employment, and thus discourage startups.

The third panel of Table III correlates government activism with entry. An interesting and complicated picture emerges. First, both *government spending/GDP* and *government ownership of banks* are negatively related to entrepreneurship, but the relationship is utterly insignificant. This is inconsistent with the crowding out effect discussed above. Second, less governmental interference in setting prices ("*absence of price control*") appears to encourage entrepreneurship. This suggests that direct government interference with market price mechanisms discourages entrepreneurship, which is itself a market mechanism. Third, government incentives might still encourage entrepreneurship if public subsidies are granted for competence and merit. Entrepreneurship is more evident if the government is more impartial when choosing subsidy recipients and contractors for public contracts (ref: the last two rows in the panel – "*successful government subsidy targets*" and "*openness in awarding public contracts*"). Again, these effects remain after controlling for initial per capita GDP.

The last panel of Table III relates the volatilities of government macroeconomic policies to entry rates. Higher inflation rates, more variable inflation rates, and more variable government budgets are all negatively, but insignificantly, related to *entry*. At first glance, unstable macroeconomic policies do not seem to be of first order importance in retarding entrepreneurship.

Overall, the results in Table III suggest that an effective, uncorrupt, and transparent government that avoids direct interference with market mechanisms encourages entrepreneurship. But burdensome regulations on business and rigid employment laws discourage entrepreneurs from forming new businesses. Government subsidies might encourage entrepreneurship if granted based on merit and competence. The volatility of government policies does not appear to have any significant effect on the rates of entry.

Results on the concentration of corporate control

The top panel of Table IV relates the distribution of corporate control to entry rates. *Oligarchic family control*, the fraction of top ten conglomerates controlled by wealthy families, is negatively and significantly related to labor-weighted entry rates. The variable, however, becomes insignificant in regressions controlling for initial GDP per capita. A negative relationship also exists between the *firm size Herfindahl* index, measuring the relative importance of large firms, and *entry*. This relationship grows more significant after initial per capita GDP is included as a control. These results support the argument that large established businesses use their market power and/or political power to impede entrepreneurship.

[Insert Table IV about here]

Result on culture and Mass Media

The next panel in Table IV relates new firm entry rates to variables reflecting national cultural differences. The result show that entrepreneurs thrive in countries with extensive mass media, as indicated by the highly significant relationship between newspaper circulation and both of entry rate measures, even after controlling for per capita GDP. This is consistent with social transparency, sharpened by an energetic press, creating a better social and economic environment for entrepreneurs. A vigorous free press also places significant constraints on government misbehavior, reducing corruption and other opportunistic behavior. This is consistent with a better political environment for entrepreneurs. Finally, a dynamic mass media might also directly stimulate information processing and entrepreneurial discovery.

Results on education, market diversity, and openness

Other factors, such as education, market diversity, and capital and trade openness, appear in the bottom panels of Table IV. Better educated adults are associated with more entrepreneurship. *Market diversity*, measured by the number of different three-digit SIC industries in a country's corporate sector, is positively and significantly associated with both entry rate measures. Tighter *capital flow restrictions* are associated with less entrepreneurial formation. This is consistent with binding capital market restrictions blocking entrepreneurs' access to capital. Interestingly, and contrary to our expectation, openness to neither foreign direct investment flows nor trade is significantly related to entrepreneurship.

Summary

The results in this section support the thesis that better institutions promote entrepreneurship.

- New firm entry rates are higher in countries where the rule of law and private property rights are respected, and where the government is honest and effective. Entry rates are depressed in countries that inherited the French Civil Codes and with inefficient judicial systems. Thus, institutional factors that preserve property rights and facilitate the development of transactional trust do seem critical for entrepreneurship.
- Entry rates are also higher where regulations are more business-friendly, less burdensome, and interfere less with market mechanisms. Entry is also higher in countries with fewer restrictions on foreign capital flow. Thus, features normally associated with good government appear to promote entrepreneurship.
- Entry rates are higher in countries with more industrially diversified economies. This supports the thesis of Jacobs (1985) that entrepreneurs often use ideas from one industry to rejuvenate another.

- Entry rates lower in countries whose corporate sectors are more dominated by a few large firms. This is consistent with entrenched insiders using their political influence to protect the status quo.
- Countries with more educated people, more egalitarian religions, and more dynamic mass media have higher entry rates of new firms. This is consistent with these cultural factors being conducive to the development of entrepreneurial capabilities and ambitions.

Intriguingly, some conventional wisdom is not borne out. We find no evidence that (i) government spending crowds out startups, (ii) volatile macroeconomic policies discourage entrepreneurship, or (iii) trade and foreign direct investment barriers affect entrepreneurship. Finally, government subsidies might promote entrepreneurship if based on merit.

We repeated our empirical analyses splitting our sample into developed and developing countries. The pattern of correlations is broadly preserved, though the significance levels are substantially reduced because of the smaller sample sizes – especially for the developing country subsample. We thus unfortunately cannot investigate how these institutional factors relate to entrepreneurship in countries at different stages of economic development.

V. Conclusions

Entrepreneurship is a composite act, consisting of information gathering and processing, the identification of arbitrage opportunities, risk taking, managing upstarts and market entry, and soliciting financial backing, technological expertise, and other inputs. These activities are substantially inter-temporal in nature – time and money are invested now in hopes of returns in the distant future. Success depends on intangibles embodied in an entrepreneur – the information and capabilities she has and the effort she puts forth – which are difficult to observe.

Upstarts are also vulnerable to entry deterrence by incumbents, to the rent-extraction or outright asset grabbing by established dominant corporations or government officials.

Entrepreneurship, therefore, fundamentally depends on property rights being well defined and transactional trust existing between entrepreneurs and their investors and skilled employees. The development of transactional trust critically depends on the institutional environment, especially on well-enforced laws and regulations that define and protect property rights and that constrain opportunistic behavior. The enactment and enforcement of such laws is the charge of the government. Hence, entrepreneurship also required an honest, property rights respecting, and effective government.

Entrepreneurship has other determinants that are also affected by institutional factors. Entry barriers deter entrepreneurship. An interventionist government imposing burdensome rules and market regulations can stifle incentives to be entrepreneurial. Entry barriers can be subtly imposed by dominant economic powers to lock in the status quo. In an economy where the control of corporations is concentrated in the hands of a few rich families, entrepreneur supply suffers. These economically dominant elites may and can translate their economic power into political influence to protect the status quo in numerous ways. Concentrated control over the large corporate sector could be the result of poor institutional environments as well as the cause, for it is a solution to weak property rights and inefficient markets.

Entrepreneurship is related to the market environment and culture. In an industrially diverse economy with a highly educated workforce, entrepreneurial discovery proceeds apace. A society with high volume of news flows is also conducive to entrepreneurship. Social transparency can induce meritocracy, which contributes to the development of entrepreneurial

spirit. Likewise, a society with a culture that rewards self-made success rather than submission to hierarchical authority is more likely to breed entrepreneurs.

Based on 1997 to 2001 entry data from 34 European countries, we generate preliminary empirical evidence supportive of these ideas. However, this work, both from a theoretical and empirical perspective, is preliminary. Entrepreneurship is a basic process fueling economic growth. The subject matter deserves further serious research effort.

Several issues deserve particular attention.

First, entrepreneurship plausibly takes different forms at different stages of a country's development. Entrepreneurship in an African village is probably not the same as entrepreneurship in Silicon Valley in the US. Their institutional requirements are likely vastly different. Empirical verification of these differences awaits better data, especially comprehensive cross-country panel of entry rates. Understanding the interactive dynamic relationship between entrepreneurship and stages of development, and the associated evolution of institutions, remains a challenging and deep topic.

Second, the relationship between entrepreneurship and institutional development deserves serious research attention per se. While this chapter treats institutions as exogenous, this is almost certainly an oversimplification. Recent work, including Acemoglu *et al*. (2004), Morck, Wolfenzon, Yeung (2005), and Perotti and Volpin (2004) treats government officials as endogenous decision makers, who alter the institutional environment based on political pressures and self-interest. Institutions, like social economic conditions or the distribution of economic and political power, all come into play in such exercises; and all affect entrepreneurship and are affected by past entrepreneurial activity. For example, as entrepreneurs becomes more active, politicians may see greater benefits in improving property rights laws because the gains from this

are now greater. More subtly, but perhaps also more importantly in the long run, ongoing successful entrepreneurship changes behavioral norms, social values, and culture, and likely promotes future entrepreneurship. All these are challenging and interesting topics that beg serious cross-disciplinary research.

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Table I A
Entry Rates

Table 1 lists median entry rates of 1997 to 2001, weighted by firms' employees, E_V, and median entry rates of the same period, equally weighted, E_E. Entry rates are calculated based on Amadeus data on every two consecutive years from 1996 to 2001. *Entry* in year ***t*** is defined as active firms that are not in the database in year ***t-1***, that enter the database in year ***t*** and have year of incorporation no earlier than year ***t-1***. Equal weight entry rate of year ***t*** is the number of entry in year ***t*** over the total number of firms in ***t-1***. Labor weighted entry rate of year ***t*** is defined as the total number of employees of entry firms in year ***t*** over the total number of employees of firms in ***t-1***.

	E_V	E_E		E_V	E_E
Austria	0.055	0.134	**Luxembourg**	0.000	0.000
Belgium	0.012	0.017	**Macedonia**	0.001	0.006
Bosnia and Herzeg.	0.000	0.000	**Malta**	0.011	0.017
Bulgaria	0.008	0.011	**Netherlands**	0.027	0.017
Croatia	0.013	0.016	**Norway**	0.055	0.060
Czech Republic	0.024	0.042	**Poland**	0.007	0.015
Denmark	0.048	0.053	**Portugal**	0.005	0.014
Estonia	0.047	0.054	**Romania**	0.041	0.053
Finland	0.059	0.032	**Russia**	0.012	0.043
France	0.008	0.024	**Serbia and Montenegro**	0.000	0.000
Germany	0.059	0.039	**Slovak**	0.000	0.000
Greece	0.019	0.036	**Slovenia**	0.000	0.000
Hungary	0.011	0.017	**Spain**	0.032	0.038
Ireland	0.009	0.012	**Sweden**	0.021	0.027
Italy	0.009	0.006	**Switzerland**	0.007	0.022
Latvia	0.023	0.043	**Ukraine**	0.013	0.013
Lithuania	0.017	0.043	**United Kingdom**	0.033	0.031

Table I B
Summary Statistics

		Mean	Median	Std. Dev.	Min.	Max.
Entry rate, labor weighed	E_V	.0202	.0122	.0188	.000	.0589
Entry rate, equally weighted	E_E	.0275	.0194	.0258	.000	.134
Log of 1996 per capita GDP	ln(***y***)	9.44	9.51	.587	8.39	10.5

Table II
Entry Rate and Institutions for Transactional Trust

Panel A presents simple correlation coefficients between median entry rates, labor weighted, $\mathbf{E_V}$, and equally weighted, $\mathbf{E_E}$, from 1997 to 2001 and variables measuring institutions for transactional trust. Panel B presents regressions of the form: entry rates = β0 + β1*institutional variables + β2*ln(***y***) + ε. Only coefficient estimates on institutional variables (β1) are shown.

	A: simple correlation		B: regression of entry on institutions controlling for 1996 per capita GDP	
	$\mathbf{E_V}$	$\mathbf{E_E}$	$\mathbf{E_V}$	$\mathbf{E_E}$
Institutions for Transactional Trust				
Respect for the rule of law	**0.436**	0.287	**.0203**	.0198
	(.01)	(.11)	**(.01)**	(.12)
Judiciary efficiency	**0.452**	0.255	.00712	.00468
	(.08)	(.34)	(.18)	(.61)
Property rights protection	**0.378**	0.211	**.0121**	.0144
	(.04)	(.26)	**(.04)**	(.11)
Absence of bribery	**0.629**	0.300	**.00800**	.00300
	(.00)	(.19)	**(.08)**	(.72)
French legal origin	-0.237	-0.231	**-0.0152**	**-0.0199**
	(.18)	(.20)	**(.04)**	**(.08)**

Numbers in parentheses are probability levels for rejecting the null hypothesis of zero correlation coefficients or regression coefficients.

Table III
Entry Rate and Government Quality

Panel A presents simple correlation coefficients between median entry rates, labor weighted, $\mathbf{E_V}$, and equally weighted, $\mathbf{E_E}$, from 1997 to 2001 and variables measuring government quality. Panel B presents regressions of the form: entry rates = β0 + β1*government quality variables + β2*ln(***y***) + ε. Only coefficient estimates on government quality (β1) are shown.

	A: simple correlation		B: regression of entry on institutions controlling for 1996 per capita GDP	
	$\mathbf{E_V}$	$\mathbf{E_E}$	$\mathbf{E_V}$	$\mathbf{E_E}$
Government Quality				
Government accountability	**0.395**	0.268	.0147	.00902
	(.03)	(.14)	(.19)	(.59)
Government effectiveness	**0.339**	0.192	**.0230**	.0191
	(.06)	(.30)	**(.06)**	(.31)
Control of corruption	**0.370**	0.176	**.0152**	.00712
	(.04)	(.34)	**(.06)**	(.56)
Regulatory Stances				
Regulatory quality	**0.464**	**0.337**	**.0224**	.0214
	(.01)	**(.06)**	**(.02)**	(.15)
Absence of bureaucracy hindrance to business	**0.592**	0.159	**.00659**	.000783
	(.01)	(.52)	**(.02)**	(.89)
Rigid Employment laws	**-0.386**	**-0.369**	-.000405	**-.000751**
	(.04)	**(.04)**	(.14)	**(.08)**
Government Activism				
Size of government	-0.280	-0.188	-5.05E-04	-6.99E-04
	(.13)	(.31)	(.31)	(.35)
Government ownership of banks	-0.190	-0.010	-0.002	0.020
	(.38)	(.96)	(.93)	(.47)
Absence of price controls	**0.581**	0.306	**.00488**	.00458
	(.00)	(.12)	**(.02)**	(.19)
Successful government subsidy targets	**0.350**	0.185	**.00969**	.00516
	(.10)	(.40)	**(.06)**	(.54)
Openness in awarding public contracts	**0.551**	0.268	**.01362**	.00907
	(.01)	(.22)	**(.03)**	(.38)
Volatility of Government Policies				
Average inflation	-0.161	-0.116	-1.28E-05	-3.62E-05
	(.38)	(.53)	(.80)	(.63)
Variance of inflation	-0.158	-0.162	-3.41E-08	-9.09E-08
	(.39)	(.38)	(.67)	(.45)
Variance of government spending	-0.127	-0.029	-5.28E-05	-4.27E-06
	(.49)	(.88)	(.69)	(.98)

Numbers in parentheses are probability levels for rejecting the null hypothesis of zero correlation coefficients or regression coefficients.

Table IV
Entry Rate and Other Institutions

Panel A presents simple correlation coefficients between median entry rates, labor weighted, $\mathbf{E_V}$, and equally weighted, $\mathbf{E_E}$, from 1997 to 2001 and political economy variables. Panel B presents regressions of the form: entry rates = β0 + β1*political economy variables + β2*ln(***y***) + ε. Only coefficient estimates on political economy variables (β1) are shown.

	A: simple correlation		B: regression of entry on institutions controlling for 1996 per capita GDP	
	$\mathbf{E_V}$	$\mathbf{E_E}$	$\mathbf{E_V}$	$\mathbf{E_E}$
Distribution of Corporate Control				
Oligarchic family control	**-0.466** **(.07)**	-.0422 (.88)	-.0206 (.39)	.0182 (.65)
Firm size Herfindahl	-0.246 (.17)	-0.226 (.21)	**-0.117** **(.05)**	-0.142 (.12)
Culture and Mass Media				
Hierarchical religion	**-0.491** **(.00)**	-0.173 (.34)	**-.0188** **(.01)**	-.0113 (.31)
Newspaper per capita	**0.597** **(.00)**	**0.351** **(.07)**	**.0937** **(.00)**	.0760 (.14)
Education				
Education attainment	**0.439** **(.09)**	0.145 (.59)	.0266 (.30)	.00249 (.95)
Market Diversity				
Industry diversification	**0.464** **(.01)**	**0.325** **(.07)**	**9.93E-05** **(.02)**	1.07E-04 (.11)
Openness				
Number of capital flow restrictions	**-0.371** **(.08)**	-0.208 (.34)	-.00142 (.46)	-.00142 (.65)
Gross FDI	0.233 (.21)	.0505 (.79)	.000308 (.80)	-.000942 (.62)
Trade	-0.267 (.13)	-.2416 (.18)	-.0000955 (.23)	-.000145 (.22)

Numbers in parentheses are probability levels for rejecting the null hypothesis of zero correlation coefficients or regression coefficients.

Appendix 1: Variable Description.

Variable	Data Year	Description	Source
Entrepreneurship Rate			
Median entry rate, labor weighted	Median of 1997 – 2001	The number of entry in current year over the total number of firms in previous year.	Authors' own calculation based on Amadeus data
Median entry rate, equally weighted	Median of 1997 – 2001	The total number of employees of entry firms in current year over the total number of employees of firms in previous year.	Authors' own calculation based on Amadeus data
Institutions for Transactional Trust			
Respect for the rule of law	1996	Index ranges from -2.5 to 2.5, with higher value indicating more abidance by the rules of law.	Kaufmann, Kraay and Mastruzzi (2002)
Judiciary efficiency	Average of 1980 – 1983	Index ranges from zero to ten, with higher value indicating more efficient judiciary system.	La Porta, et. al (1998)
Property rights protection	1996	Index ranges from one to five, with higher value indicating more protection of private property.	Freedom House
Absence of bribery	1996	Index ranges from zero to ten, with higher value indicating less incidences of bribery.	World Competitiveness Report 1997
French legal origin	Historical	Dummy set to one for French Civil Code legal systems, and zero otherwise.	La Porta, et. al (1998)
Government Quality			
Government accountability	1996	Index ranges from -2.5 to 2.5, with higher value indicating more civil liberty and political rights.	Kaufmann, Kraay and Mastruzzi (2002)
Government effectiveness	1996	Index ranges from -2.5 to 2.5, with higher value indicating more effective, competent, and independent civil service.	Kaufmann, Kraay and Mastruzzi (2002)
Control of corruption	1996	Index ranges from -2.5 to 2.5, with higher value indicating less corruption.	Kaufmann, Kraay and Mastruzzi (2002)
Regulatory Stances			
Regulatory quality	1996	Index ranges from -2.5 to 2.5, with higher value indicating fewer incidences of market unfriendly regulations and excessive regulatory burdens.	Kaufmann, Kraay and Mastruzzi (2002)
Absence of bureaucracy hindrance to business	1996	Index ranges from one to seven, with higher value indicating less bureaucratic barrier to business.	World Competitiveness Report 1997
Rigid Employment Laws	2003	Index ranges from zero to one hundred, with higher value indicating more rigid labor regulation.	World Bank Doing Business
Government Activism			
Size of government	Average of 1991 – 1996	Government share of real GDP per capita in 1996 constant prices.	Penn World Tables 6.1.
Government ownership of banks	1995	Percentage of top ten banks owned by government.	La Porta, et. al (2000)
Absence of price controls	1995	Index ranges form zero to ten, with higher value indicating more freedom for businesses to set their own prices.	Fraser Institute
Successful subsidy targets	1997	Index ranges from one to seven, with higher value indicating government subsidies are likely to direct towards future winners.	World Competitiveness Report 1998
Openness in awarding public contracts	1997	Index ranges from one to seven, with higher value indicating public sector contracts are more open to foreign bidders.	World Competitiveness Report 1998

Volatility of Government Policies			
Average inflation	1994 – 1997	Average rate of inflation based on GDP deflator.	Authors' own calculation based on World Development Indicators
Volatility of inflation	1994 – 1997	Variance of inflation based on GDP deflator.	Authors' own calculation based on World Development Indicators
Volatility of government spending	1991 – 1996	Variance of government share of real per capita GDP.	Authors' own calculation based on Penn World Tables 6.1
Distribution of Corporate Control			
Oligarchic family control	1996	The proportion of largest ten corporate groups controlled by very wealthy business families, weighted by group employees.	Fogel (2004)
Firm size Herfindahl	Median of 1991 – 1996	Country level employee-based Herfindahl index of all firms included in the Amadeus database.	Authors' own calculation based on Amadeus data
Culture and Mass Media			
Hierarchical religion	Current	Dummy variable that sets to one for hierarchical religions such as Roman Catholic, Muslim, East Orthodox, and to zero for all other religions.	CIA World Fact Book Online
Newspaper per capita	1997	Total average circulation (or copies printed) of daily newspaper per inhabitant.	UNESCO Statistics http://stats.uis.unesco.org
Education			
Education attainment	1990	Log of the average years of education for people aged 25 or over.	Barro and Lee (2000)
Market diversity			
Industry diversification	Median of 1991 – 1996	Total number of primary 3-digit SIC codes in each country.	Authors' own calculation from Amadeus dataset
Openness			
Trade	1996	Trade (import plus export) as a percentage of GDP.	World Development Indicators
Capital restrictions	1997	Index ranges from zero to twelve to measure how many capital control restrictions a country has, out of twelve types of restrictions.	Global Competitiveness Report 1998
Gross FDI flows	1996	Gross foreign direct investment flows as a percentage of GDP.	World Development Indicators