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Economics and Politics of Alternative Institutional Reforms

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Abstract

In a model with heterogeneity in managerial talent, we compare the economic and political consequences of reforms aimed at reducing fixed costs of entry (deregulation) and improving the efficiency of financial markets (financial reform). The effects of these reforms depend on the market where control rights over incumbent firms are traded. In the absence of a market for control, both reforms increase the number and the average quality of firms, and are politically equivalent. When a market for control exists, financial reform induces less entry than deregulation, and endogenously compensates incumbents, thereby encountering less political opposition from them. Using this result, we show that financial reform may be used in the short run to open the way for future deregulation. Our model sheds light on the privatization and reform experiences of formerly planned economies as well as on the observed path of reforms in OECD economies.

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1 Introduction

There is a near consensus, among academics and policymakers, that a priority for emerging economies is to enact institutional reforms fostering entrepreneurship [e.g. De Soto (1989), Rajan and Zingales (2003a)]. The benefits of encouraging firm creation include increased competition, allocative efficiency, and perhaps more rapid rates of innovation [Aghion et al. (2005)]. There is less consensus, however, on which specific reforms should be prioritized, among the many that could potentially encourage higher entry rates [International Monetary Fund (2003), World Bank (2005)]. Most important, relatively little is known about the political feasibility of different reform paths. This is a key question, as the greatest obstacle to reform is often the opposition of powerful insiders, who stand to lose from more entry and competition. For example, debates around pro-market reform in transition economies recognized the pre-eminence of political constraints and focused on finding politically feasible reform paths. Different sides of the debate argued over what reforms would buy out or weaken losers, typically managers and workers of state owned enterprises as well as sectorial ministries [e.g. Shleifer and Treisman 2000, Hoff and Stiglitz 2005]. Similar questions arise in developing countries, where entrenched elites leverage their economic power to slow down institutional change.

This paper presents a model of the economic consequences and political feasibility of two reforms identified by economists as key potential levers to foster entrepreneurship: deregulation and financial reform. Deregulation eliminates unnecessary set-up costs, chiefly by reducing the number of licenses needed to open a business, the number of agencies involved in issuing such licenses, and the quantity of paperwork to be produced. The resulting reduction in bureaucratic costs, as well as in opportunities for public officials to extract bribes, has empirically been shown to encourage entry [Djankov et al. (2002), Klapper et al. (2004)].[1] Financial reform improves the ability of agents to enter in financial agreements with each other. Examples of financial reform include changes in corporate-governance and bankruptcy legislation, such as improvements in the protection of minority shareholders and creditors [e.g. La Porta et al (1998)]; changes in the regulation of financial intermediaries, such as interest-rate liberalization and liberalization of entry in the financial sector [e.g. Abiad and Mody (2007)]; streamlining contract law [e.g. Hay, Shleifer and Vishny (1996)]; or indeed any legal or administrative reform, such as more and better-trained judges, that increases

[1] More generally, a variety of product-market regulations, including those mandating quality standards, limiting opening hours, and confining certain activities to the members of professional associations, are widely deemed to have an anti-competitive effect, and their reform to facilitate access to private enterprise.

the likelihood that intertemporal contracts will be enforced (legal reform). Financial reform is thought to foster entry, because it bolsters the development of financial markets, and allows potential entrepreneurs to raise the funds required to start a new business [e.g. Evans and Jovanovic (1989), Banerjee and Duflo (2005)].

Our main argument is that neither the economics nor the politics of these reforms can fully be assessed by focusing only on their direct, or partial equilibrium, effects on the incentive to enter. This is because these reforms have additional general equilibrium implications that work through the *market for control*, i.e. the market where control rights over *incumbent firms* are traded. We show that the existence of the market for control fundamentally affects the distributional effects of alternative reforms, and thus their relative political acceptability.

The model's positive implications are best previewed by distinguishing the effects of reform on the number of entrants, which we call *entrepreneurship*, from their effect on the average quality of management, which we call *meritocracy*. When regulatory entry barriers are high, and the legal framework for financial contracting is defective, both the equilibrium number and the average talent of entrepreneurs are low relative to the first best. Economic activity is dominated by incumbents, irrespective of their managerial abilities. In the absence of a market for control, deregulation and financial reform have only the "standard" effect of making it easier for talented outsiders to set up new firms, so that they both increase entrepreneurship and meritocracy. Accounting for the market for control, however, breaks the similarity between deregulation and financial reform. While deregulation continues to affect the economy only by stimulating entry, financial reform also enhances the ability of talented outsiders to finance the acquisition of firms controlled by untalented incumbents. This increases meritocracy among existing firms, with the consequence that other outsiders face tougher competition if they set up new firms. Often, this effect more than compensates for the direct enhanced ability to enter, so that – in contrast with standard accounts – entrepreneurship is as likely to *decline* as to increase following financial reform.

More importantly, the market for control plays a critical role in shaping the political feasibility of alternative reforms. In the absence of a market for control both deregulation and financial reform are forcefully opposed by incumbents, who stand to lose from the greater competition these reforms induce. By contrast, when the market for control is accounted for, financial reform turns out to face less opposition from incumbents than deregulation, and is therefore more politically viable. Deregulation merely destroys the value of incumbents firms, and faces the united opposition of all incumbents. In contrast, financial reform may benefit the untalented among the incumbents, by

increasing the price at which they are able to sell their firm. This occurs, first, because improved financial contracting allows buyers to credibly pledge more on the market for control, and, second, because, as we have seen, in general equilibrium financial reform stifles entry, thus preserving the value of incumbent firms. Hence financial reform can break the front of the incumbents and rally some of them to its support.

Another important result is that the greater political feasibility of financial reform in the short run can be leveraged to smooth the way for deregulation in the long run. This dynamic complementarity between financial reform and deregulation comes about because financial reform today allows untalented incumbents to sell their firms at a high price, while deregulation in the future allows them to share in the benefits that outsiders experience when competition among entrepreneurs goes up. Hence, a two-stage reform path may be more feasible than a one shot deregulation (i.e. deregulation not accompanied by financial reform) or than a "big-bang" reform attempting to deregulate and reform the financial system simultaneously. This sequencing of reforms appears to be consistent with the observed timing of reforms in OECD economies.

Based on these insights, the key political difference between financial reform and deregulation is that, through higher firm prices on the market for control, the former *endogenously* compensates (some of) the incumbents, while the latter represents a pure destruction of rents for all firm owners. This suggests that, more generally, when incumbent firm owners are the most likely losers from reform, it is politically expedient to accompany or precede further reform with improvements in the functioning of the market for control. Another general lesson concerns the nature of the compensation reformers have to give to the losers. It is often argued that a great obstacle to reform is the difficulty of credibly promising side payments in compensation. However our results show that it is sometimes possible to identify reforms that, like financial reform, have the "Coasian" ability to provide endogenous compensation to the losers, thus bypassing commitment problems.

We are not the first ones to study the political economy of deregulation and financial reform. Perotti and Volpin (2004) and Acemoglu (2005) look at the political economy of entry barriers, while Rajan and Zingales (2003b) and Biais and Mariotti (2006) study the political economy of financial development. Yet, these papers do not compare the effects and political feasibility of different reforms.[2] Blanchard and Giavazzi (2003) do compare reforms, but their focus is on labor

[2]Rajan and Zingales (2003b) find a positive correlation between openness to trade and financial development, and sketch a theoretical explanation where openness to trade and financial development are complements because the former increases the benefits (by creating new investment opportunities) and reduces the cost (by creating more competition) of the latter for incumbents. If one were to interpret openness as deregulation, then our model could

and product markets**.** Other political-economy models of reform [Alesina and Drazen (1991), Dewatripont and Roland (1992a, 1992b, 1995), Fernandez and Rodrik (1991)] emphasize uncertainty and/or asymmetric information, from which we completely abstract in this paper. Again, none of these papers compare the relative feasibility of alternative reforms. Finally, Dewatripont and Roland (1992a, 1992b, and 1995) and Aghion and Blanchard (1994) develop arguments by which gradual reform is more feasible than one-shot reform. Their arguments are complementary to the one we advance to the same effect. More generally, we think we are the first to stress the importance of the market for control in assessing the consequences of reform.

The road map of the paper is as follows. In Section 2 we set up a model where there are incumbents, a market for control, and an "entry market" through which outsiders can set up new firms. Section 3 describes how the equilibrium levels of meritocracy, entrepreneurship, and social welfare vary as functions of financial regulations and regulatory barriers to entry. Section 4 establishes the greater political feasibility of financial reform over deregulation, and shows that the latter can be leveraged in the short-run to enact deregulation in the long-run. It also discusses the observed path of reforms in OECD countries, as well as the applicability of our insights to the privatization and reform experience of transition economies. Section 5 discusses robustness to alternative assumptions and possible extensions. Section 6 contains concluding thoughts.

2 The Model

We begin by studying a static economy (section 4.3 considers a dynamic extension). There is a continuum (of measure 1) of wealthless agents. Each agent has a project to produce final output. If the project is implemented it becomes a firm that combines its owner's managerial services with homogeneous labor input. An individual's managerial talent is $\theta \in \{\underline{\theta}, \overline{\theta}\}$, with $\overline{\theta} \geq \underline{\theta}$. Individuals with $\overline{\theta}$ are more talented than those with $\underline{\theta}$, and λ is the fraction of agents of type $\overline{\theta}$. If a manager with talent θ hires l units of labor his output is

$$y = \theta l^{1-\alpha},$$

be used to formalize their argument. There are two main differences, however. First, unlike openness, deregulation in our model does not create new investment opportunities for incumbents. Instead, the distinctive feature of our complementarity argument is that it hinges on the market for control as a source of endogenous compensation for the losers from reform.

where $\alpha \in (0,1)$ captures the extent of decreasing returns to scale, in the spirit of Lucas's (1978) span of control model. Section 5 discusses what changes under constant returns to scale when physical capital is also a productive input. Without loss of generality we normalize $\overline{\theta} = 1$.

To implement a project and run a firm an agent needs to hold a government-issued license. Agents can obtain these licenses in three ways. A fraction η of agents is randomly given a license at the outset (without replacement). We call these agents the incumbents. Random allocation of licences implies a talent-ownership mismatch: $\eta\lambda$ incumbent firms are owned by managers with talent $\overline{\theta}$ ("talented managers" henceforth), $\eta(1-\lambda)$ by managers with talent $\underline{\theta}$ ("untalented managers"). In a developing-country context, where the vast majority of businesses are family owned and dynastically run [La Porta et al. (1999)], this initial allocation reflects the inheritance of firms by children of past entrepreneurs. Since managerial talent is not perfectly inheritable, many incumbent firms will be initially controlled by untalented agents [Caselli and Gennaioli (2005)]. In transition economies the initial allocation reflects the haphazard distribution of control rights over formerly state-owned firms to political insiders, many of whom are wholly incompetent to steer the business in a market environment [Barberis et al. (1996), Djankov (1997)].[3]

An agent who is not an incumbent (an "outsider") can become an entrepreneur in two ways. First, he may set up a new firm in what we call the "entry market." In the entry market individuals set up their own firm by bearing a set-up cost k (a technological parameter) and by buying a licence directly from the government at a fee r. r is an exogenous parameter reflecting the government's competition policy. The simplest interpretation is that r is an entry tax, but in practice it stands for the monetary value of all the bureaucratic set up costs faced by entrants. To be sure, some of these costs are deadweight losses to society, but several others are transfers from entrepreneurs to government officials, not least because entrepreneurs overcome the waste associated with entry regulation by negotiating appropriate side payments with bureaucrats [Djankov et al. (2002)].

The other way an outsider can become entrepreneur is by buying the firm of an incumbent in what we call the "market for control." On the market for control incumbents transfer their licenses to outsiders at price p. It is not difficult to foresee that transfers of licenses on the market for control will typically feature untalented sellers and talented buyers.

In principle, there could yet be a fourth mechanism to transfer managerial control to talented

[3] The problem of initial mismatch between talent and control also arises in mature market economies. Many firms are controlled by their founders, but over the life-cycle of the firm the relevant skill set changes: mature firms are different from startups, and a change at the helm may be efficient. A change in management may also be needed if the technological or institutional environment has changed.

agents: untalented incumbents could retain ownership of their firms, but hire a talented agent as a manager. This is obviously feasible only if incumbents can effectively surrender control to outside managers while keeping substantial cash flow rights. Thus, the availability of this solution hinges on similar conditions to those guaranteeing the working of the market for control, as the separation of ownership and control is unlikely to be available in the absence of an effective infrastructure of enforcement of financial contracts, capable of keeping managers from diverting resources from the owners to themselves. As a result, explicit consideration of the market for managers is irrelevant for establishing the effects of institutional reform on entrepreneurship, meritocracy, or any other macroeconomic variable of interest: we can re-interpret all transactions on the market for control as transactions on the market for managers, or as an arbitrary combination of transactions occurring on these two markets. In the Appendix we formally prove this statement.

The following sequence of events takes place. First, outsiders can decide to become entrepreneurs by setting up a new firm in the entry market or by buying an existing one in the market for control. Because individuals are born wealthless, in order to enter these markets they need to borrow either the total set up cost $\varepsilon = k + r$, or the price of an existing firm p. Agents can borrow from foreign lenders, the supply of foreign funds is perfectly elastic, and the interest rate is normalized to zero.

When the entry market and the market for control close, each firm owner turns to the labor market and hires workers at a competitive wage, w. Agents who do not run firms inelastically supply their endowment of labor, normalized to 1. Furthermore, we make the simplifying assumption that, besides providing managerial services, a firm's owner also provides remunerated labor services. This implies that aggregate labor supply is 1, and that the opportunity cost of becoming an entrepreneur is 0. This assumption simplifies the analysis but our main results go through even if it is relaxed.

The resources of the economy having thus been allocated, production takes place, giving rise for each firm to output y and profits (i.e. output less wages) π. It is here that the financial frictions bite. Agents who have financed a new firm's set up cost or the acquisition of an existing firm with debt must decide whether or not to repay their debts. We assume that creditors can only recover a fraction ϕ of the profits of an entrepreneur who defaults on his debts. Hence ϕ captures the quality of financial legislation and contract enforcement and, through these, the overall level of financial development of the economy.

In sum in our model two exogenous parameters capture the quality of a country's institutional infrastructure: ϕ captures the quality of the laws governing the financial system (and their enforcement), r the extent of regulatory entry restrictions. *We call financial reform an increase in ϕ,*

deregulation a decrease in r. Given that $\varepsilon = k + r$, and k is a constant, we will also very often refer to deregulation as a decline in ε. Our goal is to study the consequences of these reforms on entrepreneurship, meritocracy and welfare as well as their political feasibility. To focus on this goal, we assume that both reforms can be implemented at no cost.[4]

3 Economic Consequences of Deregulation and Financial Reform

In this section we first derive the payoff of running a firm (profits), and the conditions under which outsiders can get access to such profits either by setting up a firm or by buying a license from an incumbent. This analysis helps determine the two key endogenous variables of the paper: the total number of operating firms f, which is our measure of *entrepreneurship*, and the share of those firms which is run by talented managers, s, a measure of *meritocracy*. We then study how f, s, and overall welfare vary as we vary ε and ϕ, i.e. as institutions change. All results are formally proved in the appendix.

3.1 Wages, Profits and Output

We solve the model backward starting with the labor market. Each manager maximizes his firm's profits, equal to $\pi = \theta l^{1-\alpha} - wl$, taking the wage w and his own talent θ as given. Aggregating the resulting labor demand functions, and setting aggregate labor demand equal to 1 (i.e. labor supply), one finds that the equilibrium wage is

$$w(f, s) = (1 - \alpha) f^{\alpha} [s + (1 - s)g]^{\alpha}, \tag{1}$$

where we have defined $g \equiv \underline{\theta}^{1/\alpha} \leq 1$. The wage depends positively on the number of active firms, f, and, through the productivity term $[s + (1 - s)g]$, on the average quality of management s. The

[4] Taken literally, therefore, the model best applies to those items in the deregulation and financial-reform agenda that are technically easier and cheaper to implement, such as the the simple removal of red tape, to reduce ε (e.g. Djankov et al. 2003), and the adoption of simple and easy to enforce legal rules increasing investor protection against tunneling, to increase ϕ (e.g. Hay, Shleifer and Vishny 1996). Such simple steps are both likely to be characterized by similar and relatively low implementation costs. Of course, implementation of a more complete and ambitious reform agenda may involve substantial costs, as both deregulation and financial reform necessitate the reorganization of administrative bureaucracies and courts, the training of bureaucrats and judges, the acquisition of knowledge and expertise by government officials and so on. We simplify our analysis by assuming these costs away because we feel that adding these costs may qualify our analysis but not affect the nature of our key results (particularly the desirability of reforms improving the working of the market for control).

effect of f and s on the wage directly translate into their effect on firms' profits, which are

$$\pi^H(f,s) = \alpha f^{\alpha-1}\left[s+(1-s)g\right]^{\alpha-1}, \text{ and} \tag{2}$$

$$\pi^L(f,s) = g\pi^H(f,s), \tag{3}$$

where π^H and π^L are the profits enjoyed by talented and untalented managers, respectively. As the expressions show, both s and f reduce profits. The intuition is that higher f and s increase wages, thus reducing entrepreneurs' residual income.

Aggregating across firms' outputs we find total production

$$Y(f,s) = f^{\alpha}\left[s+(1-s)g\right]^{\alpha}, \tag{4}$$

which is increasing in f and s. Decreasing returns to the size of a firm's labor force imply that having more firms increases the productivity of labor. Aggregate productivity also goes up with s, the fraction of firms controlled by talented managers. Gross aggregate output increases in entrepreneurship and meritocracy.

Finally, we define net output, or gross output net of the set-up costs of entry:

$$Y(f,s) - (f-\eta)k \tag{5}$$

This will be our measure of welfare, as the set-up costs of entry are a resource cost for the economy.[5]

The following two parametric assumptions prove useful:

Assumption 1: $\eta < \lambda < 1$.

Assumption 2 : $k = \alpha\lambda^{\alpha-1}$.

Assumption 1 says that talent is abundant relative to the initial number of firms (though not everybody is talented). Talent may be scarce in some economies but in this paper we are interested in institutional impediments to the efficient allocation of control rights. Hence, talent is plentiful and the question is whether the economy succeeds in assigning firms to good managers.

Assumption 2 then allows us to pinpoint particularly starkly the first best of the model. Note from (4) and (5) that $\alpha\lambda^{\alpha-1}$ is the marginal social return of a talented-run firm when all talented

[5]Recall that we treat the entry tax r as a transfer to the government, not as a deadweight cost. By doing so, we endogenize the deadweight costs of r as a function of its impact on entry decisions. Allowing r to be a direct deadweight cost in the social welfare function would not significantly change the analysis: it would simply create an extra (artificial) benefit of deregulation.

individuals manage firms, and all untalented ones are workers, i.e. when $f = \lambda$ and $s = 1$. k is the marginal social cost. It is then easy to prove that:

Lemma 1 *At the first best,* $f = \lambda$ *and* $s = 1$.

Lemma 1 provides a convenient and plausible benchmark for welfare calculations. Note, in particular, that in our economy both the initial number of firms ($f = \eta < \lambda$) and the quality of management ($s = \lambda < 1$) are suboptimal. In other words, we start out with an economy that has both a deficit of entrepreneurship and a deficit of meritocracy.

If we were to replace Assumption 2 with $0 < k < \alpha\lambda^{\alpha-1}$, then the first best may involve some production by untalented managers, but all the main results of the paper would still hold. It is essential, however, that $k > 0$. If $k = 0$ then there is no such thing as "too many firms," and the first best would simply be attained by letting everybody set up his own little enterprise, independent of talent. In this scenario, a well-functioning market for control would not be needed to reach the first best. Of course one would naturally expect technological factors to limit the optimal number of firms, and our model then shows that the market for control is essential to make sure that all (or most) of them are well managed.

3.2 Market for Control

The market for control can increase meritocracy (s) by allowing talented individuals to bid for the firms owned by untalented incumbents. A licence yields π^H to a talented manager, but only $\pi^L < \pi^H$ to an untalented one. Thus, the exchange of a firm among these two individuals generates a surplus of $\pi^H - \pi^L$, that could be suitably shared among the parties through an appropriate price p. Clearly, only transfers from low- to high-ability individuals will take place. We assume that a manager can run at most one firm, so demand for licenses only comes from outsiders, but in Section 4.3.1 we argue that our main results still go through when this assumption is relaxed.

Because agents are born wealthless, buyers need to borrow to finance the purchase of existing licenses. Hence, the market for control is vulnerable to the consequences of poor contract enforcement. Since creditors can only recover a fraction ϕ of the resources of a party in default of contractual obligations, the most the buyer can borrow from international markets is $\phi\pi^H$, which also represents the maximum price he can pay to the seller.[6] As a result, a transaction in the

[6] Firms' exchanges can also be financed by having the seller extend a credit of $\phi\pi^H$ to the buyer.

market for control can only take place when

$$\pi^L(f,s) \leq \phi\pi^H(f,s).$$

When this condition holds, it is possible to find a price p, $\pi^L \leq p \leq \phi\pi^H$ such that the seller is keen to sell (the seller's participation constraint is satisfied) and the buyer can credibly promise to repay the funds he borrowed (the buyer's incentive-compatibility constraint is satisfied). Notice that since $\phi \leq 1$ when the buyer's incentive compatibility constraint holds then his participation constraint $p \leq \pi^H$ also holds.

Because $\pi^L = g\pi^H$, transfers of control only occur if

$$\phi \geq g. \tag{6}$$

Intuitively, an increase in g reduces the gains from trade and thus the scope for the exchange of firms. More importantly, an increase in ϕ improves the ability of buyers to borrow, and this favors exchanges on the market for control.[7] Consistent with empirical evidence, our model predicts that financial development ϕ improves the working of the market for control [Rossi and Volpin (2004)].[8]

Because outsiders can also become entrepreneurs by paying a set up cost ε to found a new firm, for the market for control to operate it must also be that $\pi^L(f,s) \leq \varepsilon$. This insures that there exists a price that induces untalented insiders to sell, and at the same time gives buyers at least as good a deal on the market for control as they would get by starting up a new firm. It will turn out, however, that this constraint is never binding in general equilibrium.

3.3 Entry Market

Potential entrants can set up a new firm by paying a grand total of $\varepsilon = k + r$ between set-up costs and entry fees. Because the entry cost ε must be incurred before the firm produces profits, an entrant with potential profits π will be able to borrow the funds for the fixed entry cost ε and set

[7] We have implicitly assumed that entrepreneurs cannot pledge the wage they earn as workers as security for their debts. This amounts to assuming limited liability on the part of the entrepreneur, so that creditors can only seek repayment by seizing the firm's property, or its profits. We studied the model under the assumption that entrepreneurs can also pledge their wage. The analysis is more complicated but our main results are unaffected.

[8] In the context of widely held firms, Burkart, Gromb and Panunzi (1998) argue that private benefits of control (associated with low investor protection ϕ) may facilitate transfers of control by increasing potential challengers' incentives to launch a tender offer. This mechanism is unlikely to be important in developing or transition countries, where most firms are tightly held [La Porta et al. (1999)].

up a new firm if and only if

$$\phi\pi(f,s) \geq \varepsilon. \tag{7}$$

This expression captures the similarity between regulatory restrictions to entry and financial frictions emphasized by the existing literature on entry. Indeed, the effective set up cost for an entrant is ε/ϕ, which increases with entry regulations (a larger ε) and falls with financial development (a larger ϕ). The key point of the paper, however, is that once we take into account the existence of a market for control, the effects of ε and ϕ on $\pi(f,s)$ are quite different, and this breaks the similarity between the two.[9]

Condition (7) implies that entry of new firms improves meritocracy. The reason is that talented managers generate higher profits ($\pi^H \geq \pi^L$) and are thus more eager to set up new ventures than untalented ones. Indeed, Assumption 2 affords us an additional, realistic simplification:

Lemma 2 *Untalented outsiders never set up new firms in equilibrium.*

As was the case for Lemma 1 this is not a general result, but a useful benchmark for the rest of the analysis. If we relaxed Assumption 2, for ε low enough we could have untalented outsiders enter in equilibrium. However, because entry by the untalented would only take place after all of the talented have entered, it would still be the true that lower ε and higher ϕ are associated with greater meritocracy. All of our positive and political economy results would still hold.[10]

3.4 Equilibrium

We now study how the equilibrium of the model depends on the institutional parameters (ϕ, ε). To highlight the role of the market for control, we begin with the case where the market for control is not allowed to operate. We then study the general case where agents are allowed to trade on the market for control.

3.4.1 Equilibrium without Market for Control

Without a market for control, outsiders can only become entrepreneurs by setting up a new firm in the entry market. This is the case typically studied by the literature on entrepreneurship, where

[9] If condition (7) holds, so does the participation constraint $\pi \geq \varepsilon$. For entry, we also need $\pi^L \geq \varepsilon$ (otherwise talented agents would only buy existing firms). Again, this condition does not bind in equilibrium.

[10] Notice that Lemma 2 does not say that the untalented would never like to enter. For example, if nobody enters and $\phi\pi^L(\eta,\lambda) \geq \varepsilon$, untalented outsiders would like to enter. Yet, in this case talented outsiders would like to enter as well. The lemma shows that entry by the talented destroys entry by the untalented.

financial reform and deregulation only affect outsiders' entry decisions [e.g. Evans and Jovanovic (1989)].

To study the equilibrium of this model, it is useful to define an "Entry" equilibrium as one where at least some of the talented outsiders set up new firms, and a "No Entry" equilibrium as one where none does. Then, we can establish the following result.

Proposition 1 *When there is no market for control, at every* (ϕ, ε) *an equilibrium* (f, s) *exists and is unique. The equilibrium is No Entry if* $\phi < \varepsilon/\pi^H(\eta, \lambda)$*, and Entry otherwise.*

When $\phi < \varepsilon/\pi^H(\eta, \lambda)$ the difficulties of borrowing (low ϕ) are too severe relative to the entry cost, even for a marginal entrant obtaining the same profit $\pi^H(\eta, \lambda)$ of a talented incumbent. Thus, the equilibrium is one where nobody enters. When instead $\phi \geq \varepsilon/\pi^H(\eta, \lambda)$, then entry is feasible, at least for the first few entrepreneurs. In this range, an Entry equilibrium prevails. Both deregulation (a reduction in ε) and financial reform (an increase in ϕ) simply reduce the entry barriers faced by talented outsiders. If the economy starts in a No Entry equilibrium, reductions in ε and increases in ϕ eventually increase both entrepreneurship and meritocracy by triggering entry by talented outsiders.

Corollary 1 *When there is no market for control, both meritocracy and entrepreneurship are (weakly) decreasing in* ε *and increasing in* ϕ*. Both deregulation and financial reform increase social welfare but the first best cannot be attained.*

The last part of the corollary says that in the absence of the market for control this economy cannot reach the first best even if institutions are perfect, i.e. even if $(\varepsilon = k, \phi = 1)$. Because of decreasing returns to scale, entry of talented entrepreneurs reduces the profits earned by untalented incumbents. However, these are always positive, so entry does not force the exit of inefficient firms. To attain the first best the control rights in the latter must be reallocated to talented managers. In the next section we study whether the market for control achieves that outcome.

3.4.2 Equilibrium with the Market for Control

What if outsiders can also bid for existing firms on the market for control? The fact that the market for control is allowed to open, does not imply that untalented incumbents will always sell their firms to talented managers, for condition (6) shows that such exchanges only occur as long as the government provides sufficiently strong underpinnings for financial contracts.

In addition to the Entry and No-Entry characterization outlined previously, it is useful to define as "All Sell" equilibria where all of the untalented incumbents sell their licences, and as "No Sales" equilibria where no incumbent sells his license. This characterization yields four possible equilibrium configurations for the economy as a whole: "No Entry, No Sales," "No Entry, All Sell," "Entry, No Sales," and "Entry, All Sell," and allows us to establish the following result.

Proposition 2 *At every* (ϕ, ε) *an equilibrium* (f, s) *exists and is unique. If* $\phi < g$ *the equilibrium is No Entry, No Sales for* $\phi < \varepsilon/\pi^H(\eta, \lambda)$*, and Entry, No Sales otherwise. If* $\phi \geq g$ *the equilibrium is No Entry, All Sell for* $\phi < \varepsilon/\pi^H(\eta, 1)$*, and Entry, All Sell otherwise.*

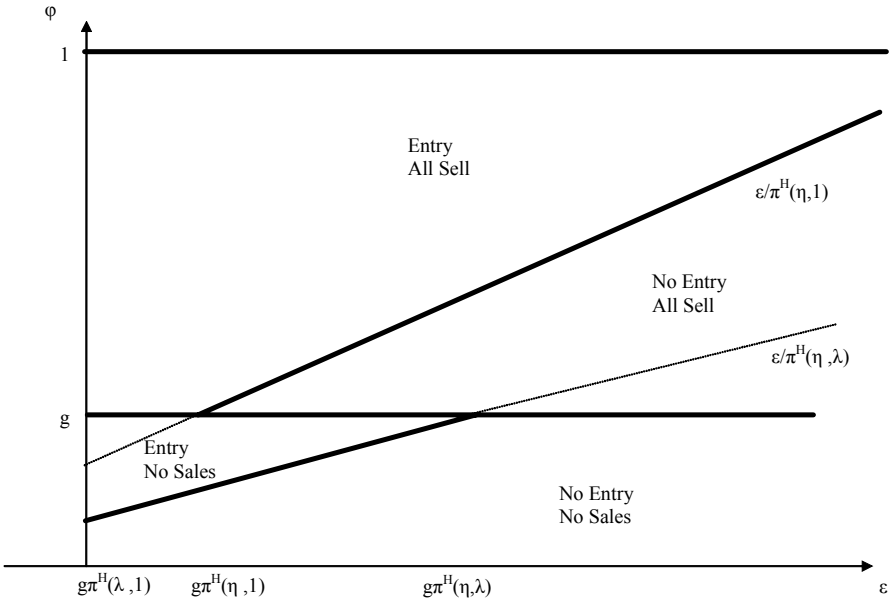

Figure 1: Illustration of Proposition 2

Figure 1 (whose construction is also described in the Appendix), provides a graphical illustration of Proposition 2. The figure divides the (ε, ϕ) space in regions supporting outcomes with and without entry, and with and without sales, respectively. When $\phi < g$ the market for control does not work and the equilibrium is always of the No Sales type: the difficulties of borrowing (low ϕ) are too severe relative to the gains from trade. Conversely when $\phi \geq g$ the market for control is

active, and the equilibrium is All Sell, as all the untalented sell their firms.[11]

Below the $\phi = g$ line, the model with the market for control reproduces exactly the results of the model without: entry occurs if ε is low and ϕ is high. But here we see that exactly the same occurs above the $\phi = g$ line. Hence, as long as changes in ϕ and ε do not trigger changes in the control of incumbent firms, both deregulation (lower ε) and financial reform (higher ϕ) enhance entrepreneurship. The important new feature of the model with a market for control is that increases in ϕ, unlike reductions in ε, can also trigger a transition from No Sales to All Sell. In other words a key difference between deregulation and financial reform is that the latter can directly activate the market for control, while the former does not, as it directly affects only entry decisions.[12]

The implications of the asymmetric impact of the two reforms on the market for control are far reaching. First, financial reform improves meritocracy directly by favoring transfers of control of incumbent firms. Second, financial reform and deregulation can now have very different effects on the equilibrium number of firms. If the transition is from No Entry, No Sales into No Entry, All Sell there is no change in the number of firms. This is true even in situations where, in the absence of a market for control, financial reform would have induced entry (i.e. when $\phi \geq \varepsilon/\pi^H(\eta, \lambda)$). If the transition is from Entry, No Sales into either of the All Sell regions entrepreneurship actually declines. This is obvious from Figure 1 when the transition is from Entry, No Sales to No Entry, All Sell, but the proof of Proposition 2 establishes that the same is true when the transition is to an Entry, All Sell equilibrium. When untalented incumbents begin selling their firms to talented outsiders, other talented outsiders who wish to enter see their prospective profits shrink, and this reduces entry despite the improved access to finance. If ε is initially sufficiently high, entry disappears altogether.

Figures 2 and 3 give more detailed visual representations of the effects of reform on entrepreneurship and meritocracy. In both figures the two horizontal dimensions are ϕ and ε, (though in

[11] A notable feature of Proposition 2 is that there are no equilibria where only some, but not all, of the untalented incumbents sell their licenses. The intuition for this is that an untalented incumbent's incentive to sell his license is invariant to the number of other incumbents who sell their license. There are two general equilibrium effects: on the one hand, if more incumbents sell, the value of the license falls, thereby reducing outsiders' incentive to buy. On the other hand, the incumbents' payoff from not selling also falls, which increases incumbents' incentive to sell. In our model these two effects cancel each other. Thus, if one untalented incumbent wishes to sell, then all wish to sell.

[12] To be more precise, deregulation reduces both the profits of untalented incumbents (thus increasing their incentive to sell) and the profits that buyers would make (thus reducing their willingness to buy). In our model these effects cancel out and deregulation leaves the market for control unaffected. It is important to notice that those indirect effects are also shared by financial reform. Hence, even if those effects did not cancel out, financial reform would have a stronger impact on the market for control than deregulation, thereby breaking the similarity among the two reforms in the same way as in our model.

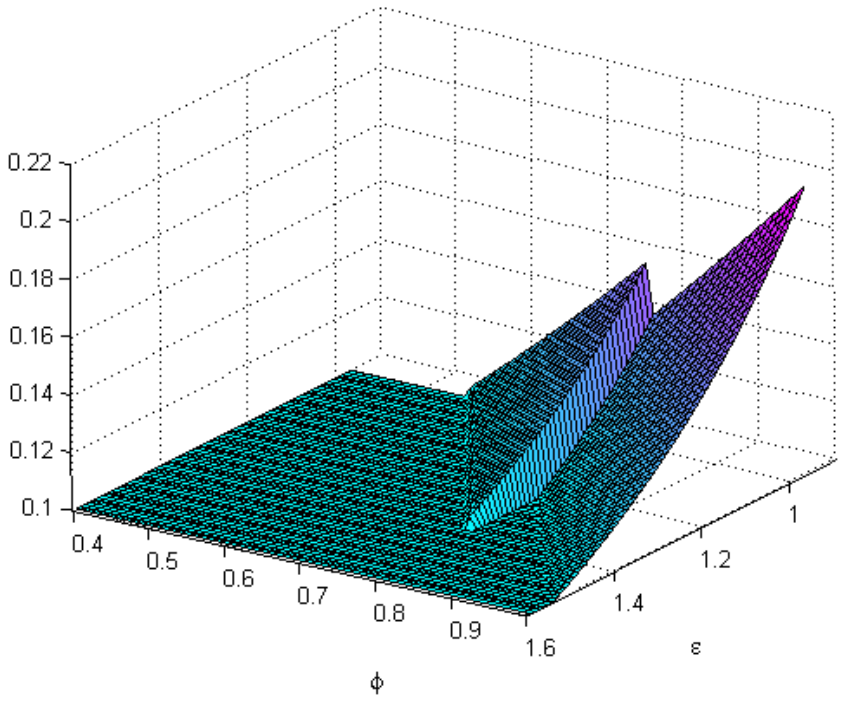

Figure 2: Entrepreneurship as a function of ϕ and ε.

each figure the axes are rotated so us to maximize the visual informativeness of the graphs). In Figure 2 we plot entrepreneurship, f, and in Figure 3 we plot meritocracy, s. Specific parameter values have been chosen to draw these figures, but the proof of Proposition 2 makes it clear that the qualitative properties are independent of this particular choice.[13] If the economy starts in the No Entry, No Sales region, reductions in ε and increases in ϕ have initially no effect on either f or s. Eventually, however, both deregulation and financial reform begin to trigger entry by the talented. As a result, for $\phi < g$ financial reform and deregulation eventually increase both entrepreneurship (f) and meritocracy (s). A similar scenario arises when initially $\phi \geq g$. Now the equilibrium in the market for control is All Sell. If the economy starts from No Entry, reductions in ε and increases in ϕ eventually trigger entry by the talented and thus increase entrepreneurship (meritocracy is already maximized because we start in an All Sell equilibrium). However, when financial reform causes a transition from $\phi < g$ to $\phi \geq g$, meritocracy jumps up from λ to 1, but entrepreneurship is at best unchanged, and indeed for many values of ε it jumps down.[14]

[13] The parameters in the figures are $\alpha = 0.33$, $g = 0.8$, $\eta = 0.10$, and $\lambda = 0.20$.

[14] Since entrepreneurship is non-monotonic in ϕ an interesting question is whether f is higher when $\phi = 1$ or

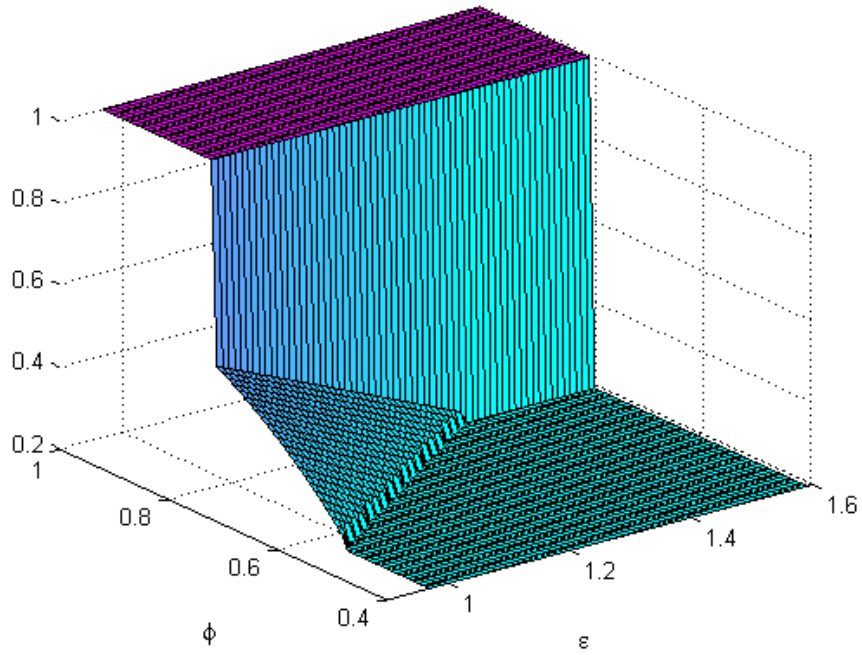

Figure 3: Meritocracy as a function of ϕ and ε.

We summarize this discussion as follows:

Corollary 2 *Meritocracy is (weakly) decreasing in ε and increasing in ϕ. Entrepreneurship is (weakly) decreasing in ε. Entrepreneurship is (weakly) increasing in ϕ for $\phi < g$, and for $\phi > g$, but jumps down discretely at $\phi = g$.*

It is clear that any reform that increases meritocracy without reducing entrepreneurship, or entrepreneurship without reducing meritocracy, is welfare improving. However, Corollary 2 implies that sometimes financial reform improves one at the expense of the other. We therefore need to study formally the welfare effects of reform. Recall that our welfare criterion is given by equation (5). We then have the following reassuring result:

Corollary 3 *Both deregulation and financial reform (weakly) increase social welfare. The first best is attained if and only if $(\varepsilon = k, \phi = 1)$.*

when $\phi = g$ (or rather just below g). The answer depends on parameter values. Hence, it is possible that the entrepreneurship-maximizing level of ϕ is g, not 1.

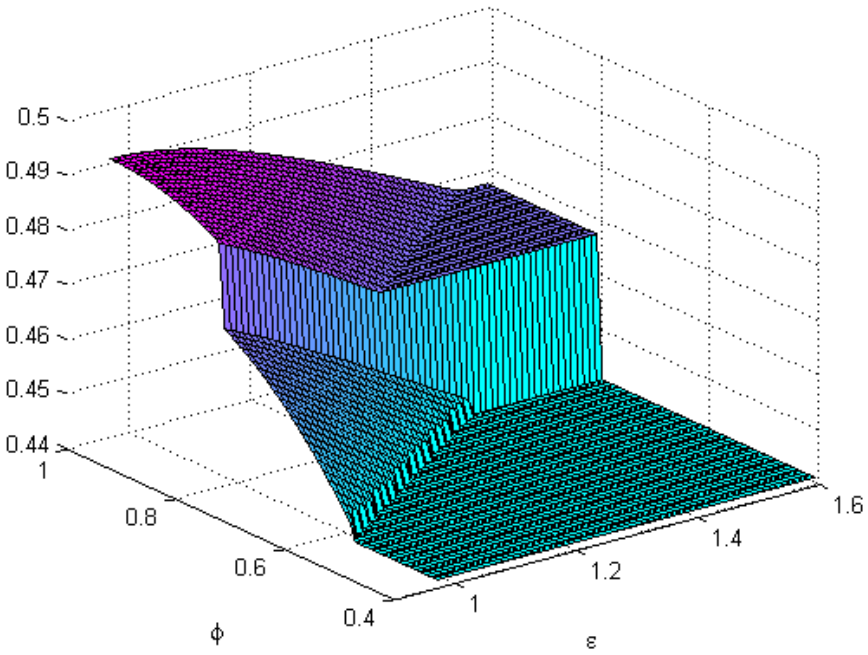

Figure 4: Welfare as a function of ϕ and ε.

Corollary 3 is illustrated by Figure 4, which is read in a manner similar to the previous figures, except that the vertical axis measures social welfare. Deregulation and financial reform are welfare improving also when the market for control is open. Even when financial reform reduces firm creation, it increases the productivity of incumbents so much that aggregate output increases in ϕ. In addition, in contrast to the case without market for control, the first best is now attainable, because the market for control allows untalented incumbents to sell their firms to talented managers, which yields full meritocracy. However, the first best is attained if and only if the enforcement of debt contracts is perfect and there are no regulatory entry barriers [i.e. at $(\varepsilon = k, \phi = 1)$]. Imperfect debt enforcement or excessive entry barriers will lead either to failures of entrepreneurship, $f < \lambda$, or to failures of meritocracy, $s < 1$, or both. As a result, a government's ability to foster efficiency depends on its ability to undertake deregulation, financial reform, or both. We will turn to this issue shortly.[15]

[15] In principle, if the production function is not Cobb Douglas, an increase in ϕ may reduce output by reducing f. We feel that the case where reform is welfare improving is more empirically plausible, and we focus on it in the rest of the paper.

3.5 Discussion of Positive Implications

Our results on the effects and benefits of lower entry barriers and better contracting institutions are consistent with a variety of empirical findings on the effects of reforms in developing and transition economies. For example, one common finding of the empirical literature on enterprise restructuring in transition is that better financial-contracting and greater product market competition improve firm-level Total Factor Productivity [e.g. Djankov and Murrell (2002)]. This is consistent with our predictions that financial reform and deregulation (which is synonymous with greater competition) increase the quality of management. In addition, Klapper et al. (2004) and Fisman and Sarria-Allende (2004) find a sizable negative effect of regulatory entry barriers on firm entry. This is consistent with our result that deregulation increases entrepreneurship.

Although our model is consistent with the empirical findings discussed above, it also contains the novel insight that financial reform, or other reforms that activate the market for control, may – contrary to common wisdom – reduce entry. To our knowledge, the link between financial reform, the market for control, and entry, has yet to be investigated empirically.

4 The Political Economy of Deregulation and Legal Reform

Corollary 3 shows that the first best in our model is only attained under full financial reform and full deregulation ($\varepsilon = k, \phi = 1$). Thus, in a world without political frictions the optimal reform strategy would be to follow a big bang approach where both reforms occur at once.

Unfortunately, no country in the world is governed by unconstrained benevolent social planners, much less those developing and transition economies where entrepreneurship and meritocracy fail particularly egregiously. In practice reform typically occurs, if it occurs at all, gradually, partially, and slowly. Some of the reasons why reform is piecemeal are technical. Policy makers have limited energy, time, and attention span. But the most important reason why reform is partial or gradual is the opposition of entrenched interests. Even a reform minded government may fail to implement the first best when confronted by opposition from the reform's losers. To design an optimal reform strategy in the presence of political constraints we must answer questions such as: which of financial reform and deregulation is a more politically feasible one-shot reform? Can policy makers ultimately overcome political constraints and attain the first best by optimally sequencing these reforms?

In this section we assume that there is a status quo (ε_0, ϕ_0), and investigate the relative political feasibility of various reforms (ε', ϕ'), where $(\varepsilon' \leq \varepsilon_0, \phi' \geq \phi_0)$. To fix ideas and keep things

straightforward we assume:

Assumption 3: In the status quo the economy is in a No Entry, No Sales equilibrium.

With reference to Figure 1, the initial state (ε_0, ϕ_0) is a point in the lower-right region, where financial law is lousy, so that incumbents hold on to their firms, and entry costs are large, so that outsiders do not set up new firms. In other words we look at economies that badly need reform, as indeed a large majority of economies in the world are widely deemed to do. However, there is no substantial loss of generality in focusing on No Entry, No Sales equilibria: it is easy to use the insights developed in this baseline case to extract lessons about the feasibility of reform starting from alternative initial states.

4.1 Winners and Losers

Any analysis of the political feasibility of reform must begin by identifying the winners and losers of alternative reform proposals. We do this beginning with the case without market for control.

Proposition 3 *When there is no market for control: (i) Any deregulation and any financial reform weakly benefits outsiders. (ii) Any deregulation and any financial reform weakly hurt talented incumbents. (iii) There exist an* η^* *such that, for* $\lambda \leq g$, *and for* $\lambda > g$ *and* $\eta < \eta^*$, *any deregulation and any financial reform weakly hurt untalented incumbents, while if* $\lambda > g$ *and* $\eta \geq \eta^*$ *there exists both financial reforms and deregulations that weakly benefit untalented incumbents.*

This result appears to support frequent claims that financial reform and deregulation are not only economically, but also politically similar. Without a market for control, the only effect of both reforms is to foster entry. As a result, these reforms benefit talented outsiders, by allowing them to become entrepreneurs and earn the profits associated with running firms, and untalented ones, because the real wage increases in f and s.[16] By contrast, incumbents tend to lose from both deregulation and financial reform. These reforms increase the number and/or quality of an incumbent's competitors, eroding its profits. In some cases, untalented incumbents may benefit from reform if the increase in the wage they earn as workers more than offsets their loss in profits, but this effect hinges on implausibly low incumbency rents (i.e. both λ and η must be very large).

[16] This does not mean, however, that outsiders typically prefer drastic reforms (e.g. a full dergulation setting $\varepsilon = k$) because they may still want some entry restriction to protect their profits in the event they become entrepreneurs. In general, the optimal deregulation or financial reform from the standpoint of an outsider trades off the resulting wage increase, with the reduction in expected profits he experiences once taking into account the equilibrium probability of becoming an entrepreneur. Still, the proposition establishes that outsiders always prefer any reform to no reform.

More importantly, even in this case deregulation and financial reform remain equivalent in the eyes of untalented incumbents. In sum, when we don't consider the effect of reform on the market for control, financial reform and deregulation are politically equivalent, as they increase competition in the same way.

Does the same conclusion hold when the effect of financial reform on the market for control is taken into account? It turns out that to fully characterize the effects of financial reform on untalented incumbents' payoffs we need to be specific about the process of determination of the price p at which licenses are traded.[17] In particular, we make the following assumption:

Assumption 4: In All Sell equilibria the price of a license maximizes sellers' payoffs.

This is akin to assuming that sellers have all the bargaining power. This is a plausible assumption: in All Sell equilibria there is excess demand for licenses, and buyers are rationed (this is because $\lambda > \eta$), so it is natural that the sellers will capture all the available rents. Nevertheless, Assumption 4 is not crucial for our results: all that is needed is that the price of licenses is increasing in a talented agent's ability to pay for it, $\phi\pi^H$.

We now can state the following proposition.

Proposition 4 *(i) Any deregulation and any financial reform weakly benefits outsiders. (ii) Any deregulation and any financial reform weakly hurts talented incumbents. (iii) Any deregulation weakly hurts untalented incumbents. There exists an* $\widetilde{\varepsilon}_1$ *such that, for* $\varepsilon \leq \widetilde{\varepsilon}_1$*, any financial reform weakly hurts untalented incumbents, and for* $\varepsilon > \widetilde{\varepsilon}_1$ *a financial reform setting* $\phi' = 1$ *benefits untalented incumbents.* $\widetilde{\varepsilon}_1 \in [k, \pi^H(\eta, 1))$.

The market for control does not affect the impact of financial reform and deregulation on outsiders, who benefit from both of them, and on talented incumbents, who lose from both of them. However, the market for control creates a "swing" constituency shaping the relative political feasibility of financial reform and deregulation: the group of untalented incumbents. Just like talented incumbents, untalented ones lose from any deregulation because it increases the number and quality of their competitors.[18] However, financial reform has two opposing effects on untalented

[17] Up to now all that was necessary was to show that a price p that satisfied both parties' participation and incentive-compatibility constraints existed. In practice, when such a price exists, it is not unique, and the specific price the parties will agree upon depends on each side's bargaining power.

[18] Notice that the opening of the market for control prevents deregulation from benefitting untalented incumbents. The intuition is that if ϕ is low, deregulation cannot increase the real wage to the extent that it gains the support of untalented incumbents. If instead ϕ is large, then the market for control works well. In this case, untalented incumbents benefit from selling their firms to talented outsiders. As a result, they oppose deregulation becuase it depresses the value of their firm.

incumbents' payoffs. As in the case of talented incumbents, it erodes, through greater meritocracy and increased entry, the intrinsic value of owning a license. On the other hand, by activating the market for control, financial reform allows the untalented incumbent to capture some of the extra value brought to the license by a talented manager. Furthermore, the larger the increase in ϕ, the higher is the price of a license, so such beneficial effect increases in the extent of financial reform.

In general, the balance of these effects depends on parameter values, as well as on the extent of the proposed reform. The proposition establishes conditions under which untalented incumbents support a full financial reform, or $\phi' = 1$. If ε_0 is relatively small, then entry under full financial reform is massive, the erosion of the licence's value prevails, and untalented incumbents lose from financial reform. If ε_0 is relatively large, full financial reform becomes attractive to untalented incumbents. The reason for this is that entry by outsiders is less responsive to financial reform for large values of ε (a glance at figures 1 or 2 confirms this**).** Note however that the set of possible values for the threshold $\tilde{\varepsilon}_1$ includes the minimum possible value of ε_0, or k. Hence, under certain values of the other parameters, the rent-capturing benefit of financial reform dominates the rent-eroding effect at all levels of ε_0.

In sum, deregulation and financial reform differ dramatically in how they endogenously distribute the efficiency gains following reform. In addition to improving efficiency, deregulation redistributes resources away from incumbents. In contrast, financial reform allows incumbents to internalize some of the efficiency gains. These distributional effects of the market for control have important consequences for the relative political feasibility of financial reform and deregulation, as the next subsection shows in detail.

4.2 Relative Feasibility of Deregulation and Financial Reform

Having established who wins and who loses from reform, we can, so to speak, "count votes." We take the following "direct democracy" view: *the political feasibility of a reform is increasing in the number of agents who benefit from it.* If reform proposals are decided in referenda, agents will tend to support them when they perceive themselves as doing better under reform than under the status quo. Consequently, the larger the number of people who benefit from a reform, the more likely the reform is to pass. This is the approach taken in most of the political-economy literature on reform: a reform minded government is in control of the agenda, but the most politically viable reform is

the one minimizing the number of losers.[19]

Given our definition of political feasibility, Propositions 3 and 4 directly imply:

Corollary 4 *When there is no market for control, financial reform and deregulation have the same political feasibility. When the market for control exists, (i) financial reform is always at least as politically feasible as deregulation, and strictly more feasible for at least some parameter values. (ii) The political feasibility of financial reform is increasing in* ε_0.

Part (i) of Corollary 4 is the key result of the paper: once the market for control is accounted for, political opposition to financial reform should be less strenuous than political opposition to deregulation. Deregulation enhances efficiency through entry, thereby destroying the rents of all the incumbents. For this reason it is politically costly. Financial reform enhances efficiency primarily by fostering the reallocation of existing firms. Hence, it allows incumbents to share in the benefits by selling their firms. In other words, financial reform endogenously compensates incumbents for the loss in value of their firms. Generally speaking, this suggests that "Coasian" reforms that foster private contracting (and the market for control more generally) – such as financial reform – are more likely to be politically viable than purely rent-dissipating reforms like deregulation. As far as we know this is a novel insight in the literature of reform, where it is common to assume that there is no way of compensating losers.

In reality, successfully enacting and implementing reforms often requires more than simply creating a majority of winners, especially if the losers are a politically powerful minority. Nevertheless, Corollary 4 has two important lessons on its own. First, financial reform is more feasible than deregulation because fewer incumbents are willing to use their political power (whatever its source) to oppose it. Second, financial reform allows for an endogenous, nondistortionary compensation of some of the losers. This last aspect suggests that including financial reform in an optimal reform package may greatly reduce the cost of compensating losers and thus of overcoming political opposition.

[19] Strictly speaking, in a referendum a reform passes if it clears the required threshold of votes in favor (usually 50%), so if two reforms are both supported by more than 50% of voters they are equally politically feasible even if one benefits from much broader support than the other. However, any realistic model of the political process leading to the choice of which reform to put up for a referendum, of voters' decision to participate in the referendum, and especially of the random and idyosincratic component in individuals' voting decisions will feature the property that the size of the majority matters. We feel that explicit modelling of these considerations would add very litttle to the message of this paper. In Section 5 we discuss the robustness of our finding to allowing the reform's losers to form anti-reform lobbies.

Part (ii) of the Corollary implies that the political feasibility of financial reform depends on the status quo entry barriers ε_0. For relatively low values of ε_0 the political landscape takes the same shape in response to both deregulation and financial-reform proposals: outsiders are in favor, incumbents are against. The two types of reform are equally feasible because in this case they both foster massive entry. But for ε_0 large enough the coalition of incumbents breaks down: now the main effect of financial reform is to increase the price at which untalented incumbents can sell their firms to talented managers. As a consequence, the untalented swing in favor of financial reform, while still opposing deregulation.

This result suggests that a clever government may lure incumbents into signing off to financial reform by simultaneously increasing entry barriers. This makes incumbents better off without making outsiders worse off. In this sense, the political feasibility of financial reform is independent of the initial level of entry barriers. This may also give hope to despairing students of France and other continental European economies: their tendency to add instead of removing regulation is often viewed as going in the wrong direction, but in this model bringing ε above $\tilde{\varepsilon}_1$ makes other reforms become possible.

4.3 Relative Feasibility of Gradual and One-Shot Reform

That financial reform is politicaly more feasible than deregulation is important, because fnancial reform per se can generate significant welfare gains. Nevertheless, in out setup the first best is only achieved when both reforms are enacted. In this subsection we ask whether the greater feasibility of financial reform in the short-run can be leveraged to open a path towards full reform in the long run. To this end, we consider a dynamic extension of our setup, and assess the relative political feasibility of a "gradual" reform path that begins with financial reform and delays deregulation, with a "big bang" reform that tries to accomplish both in one fell swoop. Because by now the role of the market for control is clear, we only focus on the case where the market for control is open.

Time t is discrete and infinite. Agents are infinitely lived and discount the future at rate $\beta \leq 1$. The institutional environment of the economy is described by a sequence $\{\phi_t, \varepsilon_t\}_{t\geq 0}$. In particular, ϕ_t is the share of period-t profits that courts can seize from debtors who fail to make promised debt-servcicing payments due at date t, and ε_t is the entry cost for settng up a firm at date t. In each period $t \geq 0$, the sequence of events and feasible actions are identical to those of the baseline model. The initial allocation of licenses at $t = 0$ also continues to be random. The only change is that the initial allocation of licences in any period $t \geq 1$ is the result of transfers of licenses and

entry in the previous periods. For instance, the incumbents at $t = 1$ are the incumbents at $t = 0$, less those who sold a firm, plus those who bought or set up a firm at $t = 0$. An equilibrium of this repeated economy is characterized by the sequence $\{f_t, s_t\}_{t\geq 0}$. For simplicity, we assume that agents can borrow on international markets at the rate $1 + r = 1/\beta$ and we do not allow saving.[20]

In this dynamic setting, wages and profits are determined in spot markets and thus the expressions $\pi^i(f_t, s_t)$ and $w(f_t, s_t)$ pin down total production and its distribution in any given period. The main change now concerns the conditions governing at each $t \geq 0$ the entry market and the market for control. These are now:

$$\sum_{r=t}^{\infty} \beta^{r-t} \phi_r \pi^H(f_r, s_r) \geq \varepsilon_t \tag{8}$$

$$\sum_{r=t}^{\infty} \beta^{r-t} \phi_r \pi^H(f_r, s_r) \geq \sum_{r=t}^{\infty} \beta^{r-t} \pi^L(f_r, s_r) \tag{9}$$

Condition (8) says that a talented outsider enters at t only if he can commit to disburse a flow of payments exceeding in present value the current entry cost ε_t. Condition (8) is only necessary as an outsider may prefer not to enter at t provided he expects future entry costs to fall. Condition (9) says that a talented outsider can acquire an existing firm if he can promise a flow of payments that in present terms compensates the untalented incumbent for his loss of control. This is also only necessary as sellers may decide to postpone if they expect higher ϕs in the future.[21]

Suppose first that institutional quality is stationary at the level (ϕ, ε) for every $t \geq 0$. In this case, the economy reaches its long run state (f, s) at $t = 0$. Since with constant ε and ϕ conditions (8) and (9) are also sufficient, long run entry occurs whenever $\phi\pi^H(f, s) \geq \varepsilon(1-\beta)$. Moreover, just as in the static model, condition (9) implies that the market for control operates at $t = 0$ if and only if $\phi \geq g$. Overall, this implies that in the absence of reform the equilibrium in this dynamic

[20] Because utility is linear and $1 + r = 1/\beta$, households do not have an incentive to save to smooth consumption. Agents here might only save to build collateral and thus overcome credit constraints. An exhaustive consideration of this case is beyond the scope of this paper. Here we just note that, as formally shown by Caselli and Gennaioli (2005), saving does not allow the economy to escape credit constraints; if ϕ is low the return to saving is also low and thus the ability to build collateral is also small. As a result, we expect our main results to hold also if saving is allowed.

[21] The two formulas above implicitly assume that, upon non repayment, creditors cannot seize the debtor's productive licencies. If this assumption does not hold, the incentive compatible repayment stream $(R_t)_{t\geq 0}$ must satisfy, for every $t \geq 0$, the condition $(1-\phi_t)\pi_t \leq \sum_{t\geq 0} \beta^{r-t}(\pi_r - R_t)$, which says that the debtor is worse off by defaulting and keeping the share $(1-\phi_t)$ of current profits than by following the optimal repayment stream. It is immediate to find that in a stationary equilibrium where $\phi_t = \phi$, $\varepsilon_t = \varepsilon$ $\forall t$, the incentive compatible repayment is $R = \pi[\phi(1-\beta)+\beta]$, which is intuitively larger than $\pi\phi$, the repayment when creditors cannot take licencies away. Our focus on this latter case does not affect our main results but it conveniently simplifies our analysis and especially the mapping between the static and dynamic models.

version of the model is identical to the equilibrium prevailing in a static model where the entry cost is scaled down to $\varepsilon(1-\beta)$. As a result, our previous analysis fully extends to this dynamic setting provided we replace Assumption 2 with:

Assumption 2´: $k = \alpha\lambda^{\alpha-1}/(1-\beta)$.

To repeat, this assumption ensures (together with Assumption 1) that in the first best of the model all firms should be run by the talented and viceversa, i.e. $f = \lambda, s = 1$.

Consider now a dynamic reform path proposed by the government at $t = 0$. In this path, full financial reform occurs immediately, while full deregulation occurs at some date, $t^* \geq 0$. In other words, the proposal is ($\phi_t = 1\ \forall t \geq 0$, $\varepsilon_t = \varepsilon_0\ \forall t < t^*$ and $\varepsilon_t = k\ \forall t \geq t^*$, $t^* \geq 0$). If implemented, the reform leads to the first best at t^*. Clearly the only posible rationale for setting $t^* > 0$ is that this is more politically feasible than setting $t^* = 0$. [22] The notion of political feasibility is the same as in the previous subsection. We assume for now that any legislation approved at time $t = 0$ can be locked in, or that the polity has a commitment technology that prevents reversals at later dates. We can state the following result:

Proposition 5 *There exists $\tilde{t} > 0$ such that the political feasibility of the dynanic reform path is nondecreasing in t^* for $t^* \leq \tilde{t}$, and strictly increasing for at least some parameter values.*

Outsiders support any reform (i.e. any t^*) against the status quo, while talented incumbents oppose all reforms irrespective of t^*. As we have seen in the previous subsections, untalented incumbents may like the financial-reform part of the package, but certainly dislike deregulation. The proposition shows that the untalented are more likely to back a joint financial-reform cum deregulation package if the deregulation component is postponed. The financial reform at $t = 0$ allows them to sell their firms and internalize the efficiency gains from improved management. It is true that the future deregulation reduces the present vaue of profits, and hence the price that the untalented can obtain from the sale, but if the deregulation is suitably retarded the price decline need not be so large to turn untalented incuments against reform altogether.[23]

[22] It should be clear by now that the alternative sequencing where deregulation preceeds legal reform is never optimal as it is both economically and politically less attractive than doing both at once.

[23] While *some* delay in deregulation always weakly improves the political prospects of reform, the statement of the proposition makes it clear that excessive delay may become detrimental. An increase in t^* has two effects. On the one hand, it reduces the present value of the profit loss faced by incumbents at $t = 0$. On the other hand, however, it fosters more entry at $t = 0$ by increasing the rents to early entrants. While for some parameter vaues the first effect always dominates, so that $\tilde{t} = \infty$, for others the second effect becomes important for t large enough, and in these cases we have $0 < \tilde{t} < \infty$.

We can now state the implications of Proposition 5 for the relative feasibility of "big bang" reforms v. "gradual" ones. If we define a big-bang reform as one with $t^* = 0$, and a gradual one as one with $t^* > 0$, we have:

Corollary 5 *(i) Gradual reform is always at least as politically feasible as "big bang" reform, and strictly more feasible for some parameter values. (ii) The political feasibility of gradual reform increases in* ε_0.

Part (i) follows directly from the statement of Proposition 5. Part (ii) is implicitly showed in the proof of Proposition 5, which shows that when ε_0 is large enough is is always possible to find a t^* such that the untalented prefer gradual reform over the status quo.[24]

To summarize, our results imply that the market for control creates a dynamic complementarity between financial reform and deregulation. By optimally choosing the structure and timing of efficiency-enhancing reforms, reformers may outmaneuver the opposition to attain full efficiency. The debate on reforms may often take an either/or flavor at a given point in time, but in practice one type of reform today may saw the seeds of further reform in the future. The important thing is to find a reform package that endogenously compensates the losers, without requiring the government to provide direct transfers that are typically not credible, too costly, or simply infeasible. Establishing a well functioning market for control is a possible ingredient of such a package.

4.3.1 Time Consistency of Gradual Reform

So far in this subsection we have assumed that reforms approved at time 0 are "locked in" and cannot be reversed at later dates. It is interesting to inquire into the case where no such commitment is available, and future political majorities can attempt to reverse previous decisions.

The interesting case where issues of commitment arise is the following. At time 0 untalented incumbents oppose big bang reform, and the η incumbents as a united front have sufficient political weight to stop it from happening. However, for some t^*, untalented incumbents support gradual reform, and the $\lambda\eta$ talented incumbents, without the cooperation of the untalented incumbents, are not strong enough from stopping it from being approved. As a result, fnancial reform occurs

[24] If managerial talent were not persistent, one might conjecture that even talented incumbents may support legal reform today, so as to be able to sell their firms to better managers in the future. Studying this case is beyond the scope of this paper. However, it seems that talented incumbents would have all the incentives to wait and vote in favor of legal reform in the second period, when they turn out to be untalented. This would allow them to sell their firms without exposing themselves to tougher competition in the first period. See Pouyet and Salanié (2005) for a survey of the literature on resale markets, where this issue is relevant.

immediately and a deregulation is on the books for date t^*. The problem with lack of commitment is that by the time t^* arrives there are now η (talented) incumbents who stand to lose from it.[25]. If η incumbents were enough to stop a big bang at time 0, why wouldn't η incumbents be able to reverse the planned deregulation at t^*? In this subsection we discuss three possible answers to this question.

Status Quo Bias. Legislation often displays a natural inertia which makes changing the laws harder than leaving them unchanged. First, changing laws involves an effort in terms of initiative and consensus building by those who want to bring about the change, while doing nothing of course is costless. Second, parliamentary voting rules often give groups opposed to new legislation, even if minorities, considerable powers to interfere with the majoritiy's ability to change the law. Examples of such procedural norms are "open rules" – which allow minority groups to amend the government's proposal and/or delay its discussion – or "qualified majority rules", which formally give veto power to sufficiently large minorities (e.g. Aghion et al. 2004). For these reasons, it is realistic, and consistent with casual observation, to assume that the number of people required to introduce a new law is larger than the number of people required to block it.

If status quo bias/legislative inertia is present, then it is possible for the gradual reform enacted at time 0 to be time-consistent. Suppose that q votes are needed to *block* changes in legislation. Clearly since we have assumed that the incumbents can block big-bang reform at $t = 0$ it must be the case that $\eta \geq q$. Since the talented incumbents alone cannot block gradual reform we also have $\lambda\eta < q$. Now suppose at some time $t \leq t^*$ the existing η incumbents try to introduce new legislation that effectively reverses the initial reform. There are $1 - \eta$ outsiders that oppose this new legislation. If $1 - \eta \geq q$ they succeed, and the reform (which has become the new status quo) is not reversed.[26] Thus, if $q \in (\lambda\eta, \min(\eta, 1 - \eta)]$ a big bang reform is blocked but a gradual reform is feasible and time consistent.

Mergers. In the interest of simplicity, the model we have studied so far rules out mergers, i.e. talented incumbents buying out untalented ones. Allowing for mergers is an important robustness check in its own right. More importantly, mergers naturally generate another source of time

[25] We are implicitly looking at the case where ε_0 is sufficiently large that under gradual reform no entry occurs after the initial financial reform. In defense of this restriction, it is easy to check that if gradual reform is feasible at $t = 0$, it is a fortiori feasible for policymakers to pass a reform where at $t = 0$ financial reform is accompanied by an increase in regulatory barriers preventing entry to occur, and where the usual deregulation occurs at a prespecified $t^* > 0$.

[26] Clearly $\eta > q$ and $1 - \eta > q$ requires $q < 0.5$, i.e. status quo bias is essentially the same thing as having a supermajority rule. Of course there are situations where super-majority rules are made explicit. For example, most countries require super-majorities to change the constitution.

consistency for gradual reform.

To allow for mergers, we re-interpret licenses as licenses to run a plant (as opposed to a firm), so that firms can be multi-plant, as long as they own multiple licenses. Hence, talented incumbents can now cumulate licenses and run multi-plant firms. To minimize deviations from our baseline model (but without losing our main insigths) we assume that the initial η licencies are distributed randomly, so that each incumbent starts with one plant (but can add buy taking over other plants on the market for control). Also, since the model with mergers is generally harder to solve in closed form than the baseline model, we have only analyzed in detail the special case where $\lambda = 1/2$, which conveys most of the relevant insights while remaining tractable.

The detailed treatment of this extension is available upon request. Briefly, when mergers are allowed it continues to be true that both deregulation and financial reform increase meritocracy, that deregulation also increases the number of firms, and that through the market for control financial reform has an adverse effect on the number of firms. With mergers, however, the latter effect tends to be stronger because financial reform reduces f not only by discouraging entry, but also by allowing consolidation of incumbent firms. This is because incumbents have more collateral than outsiders (who are wealthless) and hence greater financial muscle. Hence, the number of incumbents falls from η to $\eta' < \eta$ following financial reform. It is also still true that financial reform is more politically feasible than deregulation, and that gradual reform is more politically feasible than big-bang reform.

Crucially, the consolidation of incumbent firms occurring under mergers can make gradual reform endogenously time consistent, even without appealing to status quo bias. In particular, as we have seen, after the enactment of the financial component of the reform the number of incumbents declines from η to η' due to consolidation. It is obviously perfectly possible for the η initial incumbents to be sufficiently politically powerful to block big-bang reform, and for the $\eta\prime$ ex-post incumbents *not* to be able to reverse the deregulation component of the reform at subsequent dates.[27]

Economic power. So far we assumed that political outcomes are based on a sheer head-count of the constituencies pro- and against various reforms. However, even in democracies, economic

[27] The only additional complication is that the flip-side of the decline in the number of incumbents is an increase in the number of outsiders. The increased number of insiders may be tempted to *accelerate* the completion of the gradual reform. Hence, when mergers are allowed a fully time consistent gradual reform has $t^* = 1$. For this reason, gradual reform is approved at $t = 0$ insofar as untalented incumbents are sufficiently impatient to tolerate the erosion in their plants' price induced by the deregulation occurring at $t = 1$.

muscle counts as well, since voters and/or legislators can be swayed through lobbying, political advertising, or exchanges of favors. Now notice that after the first stage of gradual reform the economic muscle of talented incumbents declines. By improving the quality of incumbent firms, financial reform reduces profits, thereby reducing (relative to time $t = 0$) their ability to buy or sway voters. This suggests that talented incumbents – flush with profits before reform – may be able to block a big-bang reform at time 0 but – weakened by competition after the financial-reform component has been enacted – may not be able to push through a reversal of the reform at subsequent dates. While modelling this mechanism is beyond the scope of this paper, intuition suggests that it should be possible to exploit it as an additional surce of endogenous time consistency for gradual reform.

4.4 Discussion of Political-Economy Results

4.4.1 Sequencing of reform in OECD economies

Our results on the political feasibility of alternative reforms are meant to provide principles reformers should adhere to in countries with severe failures of meritocracy and entrepreneurship. Nevertheless, because a few rich countries have already trodden some of the reform path, it is of interest to inquire whether the same principles may conceivably have played some role in their experiences.

A striking regularity in the reform experience of OECD countries is that reforms of financial markets have generally preceded reforms of product markets [e.g. IMF (2004)]. In particular, reforming governments have tended to begin by liberalizing interest rates, opening up the banking sector, boosting stock and bond markets through shareholder protection legislation, reform of corporate governance, bankruptcy reform, etc. Deregulation of product markets has almost always lagged these financial-sector reforms, typically by several years.

An illustration of this sequencing is provided by Figure 5, which shows the behavior over time of the median across 9 OECD countries of an index of the quality of financial-market institutions and an index of product-market liberalization. Both indices range from 0, which stands for "fully repressed," to 1, or "fully liberalized," and are based on a careful reading of legal rules and regulations governing these markets. Hence, any change in the indices is the result of an institutional reform. Sources, methods, definitions, and country-specific charts are reported in the appendix.

It is apparent that in the median country both financial and product markets suffered from

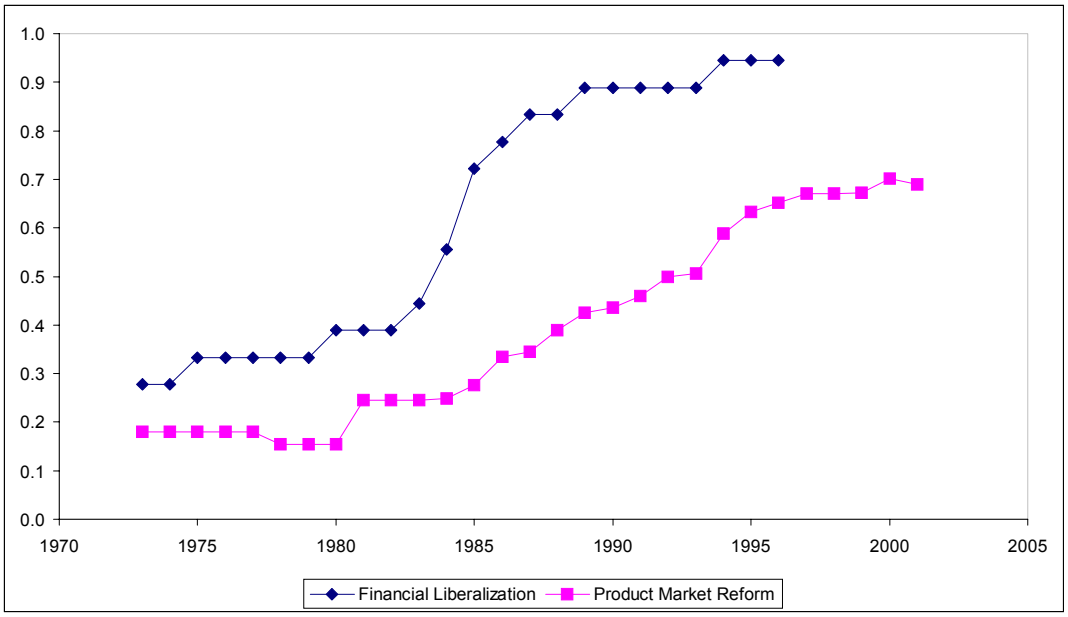

Figure 5: Legal reform and deregulation in OECD economies

severe institutional frictions in the 1970s, and that the reform of financial markets tended to be much faster than the reform of product markets, as well as to occur earlier. In particular, the index of financial regulation begins improving in the mid-70s, while product-market deregulation begins to stir only in the 1980s. Most strikingly, the large wave toward deregulation that affected many economies after 1985 was preceded by a period of abrupt financial market reform that started in 1981, accelerated until 1985 and then slowly cooled off until 1990.[28]

Our political economy analysis is clearly one possible way of making sense of the observed reform patterns in the OECD. On the one hand, the fact that financial reforms were undertaken first suggests that they may have been politically more feasible than deregulation. In other words, reformers may have naturally been more likely to implement financial reform first given that it enjoys greater political support. On the other hand, the observed sequencing whereby deregulation typically followed financial reform suggests that a gradual path involving financial reform first, and deregulation later, may encounter less political opposition. Of course, other stories might explain the observed sequencing of reform, but we are not aware of other formal models that do it.

[28] As is well-known the main pioneers of reform were the US, the UK, and New Zealand, which began in the 1980s. Even in these enthusiastic reformers however reforms were sequenced [Hoi, Galasso, Nicoletti, and Scarpetta (2006)]. Continental European countries followed suit in the 1990s with financial reform, and some deregulation, but many of them are arguably still working at the latter [Conway, Janod, and Nicoletti (2005)].

There is some evidence suggesting that trade liberalization precedes financial reform [e.g. Tornell et al. (2003), Braun and Raddatz (2006)]. Trade liberalization shares some of the features of deregulation in our model, in that it effectively results in greater entry. Hence, evidence that trade reform tends to precede funancial reform may at first sight seem inconsistent with our predictions. But the analogy between trade liberalization and deregulation is very imperfect. Unlike deregulation, which causes a pure destruction in incumbents' rents, trade liberalization provides incumbents with new investment opportunities. For example, trade liberalization may allow productive firms to increase their profits by selling their goods abroad. As a result, the political properties of trade liberalization are likely to be very different from those of deregulation. Our model is thus not inconsistent with a sequencing that begins with trade liberalization, continues with financial reform, and ends with deregulation, as the data seem to suggest.[29]

In order to build confidence that we have the right explanation for the observed sequencing of financial and regulatory reform, it would be necessary to know more on the political stance towards reform taken by different groups. In particular, incumbents should have been more willing to tolerate an erosion of rents through financial-market reforms than through deregulation, the more so the more inefficient they were. Unfortunately, as far as we can tell the literature is frustratingly devoid of informative case studies describing the political stance of incumbents towards alternative reforms, as well as uncovering heterogeneity among the incumbents in the gains from financial-market reform. Nevertheless, at least in the case of Italy, there is widespread consensus that reforms introduced with the purpose of improving the market for control (involving various measures to protect minority shareholders and to greatly increase transparency in corporate governance) were absolutely essential for the ability of the government to sell loss-making state-owned corporations. In this sense, the Italian Treasury can be seen as an example of a (very) inefficient incumbent which pushed hard for financial reform in order to be able to sell out.

[29] Interestingly, the mechanism of our model may imply that trade liberalization should optimally be followed by financial reform, consistent with empirical evidence. To assess this conjecture, consider a model á la Melitz (2003) where trade liberalization increases the profits of the most productive firms, reduces the profits of firms with intermediate productivity, and forces the least productive firms to shut down. In such a set up, the owners of the most productive firms may support trade liberalization but not in conjunction with financial reform, whose procompetitive effect may undermine their gains from trade liberalization altogether. Owners of firms with intermediate or low productivity would like trade liberalization accompanied by a financial reform, as the latter allows them to sell out to better owners. Consider now a strategy whereby trade liberalization is immediately implemented and financial reform is delayed. If sufficiently large, such delay allows the most profitable firms to gain rents from exporting in the interim period, earning their support. If sufficiently small, such delay may allow also the owners of some low productivity firms to gain, earning their support. Presumably, some low productivity firms would lose anyway from reform (e.g. firms with intermediate productivity). However, the gradual reform just proposed would seem to be optimal provided the number of productive firms and the number of firms changing control after reform is sufficiently large.

4.4.2 Privatization and reform in transition economies

Our model may also serve as a formalization of some of the informal arguments used in the great debates surrounding privatization and institutional reform in Russia and other Eastern European economies. Some argued that institutional reforms of the kind discussed in this paper, such as a strengthening of legal enforcement, financial-market development, and setting-up pro-competitive institutions, should precede privatization of state owned enterprises (SOEs). Others responded that privatization should come first, because it is expected to generate political demand for further reform. Many in this camp further argued that large shares of privatized firms should be given for free, or at heavy discount, to these firms' insiders (managers, workers, and ministerial bureaucracies) - a practice known as "insider privatization."[30] Our model lends support to those in the second camp.

In the early years post-transition, insiders of state owned corporations wielded a virtual veto power in many countries [e.g. Boycko et al. (1995)]. At the same time, they enjoyed conspicuous rents due to the monopolistic positions of SOEs in the highly distorted markets inherited from the socialist period. They therefore had no incentive to support either reforms that tended to lower entry barriers (i.e. declines in ε), nor reforms aimed at improving financial contracting (i.e. increases in ϕ). For the reasons we have discussed at length in this paper, both reforms would have favored entry by outsiders, eroding the rents enjoyed by SOE insiders. But given the non-privatized nature of these corporations, it would have been impossible for insiders to enjoy any benefit from the development of a market for control. Hence, the situation would have been similar to the version of our model without a market for control, and it therefore must be expected that SOE insiders (as incumbents in our model) would have fiercely opposed any reform.

Starting out with insider privatization, instead, makes good political sense. Privatization per se makes little difference, as it only formalizes control rights insiders already have de facto. But giving insiders legal title also allows them to trade their firms in the market for control. Hence, in the context of our analysis, implementing insider privatization is akin to moving from the model without the market for control to the full model with a market for control. As a consequence, this reform strategy had two potential benefits. First, it favored the reallocation of firms from insiders to more efficient owners in the market for control, inducing restructuring. More importantly, it increased the political feasibility of subsequent reforms. Incumbents, particularly those who owned

[30] These debates are rehersed in, e.g., Aghion and Blanchard (1994, 1996), Shleifer and Treisman (2000), and Hoff and Stiglitz (2004, 2005).

inefficient, formerly state-owned corporations, became a potential constituency for financial reform (or higher ϕ), and for the improvements in the market for control that it brings about.[31,32]

5 Alternative Assumptions and Possible Extensions

5.1 Continuous distribution of talent

The assumption that there are only two types of agents greatly simplifies the model, but some of the results must be qualified when moving to a continuous distribution. In particular, in the two-type model increases in ϕ induce a discrete jump in meritocracy at $\phi = g$: when ϕ crosses g, the market for control allocates all firms to talented outsiders, and meritocracy jumps to 1. This may create an impression that the effects of reform are highly discontinuous, with small institutional changes leading to major gains in welfare. In fact, with a continuous distribution of talent the reaction of meritocracy to ϕ would be smoother, which is why we have not emphasized this aspect of the results.

In addition, in the two-type model whenever ϕ crosses the $\phi = g$ line entrepreneurship (the number of firms) either remains unchanged or declines, because the sudden surge in efficiency of incumbent firms discourages entry. This may, but does not need to be true under a continuous distribution, since the efficiency of incumbents now increases smoothly. The decline in the number of firms will tend to still occur if the density function peaks at one or more values of θ. The important point, however, is that our main result that financial reform is politically more feasible is unaffected by whether θ is continuous or not.

[31] Of course, although privatization may foster subsequent reform, it is certainly not a sufficient condition for reform to occur. As our political economy analysis shows, even with a well functioning market for control some insiders may still strongly oppose and block reforms, especially if the latter have strong impact on market access by outsiders or foreigners. The political strenght of these reform losers may thus help explain the varied post-privatization experiences of transition economies, ranging from the reformist Hungary, Poland and Czech Republic, whose financial and regulatory institutions have leapfrogged those of advanced economies, to the disappointing experiences of Russia or the former Soviet block more generally, where few or no effective reforms have followed privatization [e.g. Berglof and Bolton (2002), Beck and Laeven (2006)].

[32] Notice the differences with the Italian privatization discussed in the previous section. In that case, the state had an incentive to engage in financial reform because it controlled SOEs more tightly than the governments of most transition countries. In the latter, SOEs were de facto controlled by insiders, which thwarted the government's ability to place these firms in the market. In this sense, insider privatization was an intermediate step leading to the creation of a market for control and of a political demand for financial reform.

5.2 Capital and Constant Returns

Intuition may suggest that in a version of our model with capital, and constant returns in capital and labor, entry restrictions may not matter, as talented incumbents could absorb all of the economy's capital stock. Furthermore, well run firms would grow faster, implying that meritocracy does not depend on contract enforcement either, as badly run firms become vanishingly small in the long run. In sum, allowing for capital accumulation and constant returns to scales might render ε and ϕ irrelevant in our model.

In a companion paper [Caselli and Gennaioli (2005)] we quantify the impact of credit frictions and entry restrictions in a dynamic general equilibrium version of the current model with capital accumulation and constant returns to scale. We find that even under these assumptions contracting frictions and entry barriers have a quantitatively important impact on productivity and welfare. First, even with constant returns, firm size is limited by credit constraints. Thus, talented managers are unable to borrow all of the economy's capital, some of which will thus inevitably be managed by untalented incumbents, reducing productivity and welfare. This is especially likely to be true in the presence of entry barriers, which limit the number of talented managers able to raise capital from outside investors. Second, even if well run firms grow faster, unless managerial talent is perfectly correlated over time, a large and profitable firm will eventually be managed by an untalented manager, which also undermines productivity and welfare.

6 Conclusions

We have studied the joint determination of the level of entrepreneurship and meritocracy in economies with regulatory barriers to entry and imperfect enforcement of financial contracts. We have used our framework to uncover the effects of deregulation and financial reform. Finally, we have applied the insights of the model to identifying reform paths that are least likely to encounter insurmountable political opposition. One particularly distinctive feature of our model is a heightened focus on developments occurring on the market for control, where the quality of management in incumbent firms is determined.

A notable result is that, because it activates the market for control, financial reform is likely to be politically more feasible than deregulation. In addition, there is a dynamic complementarity, in terms of political feasibility, between financial reform today and deregulation tomorrow. Broadly speaking, our paper indicates that studying the general equilibrium interaction between alternative

institutional reforms may allow researchers and policymakers to better understand the economic consequences and assess the political feasibility of different reform strategies.

Our analysis can be extended in several directions, but here we wish to emphasize two of them. First, although we focused on their normative content, our political-economy results may allow one to undertake a positive analysis on the causes of institutional frictions around the world. For example, several authors have argued that poor investor protection results from the political pressure of incumbents who try to shield their rents from competition by outsiders [Rajan and Zingales (2003b), Perotti and Volpin (2004)]. But these theories cannot explain why incumbents' pressure should favor poor investor protection (akin to reverse legal reform in our model) rather than direct regulatory constraints on entry. Our theory suggests that whether poor investor protection or product market regulation are the more likely outcome of incumbents' pressure depends on the talent composition of the pool of incumbents as well as on the importance of the market for control.

Second, there are several other institutional dimensions along which most economies, even among the richest, are widely deemed to be away from the first best. Two of these are labor-market regulations and the tax system. Blanchard and Giavazzi (2003) have looked at the interaction between product- and labor-market reform. Future research may fruitfully extend our and theirs frameworks to investigate the interactions of reforms in multiple dimensions. Based on our present results we expect a robust insight from this research agenda to be that the most feasible reforms are those whose general equilibrium effects produce an endogenous compensation for the losers, as is the case for financial reform in this paper. Such reforms, which may be termed "Coasian," as private contracting among agents permits them to undo (some of) the distributive consequences without destroying the efficiency gains they bring about, should be prioritized in emerging economies.

7 Appendix 1: Proofs

Proof of Lemma 2: Suppose there is entry by the untalented. Then there must be entry by the talented. Then $\phi\pi^H \geq \varepsilon$. If $\phi\pi^H = \varepsilon$ then $\phi\pi^L < \varepsilon$, and we have a contradiction. If $\phi\pi^H > \varepsilon$ then all the talented have entered. The incentive for the untalented to enter is maximal for the first untalented to enter, when no untalented incumbent has sold his license. He will enter if

$$\phi\pi^L\left(\eta + \lambda(1-\eta), \frac{\lambda}{\eta + \lambda(1-\eta)}\right) \geq \varepsilon.$$

Using the formula for π^L, with a few manipulations this becomes

$$\alpha\left[\lambda + (1-\lambda)\eta g\right]^{\alpha-1} > \varepsilon.$$

Assumption 2 insures this condition is violated.

Proof of Proposition 1. Throughout this and subsequent proofs it is useful to recall that $\pi^H(f,s) = \alpha\left\{f\left[(1-g)s+g\right]\right\}^{\alpha-1}$, and $\pi^L(f,s) = g\pi^H(f,s)$. Furthermore, entry occurs iff $\phi\pi^H(f,s) \geq \varepsilon$. Define $f^T = \eta + \lambda(1-\eta)$ and $s^T = \lambda/f^T$. f^T is the number of firms, and s^T is the fraction of talented owners, when all the talented enter. We now establish conditions under which different scenarios arise in equilibrium. "No Entry" has been defined in the text. "Interior Entry" ("All Enter") defines a situation where some, but not all (or all) of the talented outsiders enter.

1) No Entry. $f = \eta$, $s = \lambda$. This is an equilibrium if $\phi\pi^H(\eta,\lambda) < \varepsilon$.

2) Interior Entry. $\phi\pi^H(f,s) = \varepsilon$, $s = \left[f - (1-\lambda)\eta\right]/f$. Need (i) $\phi\pi^H(\eta,\lambda) \geq \varepsilon$, so that there is some entry, and (ii) $\phi\pi^H(f^T,s^T) < \varepsilon$ so that entry is not by all. By Assumption 2 $\pi^H(\lambda,1) = k \leq \varepsilon$. Since $\pi^H(f^T,s^T) < \pi^H(\lambda,1)$, (ii) always holds. Then the condition for this equilibrium is $\phi\pi^H(\eta,\lambda) \geq \varepsilon$.

3) All Enter. $f = f^T, s = s^T$. Requires $\phi\pi^H(f^T,s^T) \geq \varepsilon$, which was just ruled out.

Proof of Corollary 1. Within a No Entry equilibrium, deregulation and legal reform have no effect on welfare. When these reforms trigger a shift from No Entry to Entry, or when they occur within an entry Equilibrium, both s and f increase, and thus social welfare. The first best cannot be attained because meritocracy can never be $s = 1$.

Proof of Proposition 2. Again we establish conditions under which different scenarios arise in equilibrium. "No Entry," "No Sales," and "All Sell" have been defined in the text, and "Partial

Entry" and "All Enter" in the proof of Proposition 1. "Partial Sales" defines a situation where some, but not all the untalented incumbents sell their firms.

1) No Entry-No Sales. $f = \eta$, $s = \lambda$. Need (i) $\phi\pi^H(\eta, \lambda) < \varepsilon$ for no entry, and either (ii) $\phi < g$ or (iii) $g\pi^H(\eta, \lambda) > \varepsilon$ for no sales. If (i) holds and (ii) does not hold then (iii) does not hold either. So (i) and (ii) are necessary and sufficient for this equilibrium. Hence, for this equilibrium we need $\phi\pi^H(\eta, \lambda) < \varepsilon$ and $\phi < g$.

2) No Entry-All Sell. $f = \eta$, $s = 1$. Need (i) $\phi\pi^H(\eta, 1) < \varepsilon$ for No Entry, and both (ii) $\phi \geq g$, and (iii) $g\pi^H(\eta, 1) \leq \varepsilon$ for All Sell. (i) and (ii) imply (iii), so we just need $\phi\pi^H(\eta, 1) < \varepsilon$ and $\phi \geq g$.

3) Interior Entry-All Sell. $\phi\pi^H(f, 1) = \varepsilon$, $s = 1$. Need (ia) $\phi\pi^H(\eta, 1) \geq \varepsilon$, (ib) $\phi\pi^H(\lambda, 1) < \varepsilon$ for interior entry, and both (ii) $\phi \geq g$, and (iii) $g\pi^H(f, 1) \leq \varepsilon$ for all sell. Since $\phi\pi^H(f, 1) = \varepsilon$, (ii) implies (iii), and (iii) implies (ii), so either one of them is necessary and sufficient. Say we focus on (ii). Then the conditions for this equilibrium are $\phi\pi^H(\eta, 1) \geq \varepsilon$, $\phi\pi^H(\lambda, 1) < \varepsilon$, and $\phi \geq g$. All Enter-All Sell. $f = \lambda$,$s = 1$. Need (i) $\phi\pi^H(\lambda, 1) \geq \varepsilon$ for all enter, and both (ii) $\phi \geq g$ and (iii) $g\pi^H(\lambda, 1) \leq \varepsilon$ for all sell. Now recalling our assumption that $\pi^H(\lambda, 1) = k \leq \varepsilon$ we see that (i) can only hold at ($\phi = 1$ and $\varepsilon = k$). At that point (ii) and (iii) hold too. Then the conditions for this equilibrium are ($\phi = 1$ and $\varepsilon = k$).

4) Interior Entry-No Sales. $\phi\pi^H(f, s) = \varepsilon$, $s = [f - (1 - \lambda)\eta] / f$. Need (ia) $\phi\pi^H(\eta, \lambda) \geq \varepsilon$, (ib) $\phi\pi^H(f^T, s^T) < \varepsilon$ for Interior Entry, and either (ii) $\phi < g$ or (iii) $g\pi^H(f, s) > \varepsilon$ for No Sales. Since $\pi^H(f^T, s^T) < \pi^H(\lambda, 1)$, and $\pi^H(\lambda, 1) = k \leq \varepsilon$ we see that (ib) always holds, so we can ignore it. Since $\phi\pi^H(f, s) = \varepsilon$, (ii) implies (iii) and (iii) implies (ii), so either one of them is necessary and sufficient. Say we focus on (ii). Then the conditions for this equilibrium are $\phi\pi^H(\eta, \lambda) \geq \varepsilon$ and $\phi < g$.

5) All Enter-No Sales. $f = f^T, s = s^T$. Need (i) $\phi\pi^H(f^T, s^T) \geq \varepsilon$ for All Enter, and either (ii) $\phi < g$ or (iii) $g\pi^H(f^T, s^T) > \varepsilon$ for No Sales. Since $\pi^H(f^T, s^T) < \pi^H(\lambda, 1)$, and $\pi^H(\lambda, 1) = k \leq \varepsilon$ we see that (i) can never hold, so with no sales entry is always interior.

6) Partial Sales-No Entry. $f = \eta$, $g\pi^H(\eta, s) = \varepsilon$. Need (i) $\phi\pi^H(\eta, s) < \varepsilon$ for no entry, and both (ii) $\phi \geq g$ and (iiia) $g\pi^H(\eta, \lambda) \leq \varepsilon$ and (iiib) $g\pi^H(\eta, 1) > \varepsilon$ for interior sales. Since $\pi^H(\eta, s)$ is decreasing in s conditions (iiia) and (iiib) are mutually inconsistent, so this cannot be an equilibrium.

7) Partial Sales-All Enter. $f = \lambda + (1 - \lambda)\eta - x$, $s = \lambda/f, g\pi^H(f, s) = \varepsilon$, where x is the measure of untalented incumbents selling their firms. Need (i) $\phi\pi^H(f, s) \geq \varepsilon$ for all enter, and both (ii) $\phi \geq g$ and (iiia) $g\pi^H(f^T, s^T) \leq \varepsilon$ and (iiib) $g\pi^H(\lambda, 1) > \varepsilon$ for interior sales. Now recall that $\pi^H(\lambda, 1) = k \leq \varepsilon$, so (iiib) never holds. Hence this cannot be an equilibrium.

8) Partial Sales-Interior Entry. $f = z + \eta$, $s = (z + \lambda\eta - x)/f$, where x is the measure of untalented incumbents selling their firms and z is the measure of talented outsiders starting new firms. Partial sales calls for $g\pi^H(f,s) = \varepsilon$, and interior sales for $\phi\pi^H(f,s) = \varepsilon$. Hence $\phi = g$ is a requirement. The equation $g\pi^H(f,s) = \varepsilon$ defines combinations of z and x that are consistent with this equilibrium. This relationship is given by $z = (g\alpha/\varepsilon)^{1/(1-\alpha)} - (1-g)\lambda\eta - g\eta - (1-g)x$. This can be an equilibrium only if $z \in [0, (1-\eta)\lambda - x]$. In turn, this requires

$$x < \min\left[\frac{(g\alpha/\varepsilon)^{1/(1-\alpha)}}{(1-g)} - \lambda\eta - \frac{g\eta}{(1-g)}, \frac{\lambda}{g} + \eta - \frac{(g\alpha/\varepsilon)^{1/(1-\alpha)}}{(1-g)} - \lambda\eta\right].$$

It is easy to verify that one of the two terms in the min must be negative, so x must be negative, which is a contradiction.

To draw Figure 1, we make use of the fact that $\pi^H(f^T, s^T) < \pi^H(\lambda, 1) < \pi^H(\eta, 1) < \pi^H(\eta, \lambda)$, where these inequalities can be verified using the formula for π^H. There is an ambiguity concerning whether a Entry, No Sales equilibrium exists. We draw Figure 1 by assuming that it exists, i.e. by assuming that $g\pi^H(\eta, \lambda) > \pi^H(\lambda, 1)$.

Proof of Corollary 2. Subsumed in Proof of Proposition 2.

Proof of Corollary 3. Deregulation increases welfare by Corollary 2. By the same corollary, legal reform increases welfare within No Sales and within All Sell equilibria. Legal reform also increases welfare when it triggers a shift from No Sales to All Sell. Because f is constant if the initial No Sales equilibrium is of the No Entry type, we only have to consider transitions originating in the Entry-No Sales region. Such transitions can lead to the No Entry, All Sell region or into the Entry, All Sell region.

1) Transitions into the No Entry, All Sell region. In the region of origin we have $\phi \leq g$ and $\varepsilon \geq g\pi^H(\eta, 1)$, so the maximum level of output, Y, is reached when $\phi = g$ and $\varepsilon = g\pi^H(\eta, 1)$. From the proof of Proposition 2 this implies $f = \eta$ and $s = 1$, so the corresponding level of output is $Y(\eta, 1)$. In the destination region, No Entry implies $f = \eta$ and All Sell implies $s = 1$, so output is also $Y(\eta, 1)$. Thus, gross output cannot fall in crossing from Entry-No Sales to No Entry-All Sell. Net output increases because of saving in entry costs, so welfare discretely jumps up.

2) Transitions from Entry-No Sales to Entry-All Sell (assuming that these two regions share a border, as we did in Figure 1). For every ε, output South of the border is maximized at $\phi = g$, and output North of the border is minimized at $\phi = g$. Because on both sides we have interior entry, the relationship $g\pi^H(f,s) = \varepsilon$ holds, so π^H is the same on both sides of the border. Equations (2)

and (4) imply that there is a one-to-one relationship between π^H and Y, so if the former is the same on both sides of the border, so is the latter**.** Net output must be greater to the North because of the lower entry.

Proof of Proposition 3.

Part (i). In the status quo outsiders' payoff is $w(\eta, \lambda)$. With a reform it is at least $w(f, s)$. Since $w(f, s) = (1 - \alpha)Y(f, s)$, and the latter (weakly) increases with reform (Corollary 3), outsiders support any reform.

Part (ii) The payoff of talented insiders is $w(f, s)+\pi^H(f, s) = w(f, s)+\alpha(1-\alpha)^{\frac{1-\alpha}{\alpha}}/w(f, s)^{\frac{1-\alpha}{\alpha}}$. As a function of w this is first decreasing, reaches a minimum at $w(f, s) = (1 - \alpha)$, and then it is increasing. The maximum value that $w(f, s)$ can reach is $w(\lambda, 1) = (1 - \alpha)\lambda^\alpha < (1 - \alpha)$. Hence, the payoff of talented incumbents is always decreasing in the wage. Now, since any reform (weakly) increases the wage, talented incumbents are always made worse off by any reform.

Part (iii) The payoff of untalented incumbents is $w(f, s)+\pi^L(f, s) = w(f, s)+\alpha g(1-\alpha)^{\frac{1-\alpha}{\alpha}}/w(f, s)^{\frac{1-\alpha}{\alpha}}$ this decreases in $w(f, s)$ until $w(f, s) = (1 - \alpha)g^\alpha$ and increases otherwise. Because the maximal wage is $w(\lambda, 1) = (1 - \alpha)\lambda^\alpha$, untalented incumbents lose form both deregulation and legal reform as long as $\lambda \leq g$. For $\lambda > g$, untalented incumbents' payoff may be maximized at the highest wage $w(\lambda, 1) = (1 - \alpha)\lambda^\alpha$, attained at $\varepsilon = k = \pi^H(\lambda, 1)$, $\phi = 1$. In this case, the untalented incumbents' payoff from reform is $(1 - \alpha)\lambda^\alpha + \alpha g\lambda^{\alpha-1}$. The payoff of untalented incumbents in the status quo is equal to $(1 - \alpha)\delta^\alpha + \alpha g\delta^{\alpha-1}$, where $\delta \equiv \eta[\lambda + (1 - \lambda)g]$. Once more, this payoff decreases in δ if and only if $\delta \leq g$. Because by Assumption 1 $\delta \leq \lambda$, if $\delta > g$ untalented incumbents may benefit from both deregulation and legal reform.

Proof of Proposition 4.

Part (i) In the status quo outsiders' payoff is $w(\eta, \lambda)$. With a reform it is at least $w(f, s)$. Since $w(f, s) = (1 - \alpha)Y(f, s)$, and the latter (weakly) increases with reform (Corollary 3), outsiders support any reform.

Part (ii) Talented insiders never sell their firms, so their payoff is $w(f, s) + \pi^H(f, s) = w(f, s) + \alpha(1-\alpha)^{\frac{1-\alpha}{\alpha}}/w(f, s)^{\frac{1-\alpha}{\alpha}}$. As a function of w this is first decreasing, reaches a minimum at $w(f, s) = (1-\alpha)$, and then it is increasing. The maximum value that $w(f, s)$ can reach is $w(\lambda, 1) = (1-\alpha)\lambda^\alpha < (1 - \alpha)$. Hence, the payoff of talented incumbents is always decreasing in the wage. Now, since any reform (weakly) increases the wage, talented incumbents are always made worse off by any reform.

Part (iii) Consider now the preferences of untalented incumbents, starting with deregulation. If $\pi^H(\lambda, 1) > g\pi^H(\eta, \lambda)$ then deregulation changes nothing (Entry-No Sales equilibrium does not exist)

so untalented incumbents are no better off (nor is anyone else). If instead $\pi^H(\lambda,1) \leq g\pi^H(\eta,\lambda)$ a sufficiently large deregulation moves the economy to an Entry-No Sales equilibrium. Write the payoff of untalented incumbents $w(f,s)+g\pi^H(f,s)$ as $(1-\alpha)\left[\alpha/\pi^H(f,s)\right]^{\alpha/(1-\alpha)}+g\pi^H(f,s)$ (using (1) and (2)). Entry implies $\phi_0\pi^H(f,s)=\varepsilon'$, so this can further be written as $(1-\alpha)(\alpha\phi_0/\varepsilon')^{\alpha/(1-\alpha)}+g\varepsilon'/\phi_0$, whose local maxima are attained by setting ε' at its maximal and minimal values. The maximum value of ε' consistent with the equilibrium being Entry-No Sales, is reached at the border with the No Entry-No Sales, region, and it is $\phi_0\pi^H(\eta,\lambda)$. Thus, at this local maximum untalented incumbents' payoffs from deregulation are $(1-\alpha)\left[\alpha/\pi^H(\eta,\lambda)\right]^{\alpha/(1-\alpha)}+g\pi^H(\eta,\lambda)$, i.e. the same as in the status quo. The minimal value for ε' is $k=\pi^H(\lambda,1)=\alpha\lambda^{\alpha-1}$, so at this local maximum the payoff of untalented incumbents is $(1-\alpha)\lambda\phi_0^{\alpha/(1-\alpha)}+g\alpha\lambda^{\alpha-1}/\phi_0$. Recall that in this region we have $\phi_0\in[k/\pi^H(\eta,\lambda),g]$. Since at $k/\pi^H(\eta,\lambda)$ we are at the border with the No Entry-No Sales, region, the value of the payoff under reform is the same as under no reform. Beyond $k/\pi^H(\eta,\lambda)$ untalented incumbents' payoff under reform is a continuous function of ϕ which has *at most* one local maximum at g. At g the payoff is $(1-\alpha)\lambda^\alpha g^{\alpha/(1-\alpha)}+\alpha/\lambda^{1-\alpha}=(1-\alpha)\left[\alpha g/\pi^H(\lambda,1)\right]^{\alpha/(1-\alpha)}+\pi^H(\lambda,1)$. If we can show that in the status quo the payoff of untalented incumbents always exceeds this quantity we have showed that untalented incumbents are never better off with reform. In the status quo the payoff of untalented incumbents $(1-\alpha)\left[\alpha/\pi^H(\eta,\lambda)\right]^{\alpha/(1-\alpha)}+g\pi^H(\eta,\lambda)$, which, for any choice of the other parameters, has a unique local minimum at $\eta=g/\left[\lambda+(1-\lambda)g\right]\equiv\tilde{\eta}$ (use the formula for π^H). Now recall that, since we are assuming that an Entry-No Sales equilibrium exists, we must have $\pi^H(\lambda,1)\leq g\pi^H(\eta,\lambda)$, or $\eta\leq g^{1/(1-\alpha)}\lambda/\left[\lambda+(1-\lambda)g\right]\equiv\eta^*$. It is immediate that $\tilde{\eta}>\eta^*$, so the minimum value that the payoff of untalented incumbents can take in the status quo is $(1-\alpha)\left[\alpha/\pi^H(\eta^*,\lambda)\right]^{\alpha/(1-\alpha)}+g\pi^H(\eta^*,\lambda)$. Using the definition of η^*, this is the payoff under a reform $\varepsilon'=k$ when $\phi_0=g$, that we computed above.

We can now turn to the effects of legal reform on the payoff of untalented incumbents. Depending on ε_0, legal reform may lead to No Entry-All Sell, Entry-All Sell, or Entry-No Sales. The results above on deregulation imply that nowhere in the Entry, No Sales region can the payoff of untalented incumbents be larger than in the No Entry-No Sales, region, so untalented incumbents always (weakly) lose from legal reforms that keep the equilibrium of the No Sales variety. We now show that, conditional on the enactment of a legal reform that ushers in an All Sell equilibrium, the one that generates the highest payoff for untalented incumbents is the one which sets $\phi'=1$. To see this, begin by recalling that in All Sell equilibria we always have $s=1$. Hence, untalented incumbents' payoff is $w(f,1)+p$, and since all the bargaining power resides with the sellers, we

have $p = \phi\pi^H(f,1)$. In No Entry-All Sell equilibria we have $f = \eta$, so the untalented incumbents' payoff is $w(\eta,1) + \phi\pi^H(\eta,1)$, which is clearly increasing in ϕ. When (and if) ϕ reaches the border with the Entry-All Sell region,which is defined by $\phi\pi^H(\eta,1) = \varepsilon$, the payoff under No Entry reaches $w(\eta,1) + \varepsilon$. In Entry-All Sell equilibria we have $\phi\pi^H(f,1) = \varepsilon$, and f is increasing in ϕ. Hence, the untalented incumbents' payoff $w(f,1) + \varepsilon$ is increasing in ϕ. At the point of leaving the border with the No Entry-All Sell region, we have $f = \eta$, so – as just South of the border – the payoff is $w(\eta,1) + \varepsilon$. Hence, throughout the All Sell regions the payoff of untalented incumbents is continuously increasing in ϕ, and is therefore maximized at $\phi = 1$ (for any value of ε_0). As a result, a legal reform which makes untalented incumbents better off exists if and only if their payoff under $\phi' = 1$ exceeds their payoff in the status quo. Now as a function of ε_0 the untalented incumbents' payoff at $\phi = 1$ is as follows

$$\begin{array}{rll} \alpha^{\frac{\alpha}{1-\alpha}}(1-\alpha)\left[1/\varepsilon_0\right]^{\frac{\alpha}{1-\alpha}} + \varepsilon_0 & \text{for} & k = \pi^H(\lambda,1) \leq \varepsilon_0 < \pi^H(\eta,1) \\ \alpha^{\frac{\alpha}{1-\alpha}}(1-\alpha)/\left[\pi^H(\eta,1)\right]^{\frac{\alpha}{1-\alpha}} + \pi^H(\eta,1) & \text{for} & \pi^H(\eta,1) \leq \varepsilon_0, \end{array}$$

where the first bit corresponds to values of ε_0 such that the equilibrium under $\phi' = 1$ is of the Entry type, and the second bit corresponds to No Entry equilibria. Note that the payoff function under reform is continuous. Also note that its first portion has a unique local minimum at $\varepsilon_0 = \alpha$. Since $\alpha < \alpha\lambda^{\alpha-1} = \pi^H(\lambda,1)$, the payoff function under reform is increasing in ε_0. Now the payoff function under reform is to be compared to the payoff in the status quo, which is $\alpha^{\frac{\alpha}{1-\alpha}}(1-\alpha)/\left[\pi^H(\eta,\lambda)\right]^{\frac{\alpha}{1-\alpha}} + g\pi^H(\eta,\lambda)$. Using the formulas for π^H, and with a few lines of algebra, one sees that this is always less than the maximum attained by the payoff under legal reform (i.e. at $\varepsilon_0 = \pi^H(\eta,1)$), so for sure there exists an $\widetilde{\varepsilon}_1 < \pi^H(\eta,1)$ such that untalented

incumbents benefit from a legal reform setting $\phi' = 1$ whenever $\varepsilon_0 \geq \widetilde{\varepsilon}_1$. Always using the formulas for π^H one can also verify that the relative magnitude of the payoff from reform at its minimum (i.e. at $\varepsilon_0 = \pi^H(\lambda,1)$) can be either higher or lower than at the status quo. hence it is either the case that untalented incumbents gain from legal reform, or that the gain for ε_0 sufficiently high.

Proof of Corollary 4. Follows directly from Propositions 3 and 4.

Proof of Proposition 5. As in the static model, outsiders support both reforms, talented outsiders oppose them. Consider untalented insiders. Under a big-bang reform, they sell their firms for the present value of their profits $p = \pi^H(\lambda,1)/(1-\beta)$. Thus, untalented incumbents' payoff under the big-bang reform is $\left[w(\lambda,1) + \pi^H(\lambda,1)\right]/(1-\beta)$. Under gradual reform, untalented incumbents

sell their firms for the present value of their profits $p = \left\{\pi^H(f,1) + \beta^{t^*}\left[\pi^H(\lambda,1) - \pi^H(f,1)\right]\right\}/(1-\beta)$, where f is the number of firms prevailing after reform. The discounted payoff of untalented incumbents under gradual reform is thus $\left\{\pi^H(f,1) + w(f,1) + \beta^{t^*}\left[\pi^H(\lambda,1) - \pi^H(f,1) + w(\lambda,1) - w(f,1)\right]\right\}/(1-\beta)$. Hence, untalented incumbents (weakly) prefer gradual to big-bang reform (that is $t^* \geq 1$ to $t^* = 0$) for every ε_0 if, for every ε_0,

$$w(f,1) + \pi^H(f,1) \geq w(\lambda,1) + \pi^H(\lambda,1),$$

which we have shown to be true in part (ii) of Proposition 4. This implies that the feasibility of reform at least weakly increases in moving from $t^* = 0$ to $t^* \geq 1$ except when $\varepsilon_0 = k$ in which case $f = \lambda$ and the two reforms are equivalent.

Let us now show that the increase in political feasibility is strict for at least some parameter values. To this purpose, it is useful to establish the level of f. Any outsider willing to enter after the financial reform at $t = 0$ will do so because entry at t^* leaves the entrant with zero profits [due to the assumption $k = \alpha\lambda^{\alpha-1}/(1-\beta)$]. If $\left\{\pi^H(\eta,1) + \beta^{t^*}\left[\pi^H(\lambda,1) - \pi^H(\eta,1)\right]\right\}/(1-\beta) \leq \varepsilon_0$, then there is no entry at $t = 0$ and $f = \eta$ until t^*. Otherwise, entry occurs at $t = 0$ until $\left\{\pi^H(f,1) + \beta^{t^*}\left[\pi^H(\lambda,1) - \pi^H(f,1)\right]\right\}/(1-\beta) = \varepsilon_0$, which implies that f monotonically decreases in ε_0 and β^{t^*}. Untalented incumbents' payoff under the gradual reform is thus equal to:

$$\left\{\left[w(f,1) + \pi^H(f,1)\right](1-\beta^{t^*}) + \left[w(\lambda,1) + \pi^H(\lambda,1)\right]\beta^{t^*}\right\}/(1-\beta)$$

which is increasing in ε_0 by the same argument we used in Proposition 4. The status quo provides utility $\left[w(\eta,\lambda) + \pi^L(\eta,\lambda)\right]/(1-\beta)$. Focus for now on the case $\varepsilon_0 \geq \pi^H(\eta,1)/(1-\beta)$ in which there is no entry until t^*, for every $t^* \geq 1$**.** Then, untalented incumbents prefer a gradual reform path towards the first best over the status quo if:

$$\beta^{t^*}\left[w(\eta,1) + \pi^H(\eta,1) - w(\lambda,1) - \pi^H(\lambda,1)\right] \leq \left[w(\eta,1) + \pi^H(\eta,1) - w(\eta,\lambda) - \pi^L(\eta,\lambda)\right] \quad (10)$$

We have proved in Proposition 4 that the right hand side of the above expression is positive, as it represents the first period gain of untalented incumbents under a one shot financial reform (when ε_0 is large enough). Also the left hand side is positive, as it represents the loss experienced by talented incumbents under deregulation. Notice that in this case $\widetilde{t} = \infty$. In other words, there always exists $t^* \geq 1$ such that the condition is satisfied. Thus, if initial entry barriers are so high that no entry

occurs after financial reform, gradual reform can always be made strictly more feasible than big bang reform by setting $t^* = \infty$. More generally, however, gradual reform is strictly more feasible than big bang reform even for $t^* < \infty$.

If $\varepsilon_0 < \pi^H(\eta, 1)/(1-\beta)$ untalented incumbents may also support gradual and big-bang reform, or gradual reform only, but we have established above that they never support big-bang reform only. Interestingly, notice that in this case $\widetilde{t}$ is likely to be finite. Now as $t^* \to \infty$, entry at $t = 0$ occurs until $\pi^H(f, 1) = (1-\beta)\varepsilon_0$. It is easy to check that, provided ε_0 is sufficiently low, the resulting f may be sufficiently high so as to make untalented incumbents prefer the status quo over gradual reform, even if their preferences reverse if initial entry is curbed by setting some $t^* < \infty$.

8 Appendix 2: Market for Managers

We consider the family of contracts in which talented agents are hired as managers, receive a compensation t from owners, and promise to return to the owner the entire profit stream of the firm (net of his salary t). The managerial contract must provide the manager with the incentive to transfer profits to the owner instead of diverting them to himself. Again if the manager defaults on his obligations the courts will seize a fraction ϕ of what he diverted. Then, the incentive compatibility constraint is:

$$t \geq (1-\phi)\pi^H.$$

The left hand side represents what the manager obtains if he does not steal. The right hand side represents what he obtains if he defaults on creditors and shareholders.

The manager participation constraints are

$$t \geq \pi^H - p$$

and

$$t \geq \pi^H - \varepsilon.$$

The owner participation constraints are

$$\pi^H - t \geq \pi^L$$

and

$$\pi^H - t \geq p.$$

Notice that combining the first manager participation constraint and the second owner participation constraint we get $t = \pi^H - p$. Using this, the IC constraint is $\phi\pi^H \leq p$. The second manager PC becomes $p \leq \varepsilon$, and the first owner PC becomes $p \geq \pi^L$. Hence, contracts on the market for managers are completely isomorphic to contracts on the market for control: they can be written exactly under the same set of conditions.

9 Appendix 3: Sequencing of reforms in OECD economies

The Financial Liberalization Index is drawn from Abiad and Mody (2005). Their indicator covers financial reforms from 1973 to 1996 for 35 countries (including 12 OECD countries). The index captures six different regulatory dimensions: (1) Credit controls: directed credit toward favored sectors or industries, ceilings on credit toward other sectors, and/or excessively high reserve requirements. (2) Interest rate controls: direct government control on interest rates, or existence of interest rate bands. (3) Entry barriers: licensing requirements, limits on the participation of foreign banks, and/or restrictions relating to bank specializations and the establishment of universal banks. (4) Operational restrictions: restrictions on staffing, branching and advertising, and the establishment of securities markets. (5) Privatization in the financial market. (6) Controls on international financial transactions: restrictions on capital and current account convertibility, and on the use of multiple exchange rates.

Along each dimension, a country is given a value 0, 1, 2 or 3, with 0 corresponding to being fully repressed, and 3 to fully liberalized. To identify policy changes, Abiad and Mody use various surveys of financial liberalization, referenced in their paper, as well as other resources, including central bank bulletins and IMF country reports. The aggregation of the index is computed as the sum of the individual dimension indices and therefore ranges from 0 to 18.

The Product Market Regulation index is drawn from Conway and Nicoletti (2006). The indicator measures regulation for seven non-manufacturing industries: electricity, gas, air passenger transport, rail transport, road freight, postal services and telecommunications. It provides annual indices over the 1975-2003 period for 21 OECD countries.

The computation of the indicator involves three steps. First, industry-specific regulations are identified and countries are given a score from 0 (full liberalization) to 6 (full repression). Second,

these basic scores are aggregated into low-level indicators covering four main regulatory areas: barriers to entry, public ownership, vertical integration, and market structure. Finally, an overall indicator of the regulation for the sector is computed as the average of the low-level indicators. A more detailed explanation of the methodology used to construct the indicators is given in Conway and Nicoletti (2006). The indicators, and all the data used to construct them, are stored in the OECD International Regulation Database (www.oecd.org/eco/pmr).

In Figure 6 we plot these indicators for each country. To generate the plots we normalize both indices to range from 0 to 1; 0 meaning full repression and 1 full liberalization.[33] We construct the charts only for those OECD countries where data are available for all the seven industry-specific market regulation indices, as well as the financial liberalization index. This narrows the number of countries to nine. The OECD-wide chart in the text represents the median of the two regulation indices across the 9 OECD countries.

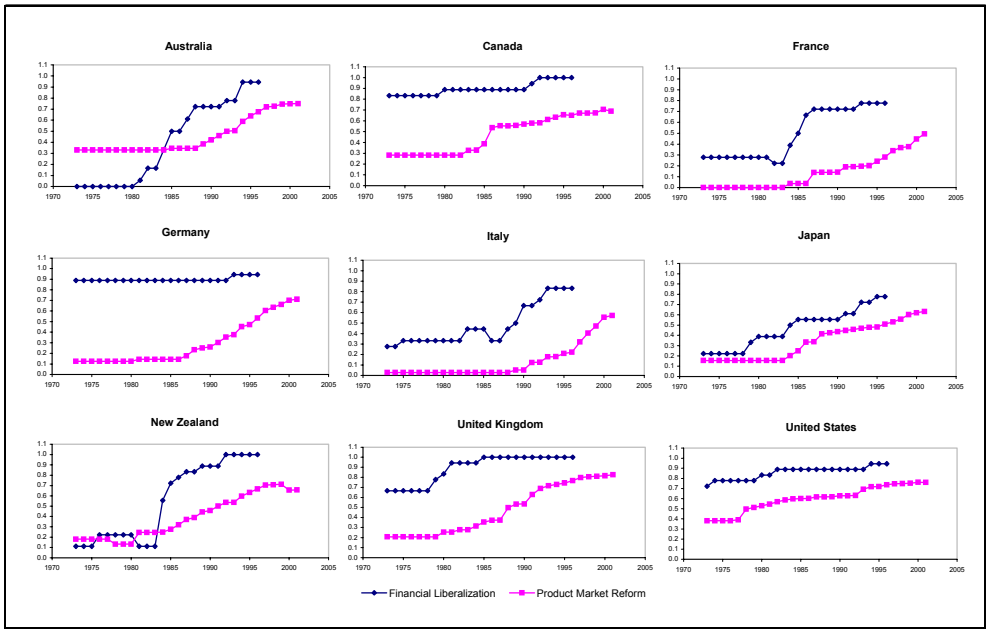

Figure 6: Deregulation and legal reform in each of the nine OECD countries

The country-specific charts confirm that – aside for countries starting with an already very

[33] The normalization procedure is:

$$FLI^* = FLI/18$$

and

$$PMR^* = (6 - PMR)/6,$$

where FLI and PMR stand for Financial Liberalization Index and Product Market Regulation Index, respectively, and a * indicates the normalized values.

developed financial infrastructure – the path towards product market reform was always preceded by an abrupt and lasting financial reform.

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