Deregulation, Legal Reform and Meritocracy

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Abstract

The selection of managers according to their human capital is an important margin over which firms and countries can become more productive. In a model of the talent-ownership mismatch we argue that effective selection (i.e. meritocracy) is either achieved with low entry barriers or proper contract enforcement. We then suggest that in the choice between deregulation and legal reform, reformers should trade off the extra benefits of entry with the greater political feasibility of legal reform. We indeed find that this latter instrument encounters less political opposition because it allows untalented incumbents to cash in a larger price from the sale of their firms.

1 Introduction

Having the right manager is undoubtedly a crucial determinant of a firm´s productivity and ultimately of its performance (Rosen 1992). Accordingly, the performance of economies where firms are often not controlled by the best managers is likely to suffer. Improving economic meritocracy is a crucial issue in countries with a high incidence of family firms, where many companies are handed out across generations and, inevitably, the heirs are often not up to snuff. But this issue is also important in transition economies, where many firms – transferred to insiders during privatization programs – badly need new managers with better market skills (Barberis et al. 1996, Djankov 1997).

In a model of the talent-ownership mismatch we argue that failures of meritocracy materialize under two critical conditions: the presence of substantial entry barriers *and* imperfect contract enforcement. If contracts are perfectly enforced meritocracy ultimately prevails as the talented borrow money and buy off untalented firm owners. Or – which is essentially the same – untalented owners hire the talented as managers. On the other hand, in a world where it is easy to set up a firm, massive entry by talented entrepreneurs forces the untalented to leave an environment where only the fittest survive.

Thus, we argue that the meritocracy of an economy (and hence its productivity) can be either improved through deregulation or legal reform. The first instrument allows better firms to enter the market, the second instrument facilitates the exchange of existing ones. More importantly, we show the mechanism by which both reforms work as well as their mutual interaction. In our model, talented individuals who wish to become entrepreneurs choose whether to do it by acquiring a firm from an untalented incumbent or by setting up their own business. Contractual frictions reduce the maximum price buyers can promise to sellers for their firms, entry barriers increase the cost for an outsider to set up his own firm.

We find that legal reform – i.e. better enforcement of contracts – directly improves managerial quality facilitating the purchase of licencies by the talented. However, this is not the entire story: better management leads to higher wages, which reduce the profits of untalented incumbents, further increasing their incentive to sell. Thus, a general equilibrium interaction between the market for firms and the labor market strengthens the initial effect of legal reform. Interestingly, via this channel

legal reform may *reduce* entry because the fall in entrepreneurs´ profits discourages outsiders to set up new ventures.

Deregulation – i.e a reduction in entry costs – also improves managerial quality, both directly and indirectly. First, by boosting entry it leads to a better selection of entrepreneurs as only the talented create new firms. Second, by fostering competition, entry reduces the rents earned by incumbents and makes them more eager – for a given level of contracual frictions – to sell their firms. The prediction that entry increases productivity is in accord with recent studies on the effect of entry barriers on firms´ performance (Klapper at el. 2004). Syverson (2004) shows that in more competitie markets less efficient producers exit.

One of the messages of the paper then is that deregulation and legal reform are to some extent substitutes in bringing about greater meritocracy. However, while deregulation does so both by enhancing entry and by rendering the market for corporate control more effective, legal reform undermines the first channel. This is the reason why in an ideal world deregulation should be preferred over legal reform. In fact, only the former expands what we call the "organizational input" of the economy and increases social welfare by making the equilibrium number of firms closer to the optimal one (which would prevail with free entry).[1]

Before drawing conclusions about the merits of deregulation, it is imperative to ask which reform strategy is more politically viable. Although both reforms enhance social welfare, incumbents have a strong incentive to oppose them because meritocracy and competition reduce their profits. Since incumbents usually have a lot of political power, such opposition may kill any reform. See, for ecample, Acemoglu (2003) for a model in which incumbents oppose entry deregulation, and Perotti and Volpin (2004) for one in which they oppose financial-market reform. This concern is confirmed by empirical evidence showing how entry regulation is shaped by powerful constituencies (Djankov et al. 2002,).

In order to evaluate the political feasibility of different reform strategies, we define a reform to be politically more viable than another if it mobilizes a smaller opposition against itself. We find that legal reform is more viable than deregulation. Indeed, while workers favor any reform because it increases their wages, the incumbents

[1]This result depends on the fact that we assume decreasing returns to fim size (where size is measured by a firm´ s labor force) and not on monopoly distortions (in our model markets are perfectly competitive).

(both talented and untalented) firmly oppose deregulation because it reduces the value of their firms. On the other hand, although legal reform also reduces the welfare of talented incumbents (who face now more skilled competitors), it increases the price at which untalented incumbents can sell their firm, thereby increasing their welfare. By dividing the front of incumbents, legal reform is thus likely to attract less political opposition.

To summarize, this paper begins with the premise that the selection of managers according to their human capital is an important margin over which firms and countries can become more productive. We argue that effective selection (i.e. meritocracy) is either achieved with low entry barriers or proper contract enforcement. We then suggest that in the choice between deregulation and legal reform, reformers should trade off the extra benefits of deregulation with the greater political feasibility of legal reform. We indeed find that this latter instrument encounters less political opposition because it allows untalened incumbents to cash in a higher price from the sale of their firms.

The paper is organized as follows. In Section 2 we set up the model and derive the conditions for an equilibrium. In Section 3 we study the equilibria that arise for different parameter configurations. In Section 3 we evaluate how social welfare depends on deregulation and legal reform and outline the merits of either reform. In Section 4 we delve into political economy considerations. Section 5 conludes. All proofs are in the mathematical appendix of Section 6.

2 The Model

We study a static economy. There is a continuum (of measure 1) of individuals. Each agent has a project to produce final output. Each project combines his owner's managerial services with homogeneous labor input. An individual's managerial talent is θ, and θ can be high, $\overline{\theta}$, or low, $\underline{\theta}$. λ is the fraction of agents of type $\overline{\theta}$. If agent i hires L_i units of labor the final output from his project is equal to:

$$Y_i = A_i L_i^{1-\alpha}.$$

The key assumption is that the efficiency level A_i reflects the ability of the manager: if the manager is talented then $A_i = \overline{\theta}$, if he is not, then $A_i = \underline{\theta}$.

Despite the fact that everybody in the economy has a project, not everybody has the right to set one up and implement it: in order to operate a productive unit

an individual needs a government-issued licence. A fixed number of licences η are distributed among people at the outset. η either reflects the inheritance of firms by children of past entrepreneurs or the formerly state owned firms in transition economies. The η initial license holders are the "incumbents". We feature a talent-ownership mismatch by assuming that licencies are randomly distributed: $\eta\lambda$ of them are owned by talented managers, $\eta(1-\lambda)$ by untalented managers. There is a market for licences – which we call market for control – where incumbents can sell their firm for a price p. In addition, there is an "entry market" where individuals can set up their own firm by obtain licences directly from the government at the cost of ε units of labor effort.ε is an exogenous parameter reflecting the government's competition policy.

The following sequence of events takes place. First, individuals (who are born wealthless) can buy the right to run a firm in the entry market (by spending ε units of labor) or in the market for control (by promising to the seller p units of output at the end of the period). When these markets close, all those who own a license to produce turn to the labor market, where each firm hires workers at a competitive wage, w. This determines L_i.

The resources of the economy having thus been allocated, production takes place, giving rise for each firm to output Y_i and profits (i.e. output less wages) π_i. It is here that the contractual frictions bite. People who have bought licences on the secondary market in exchange for a promised future payment decide whether or not to repay their debts. Courts in this economy have the ability to seize a fraction ϕ of the resources of a party in violation of contractual commitments, such as a debtor that fails to repay the creditor in full. Default decisions take this fact into account, and determine the end-of-period distribution of income. [2]

[2]Extending this model to a situation where – as an alternative to selling the licence – untalented owners can transfer control by hiring a talented manager does not change our qualitative results. The reason is that manager-owner relationships are also generally more or less viable, depending on the quality of an economy's contract-enforcement infrastructure. Countries where the courts have a difficult time enforcing debt contracts, will also have a difficult time providing managers with the incentives not to steal a firm's profits from the owner-principal. Hence, when one solution (transfer of ownership) is unfeasible, so more often than not is the other (hiring a manager). See Caselli and Gennaioli (2002) for more on this, as well as for a version of the model where the production technology also uses capital.

2.1 Wages, Profits and Managerial Quality

Let us work out the equilibrium backwards, starting from the labor market. Each manager i maximizes his firm's profits, equal to $\pi_i = A_i L_i^{1-\alpha} - wL_i$, taking the wage w as given. The resulting aggregate labor demand function turns out to be:

$$L^d = \left(\frac{1-\alpha}{w}\right)^{\frac{1}{\alpha}} \left((1-s)\underline{\theta}^{\frac{1}{\alpha}} + s\overline{\theta}^{\frac{1}{\alpha}}\right) f,$$

where $1-s$ is the proportion of active firms run by incompetent managers, s is the proportion of active firms run competently, and f is the number of active firms (i.e. the initial η plus any additional entry through purchase of new licences). Intuitively, labor demand increases with the number of active firms, f, and on the average productivity of the economy, captured by the term $(1-s)\underline{\theta}^{\frac{1}{\alpha}} + s\overline{\theta}^{\frac{1}{\alpha}}$. Denote $g = (\underline{\theta}/\overline{\theta})^{1/\alpha} < 1$ and normalize $\overline{\theta}$ to 1. Then, since aggregate labor supply is $(1-f)$, labor market clearing induces the wage rate:

$$w(f,s) = (1-\alpha)\left(\frac{f}{1-f}\right)^{\alpha} [s + (1-s)g]^{\alpha}.$$

It is very important to notice that the function $w(f,s)$ expressing the equilibrium wage rate positively depends on the average quality of managerial services and on the number of active firms. The higher the number of high quality managers (s) the higher is average labor productivity. The larger the number of firms, the greater the competition for labor.

It is also important for our analysis to focus on the effect of s and f on a firm's profits. Exploiting the expression for the real wage, it is easy to find that the profits enjoyed by the talented (π^H) and by the untalented (π^L) are equal to:

$$\begin{aligned} \pi^H &= \frac{\alpha(1-\alpha)^{\frac{1-\alpha}{\alpha}}}{w(f,s)^{\frac{1-\alpha}{\alpha}}} \\ \pi^L &= \frac{g\alpha(1-\alpha)^{\frac{1-\alpha}{\alpha}}}{w(f,s)^{\frac{1-\alpha}{\alpha}}} \end{aligned}$$

The formula shows that both s and f reduce profits, because they increase wages. Finally, aggregating across firms' output we find total income Y, the measure of social welfare in our model:

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

Y can be decomposed into the contributions of different inputs: organizational (f), labor ($1-f$) and a productivity term, $\underline{s\theta}^{\frac{1}{\alpha}} + s\overline{\theta}^{\frac{1}{\alpha}}$. Productivity increases with s, the fraction of firms controlled by talented managers. The importance of the organizational input is due to the presence of decreasing returns; Y increases with f if and only if $f < \alpha$, i.e. $f = \alpha$ is the efficient number of firms. We will see that an entrepreneur's decision to exit the market makes sure that there are always less than α active firms in the economy. We focus on the most intereesting case where some entry would be strictly beneficial (i.e. $\eta < \alpha$) and talent is abundant (i.e. $\lambda > \alpha$). To summarize, we make the following:

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

Since f and s represent the endogenous variables of greatest interest in this paper, we now turn to consider how they are set in our economy.The number of active firms f is determined by the entry of new entrepreneurs through what we call the "primary market for licencies" we now turn to study the working of such market.

2.2 Entry Market

A talented individual will set up his own firm and become entrepreneur whenever its gain from doing so is greater than the cost of a licence. In formulas

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

Using the equations for w and π this reduces to:

$$\varepsilon \leq \frac{\alpha}{1-\alpha}\left(\frac{1-\alpha}{w(f,s)}\right)^{\frac{1}{\alpha}} - 1.$$

Intuitively, holding everything else constant, a higher real wage reduces profits and discourages entry. Thus, entry of new firms tends to improve the quality of management in the econonomy because talented entrepreneurs are very eager to set up their own firm when productivity (and hence the real wage) is low.

Since bad managers generate fewer profits than good ones, the former are less eager to enter the market than the latter. In particular, under our assumpion $\lambda > \alpha$, *only* talented managers will enter into the market. If some untalented enter in equilibrium, then *all* the talented must also enter, which implies that there are $\lambda > \alpha$ well managed firms in the economy. It is immediate to check that in such circumstances

even untalented incumbents would be better off by shutting their firms down rather than continue operating them ($\pi^L - w < 0$). This contradicts the possibility that untalented managers enter in the first place. As a result, entry directly improves efficiency by inducing talented entrepreneurs to self select.

2.3 Market for Control

Managerial quality s can improve in the economy also through the working of the market for control, where talented individuals bid for the licences owned by bad managers. While a licence yields π^H to a good manager, it only yields π^L to a bad manager, $\pi^L < \pi^H$. A trade in licences in this market thus improves the quality of management generateal surplus $\pi^H - \pi^L$ that could be suitably shared by the parties to the transaction.[3]

Since individuals are born wealthless, the price p of a licence specifies the units of output that the buyer will transfer to the seller after production is carried out.[4] The contract says that if the buyer breaks his promise, the seller is entitled to seizing the profits flow from the firm. However, since contract enforcement is imperfect, every time a buyer reneges on his obligation, courts are only able to seize a fraction ϕ of the debtor's profits. Hence, the maximum price the buyer can credibly promise to pay for a licence is $\phi\pi^H$. This implies that the equilibrium price of a licence must satisfy the constraints:

$$\begin{aligned} p &\leq \phi\pi^H \\ p &\geq \pi^L - w \\ p &\leq \pi^H - w \\ p &\leq \varepsilon w. \end{aligned}$$

The first inequality is the buyer's incentive compatibility (no-default) constraint. The second condition is the seller's participation constraint. It says that p must be large enough to compensate the seller for the income loss associated with becoming a

[3]Clearly only transfers of property from low- to high-ability individuals will take place.

[4]Introducing the possibility of borrowing from third parties (e.g. foreign banks) does not change the results. The reason is that it does not change the Incentive Compatibility, and Buyer and Seller Participation constraints that we state below.

worker ($\pi^L - w$). The third condition is the first of the buyer's participation constraints. It says that the price of a licence should be small enough to make the buyer at least as well off as he would be by remaining a worker.

The fourth condition is the second of the buyer participation constraints, and says that the buyer must get at least as good a deal on the market for control as he would by "purchasing" the firm directly from the government on the entry market. Since this last condition is only relevant when $\pi^H - w > \varepsilon w$. This condition can never hold in equilibrium. It is immediate to verify that with $\lambda > \alpha$ talented entrepreneurs in the market, the real wage is so high that the value of a licence to them is negative ($\pi^H - w < 0$)[5]. When instead $\pi^H - w \leq \varepsilon w$, the fourth constraint is not really binding. These considerations suggest that we can safely disregard it in our analysis. We conclude that licences are transferred on the secondary market whenever:[6]

$$\phi \pi^H + w \geq \pi^L.$$

Intuitively, the maximum price the buyer can commit to pay must be large enough to convince the seller to enter into the transaction. Using the expressions for profits and wages we found in the previous section, we can rewrite the above condition as:

$$(g - \phi) \leq \frac{(1-\alpha)}{\alpha} \left(\frac{w(f,s)}{1-\alpha} \right)^{\frac{1}{\alpha}}. \tag{2}$$

If $\phi \geq g$, the above condition is always satisfied and all licences are transferred from bad to good managers. The condition is intuitive when one notices that $g = \pi^L / \pi^H$: if the gain in cash flow rights from retaining the licence (from ϕ to 1) is less than the cash flow gain from transferring it to a good manager ($1/g$), then bad managers will definitely sell their licences. By doing so, they increase their income regardless of any wage they can earn as workers. Form now on we will focus on the more interesting case where $\phi < g$.

With $\phi < g$, the condition says that, ceteris paribus, it is more likely that licences will be sold when ϕ is larger. Intuitively, better contract enforcement allows

[5] More in general, since our entrepreneurs decide whether to operate a firm or not by making the right comparison (they compare π^i – the social value of their managerial labor – to w – the social value of their labor as workers) there can never be an inefficiently large number of active firms in the equilibrium, i.e. $f \leq \alpha$.

[6] We have implicitly assumed that there is only one buyer, as opposed to a consortium of buyers. A consortium of buyers would have the exact same collective incentive to default as a single buyer. Furthermore, they would face agency problems with regards to the management of the asset.

the parties to reap the gains from the exchange of a licence more often. In addition, sales are more likely when f and s are larger. Both an increase in the overall number of firms (f) and an improvement in the average quality of management (s) induce greater competition in the labor market and thus higher wages. This makes sales more appealing from the perspective of sellers by increasing the wage they earn as workers, and by reducing the extra-profits they enjoy as entrepreneurs. Finally, since an increase in g reduces the gains from trade it also reduces the scope for the exchange of licences.

3 Equilibrium

Given the preliminaries above, one can imagine 2 possible scenarios on the secondary market and 2 possible scenarios on the primary market, giving rise to 4 scenarios for the economy overall. On the secondary market, we may have no sales of firms whatsoever, we may have that all firms are sold[7]. On the entry market we may have no entry, or entry up to the point where $\varepsilon = \pi^H - w$. The two key conditions are

$$\phi \lesseqgtr g - \frac{(1-\alpha)}{\alpha}\left(\frac{w(f,s)}{1-\alpha}\right)^{\frac{1}{\alpha}}, \tag{3}$$

which is just (2) rewritten. It this holds with $>$ then in equilibrium all untalented incumbents sell. If it holds with $<$, then in equilibrium no untalented incumbent sells. The second key condition is:

$$\varepsilon \gtreqless \frac{\alpha}{1-\alpha}\left(\frac{1-\alpha}{w(f,s)}\right)^{\frac{1}{\alpha}} - 1. \tag{4}$$

If it holds with $>$ there is no entry in equilibrium. If it holds with $=$, there is some entry in equilibrium. The key analytical issue here is how the two endogenous variables f and s vary as we vary the key "policy" variables ϕ and ε. We investigate this issue by studying all the equilibrium configurations of the model.

"No Entry, No Sales"

Nothing happens in a "No Entry, No Sales" equilibrium, so $f = \eta$[8] and $s = \lambda$.

[7]The intermediate situation where some untalented incumbents sell and some others do not sell cannot be an equilibrium (at least in a set of non-zero measure) because in this model when somebody sells he increases the incentive of others to sell as well.

[8]By definition, since in an equilibrium with no sales incumbents prefer to keep their firm rather than selling them for a positive price, they will also prefer to run their firm rather than shut them down. As a result, in such equilibria all existing firms are active, which implies $f = \eta$.

Such outcome arises when entry barriers (ε) are high *and* contract enforcement is poor (ϕ is low). Conditions (3) and (4) say that a "No Entry, No Sales" outcome only prevails if $\varepsilon > \varepsilon_2$ and $\phi < \phi_2$, where

$$\begin{aligned} \varepsilon_2 &\equiv \frac{\alpha}{1-\alpha}\left(\frac{1-\alpha}{w(\eta,\lambda)}\right)^{\frac{1}{\alpha}} - 1 \\ \phi_2 &\equiv g - \frac{(1-\alpha)}{\alpha}\left(\frac{w(\eta,\lambda)}{1-\alpha}\right)^{\frac{1}{\alpha}} \end{aligned}$$

This equilibrium also requires $\phi_2 > 0$, i.e. an initial wage rate $w(\eta, \lambda)$ that is small enough to make untalented incumbents eager to run their firms (which occurs when initial competition (η) and managerial efficiency (λ) are low).

"No Entry, All Sell"

Relinquishing financial constraints may upset the previous equilibrium, leading to a "No Entry, All Sell" one. Since now only the talented are entrepreneurs, i.e. $f = \eta$ and $s = 1$[9], we need to have $\varepsilon > \varepsilon_1$ and $\phi > \phi_1$, where

$$\begin{aligned} \varepsilon_1 &\equiv \frac{\alpha}{1-\alpha}\left(\frac{1-\alpha}{w(\eta,1)}\right)^{\frac{1}{\alpha}} - 1 \\ \phi_1 &\equiv g - \frac{(1-\alpha)}{\alpha}\left(\frac{w(\eta,1)}{1-\alpha}\right)^{\frac{1}{\alpha}} \end{aligned}$$

Now ε must be large enough to discourage entry but ϕ large anough to induce untalented incumbents to sell. Notice that the jump in managerial efficiency increases the real wage from the previous equilibrium ($w(\eta, 1) > w(\eta, \lambda)$). This implies that $\varepsilon_1 < \varepsilon_2$ and $\phi_1 < \phi_2$.

"Entry, All Sell"

In an equilibrium with entry the real wage adjusts so as to make talented individual indifferent between setting up their own firm and becoming workers. As a result, s and f satisfy

$$w(f,s) = (1-\alpha)\left(\frac{\alpha}{(1-\alpha)(1+\varepsilon)}\right)^{\alpha}. \tag{5}$$

[9]It is immediate to see that under the assumption $\eta < \alpha$, all incumbents are active, i.e. $\pi^H - w > 0$. Hence, we have $f = \eta$ also in this equilibrium.

A larger entry cost (ε) lowers the real wage. The secondary market helps to determine the extent to which new entrants or exchanges of licencies set workers' productivity. In an "Entry, All Sell" equilibrium all firms are well managed ($s = 1$) and the corresponding entry level is found by solving for f the equation

$$w(f, 1) = (1 - \alpha) \left(\frac{\alpha}{(1 - \alpha)(1 + \varepsilon)} \right)^{\alpha}.$$

Entry occurs only if $f > \eta$[10]. The previous subsection tells us that this is indeed the case if $\varepsilon < \varepsilon_1$, which is then a necessary condition for an "Entry, All Sell" equilibrium to arise. The other condition that guarantees the existence of such equilibrium is found by substituting $w(f, 1)$ in (2). One can easily see that transactions in the market for licencies take place only if

$$\phi \geq g - \frac{1}{1 + \varepsilon} \equiv \phi(\varepsilon).$$

The increasing function $\phi(\varepsilon)$ has a negative intercept and fulfills $\phi(\varepsilon_1) = \phi_1$ and $\phi(\varepsilon_2) = \phi_2$. Entry costs are low, sellers' protection is relatively high.

"Entry, No Sales"

Finally, we consider how f and s are set in "Entry, No Sales" equilibria. Now entry costs are low but poor contract enforcement hampers the proper functioning of the secondary market. In such outcome, if entry level is $f - \eta$, the equilibrium proportion of firms competently run is

$$s = \frac{[\lambda\eta + (f - \eta)]}{f}$$

Plugging this expression in the entry condition (5) allows us to obtain the equilibrium number of firms and the equilibrium proportion of firms well run

$$f = \frac{\alpha + (1 + \varepsilon)(1 - \alpha)(1 - g)(1 - \lambda)\eta}{\alpha + (1 + \varepsilon)(1 - \alpha)} \tag{6}$$

$$s = \frac{\alpha(1 - \eta + \eta\lambda) - (1 + \varepsilon)(1 - \alpha)(1 - \lambda)\eta}{\alpha + (1 + \varepsilon)(1 - \alpha)(1 - g)(1 - \lambda)\eta} \tag{7}$$

Since the market for control is incapable to reallocate licencies to talented managers, managerial quality can only improve via entry. Thus, both the number of active firms

[10] Again, it is immediate to find that the wage setting equation implies that for $\varepsilon \geq 0$ we have $f \leq \alpha$. Hence, all talented incumbents are willing to run their firms.

f and the proportion of well run firms s negatively depend on entry cost ε. The configuration above constitutes an equilibrium if: (i) $f \geq \eta$, and (ii) (3) holds with $<$. We already know that the latter condition is met for $\phi < \phi(\varepsilon)$, while $f \geq \eta$ holds as long as $\varepsilon \leq \varepsilon_2$. A "Entry, No Sales" outcome prevails for relatively ϕ and intermediate ε. Entry costs limit untalented entrepreneurs' incentive to sell. The larger is ε, the more entry is limited, and the larger is the set of ϕs still consistent with no sales.

3.1 Equilibrium Analysis

Figure 1 summarizes our analysis by depicting the admissible equilibrium configurations of our economy in the (ε, ϕ) space. The region shaded in vertical red admits a "No Entry-No Sales" equilibrium, the region shaded in horizontal blue a "No Entry, All Sell" one. Finally, while the horizontal green shaded area represents the "Entry, All Sell" region, the shaded area in vertical yellow the "Entry, No Sales" region. The quality of management in the economy is suboptimal ($s < 1$) only in the red and yellow regions. This leads to the following

Observation: *Meritocracy fails only if* $\varepsilon > \frac{1-g}{g}$ *and* $\phi < \phi_2$.

Failures of meritocracy rest on the presence of two key ingredients: limits to competition *and* contractual imperfections. The first constraint prevents talented entrepreneurs to enter the market and wipe out the rents of untalented ones, the second constraint prevents the untalented to sell their firms to better managers. In the absence of any of these constraints, only the talented end up managing firms.

A relevant feature of the model is the presence of multiple equilibria. At the intersection of the red and blue regions – i.e. for $\varepsilon > \varepsilon_2$ and $\phi_1 < \phi < \phi_2$ – "No Entry, No Sales" and "No Entry, All Sell" equilibria coexist. This is due to a feedback from the labor market to the market for licencies. When people in the economy expect high quality of management they also expect high productivity and hence high wages. This induces untalented licence owners to sell, boosts managerial quality and validates people's expectations. Conversely, if incumbents expect low wages they have no incentive to sell their licencies, which induces low managerial quality and low productivity.

The possibility of multiple equilibria crucially rests on intermediate levels of ϕ: If ϕ is too low, expectations of All Sell cannot be sustained and only a "No Entry, No Sales" outcome can prevail. By the same token, if ϕ is too high only expectations of All Sell can be sustained and "No Entry, All Sell" is the equilibrium that prevails.

A different type of multiplicity arises where the blue and yellow regions intersect – i.e. for $\varepsilon_1 < \varepsilon < \varepsilon_2$ and $\phi_1 < \phi < \phi(\varepsilon)$. Here "No Entry, All Sell" equilibria coexist with "Entry, No Sales" ones. If all incumbents sell, potential entrants anticipate tougher competition and prefer to remain workers. If instead incumbents do not sell, good managers set up their own firm in order to exploit their greater competence relative to the competitiors. Notice that here the multiplicity of equilibria does not only depend on the working of the market for licences (as it is in NoEntry equilibria), but it also invests the relationship between transfer of control and entry. Sometimes multiplicity is across high-entry, low transfer and low-entry and high transfer scenarios.

4 Welfare Evaluation

Having established some general features of the equilibria of our model, we now turn to evaluate their efficiency for different combinations of ε and ϕ. As we vary entry costs (ε) or contract enforcement (ϕ), we will keep track both of "smooth" changes in outcome variables "within" particular equilibria, and of changes in the nature of the equilibrium itself. In the analysis we call "deregulation" a decrease in ε, which facilitates the entry of new firms into the market. We instead call "legal reform" an increase in ϕ because it makes more private contracts enforceable. It is useful to recall that in the presence of entry,

$$w(f,s) = (1-\alpha)\left(\frac{\alpha}{(1-\alpha)(1+\varepsilon)}\right)^{\alpha}.$$

We first focus on aggregate welfare by separately looking at what happens when ε or ϕ changes. To assess the effect of deregulation we look at the impact of reductions in ε *for any given* ϕ. By the same token, we assess the effect of legal reforms by evaluating the impact of increases in ϕ *for any given* ε.

We measure aggregate welfare with $Y(f,s)$, the economy's output, which does not account for the time wasted by entrepreneurs in order to abide by entry regulations. In line with empirical evidence (Djankov et al. 2002) we assume that entrants overcome such regulations by bribing bureaucrats for εw[11]. As a result the entry cost

[11]The fact that the bribe equals total entry costs εw – without being affected by the degree of commitment (ϕ) – can be justified with the assumption that εw is paid ex-post and represent the cost to access the product market raher than the labor market.

εw is redistributed rather than wasted, which makes of $Y(f,s)$ the appropriate welfare measure for our economy.

Since $Y(f,s)$ is increasing in both f and s, it is useful to begin the analysis by characterizing the behavior of these two variable acoss different equilibria. We do so by presenting the three following facts

Lemma 1: *(i) s decreases in ε and increases in ϕ.*

(ii) f decreases in ε whithin equilibria, but can increase in ε when the equilibrium moves from (Entry, No Sales) to (Entry, All Sell) and from (Entry, No Sales) to (No Entry, All Sell).

(iii) f decreases in ϕ.

Fact *(i)* says that both deregulation and legal reform enhance meritocracy. Deregulation increases s via two channels: first, entry of talented entrepreneurs directly improves managerial quality; second, stiffer market competition reduces the rents of untalented incumbents and forces them to sell their licencies. On the other hand, legal reform directly enhances efficiency by improving the working of the market for licencies.

Facts *(ii)* and *(iii)* highlight the different impact the entry market and the market for control have on entry. A more effective market for control *discourages* entry, thereby reducing f. A swifter exchange of licencies can be directly induced by a legal reform (see fact *(iii)*) or indirectly induced by a deregulation that by reducing untalented incumbents' rents forces them to sell (see in fact *(ii)* the transitions from *(Entry, No Sales)* to *(Entry, All Sell)* and from *(Entry, No Sales)* to *(No Entry, All Sell)*). In both of these scenarios, a more functional market for control discourages entry: the reallocation of existing licencies to talented managers increases the real wage. As a result, the profits of potential entrants fall, thereby discouraging the creation of new firms.

On the other hand, a more open entry market, triggered by deregulations not affecting the exchange of licencies unambiguosly increases entry (see fact *(ii)*). In this last case, the real wage increases in response to more entry (which increases productivity and boosts labor market competition) as opposed to the previous situation, where the inceased productivity – fostered by the market for control – discouraged entry by reducing profit margins. Thus, somewhat counterintuitively, our model predicts that lower entry costs may reduce entry by increasing the contestability of the market for

the final good. Since the rents of untalented incumbents would be wiped out by massive entry, they prefer to sell their licencies to talented managers. The prospects of tougher competition leads potential entrants to remain workers.

From the standpoint of welfare analysis, **Lemma 1** suggests that in principle both deregulation and legal reform have an ambigous impact on social welfare $Y(f, s)$. Since aggregate output increases in both f and s, reforms increasing the latter at the expense of the former may turn to have an adverse impact on efficiency. It is thus reassuring that

Proposition 1: *Social Welfare $Y(f, s)$ decreases in ε and increases in ϕ.*

The proposition says that whenever reforms increase s at the expense of f, their net effect on social welfare is positive, i.e. the gain from increased managerial quality more than compensates the loss from reduced accumulation of the organizational input. Thus, both deregulation and legal reforms are instrumental to welfare improvements in economies plagued by failures of meritocracy. This implies that from the perspective of policymakers they can be regarded to some extent as *substitutes* in enhancing not only the economy's level of meritocracy but also social welfare.

One should not infer from this result that benevolent policymakers are indifferent between a deregulation and a legal reform bringing about the same degree of meritocracy s. On the contrary, in such a situation deregulation should always be preferred. Its advantage relative to legal reform is that the former not only fosters meritocracy, but it also increases the accumulation of organizational input to the benefit of societ

Said that, nothing guarantees that benevolent politicians will always cure failures of meritocracy with deregulation. Most likely policymakers will face political constraints restricting the menu of policy instruments whithin which they choose the one to implement. For instance, deregulation may prove infeasible due to the opposition of powerful social groups that stand to lose from it. Will benevolent reformers choose deregulation or legal reform once they take political constraints into account?

4.1 The Political Economy of Deregulation and Legal Reform

In this section we answer the above question by evaluating which of deregulation and legal reform is politically more viable (if any). We define a reform to be more viable if it mobilizes a smaller opposition against itself. In line with the spirit of our positive

analysis, we consider, for every possible status quo (ε, ϕ) the reform – either deregulation ($\varepsilon' < \varepsilon$) or legal reform ($\phi' > \phi$) – minimizing political opposition. A policy is more viable than another policy if it minimizes its opposition more often than the other.

In order to find which policy instrument minimizes political opposition, it is natural to begin by looking at the consequences efficiency enhancing reforms have on the welfare of different social groups. Before doing so, it is useful to state the following

Remark: *$w(f, s)$ increases in ϕ and decreases in ε.*

Both deregulation and legal reform benefit wage earners, despite the fact that sometimes these reforms reduce labor market competition (f) because they boost workers' productivity (s). Since profits are inversely related to the real wage, a decrease in ϕ and an increase in ε may hurt profit earners. Our model society divides into 4 distinct social groups: there are $(1-\lambda)(1-\eta)$ untalented non-incumbents, $\lambda(1-\eta)$ talented non-incumbents, $(1-\lambda)\eta$ untalented incumbents and $\lambda\eta$ talented incumbents. Let us begin by considering the stance of non-incumbents toward reforms.

4.1.1 Non-Incumbents

Who is born without owning a firm has one of three possible life histories. He could become a worker, earning w; he could set up a firm, earning $\pi^H - \varepsilon$; or he could take over a firm from an incumbent, earning $\pi^H - p$. Untalented non-incumbents will always follow the firts path and their welfare is $w(f, s)$. Hence, they always favor reductions in ε and increases in ϕ. For the talented, $w(f, s)$ bounds their income below, so they also always favor both deregulation and legal reform. This implies that a constituency at least of size $(1-\eta)$ will support both reforms.

4.1.2 Talented Incumbents

Talented incumbents have only one possible life history. Namely, they always run their firms as entrepreneurs, earning $\pi^H(f, s)$. This implies that their payoff decreases with both deregulation and legal reform. As a result, a constituency at least of size $\lambda\eta$ will oppose both. Thus, whether deregulation is more or less politically viable than legal reform ultimately depends on the preferences of untalented incumbents.

4.1.3 Untalented Incumbents

Deregulation Reductions in ε reduce $\pi^L(f,s)$, so the welfare of untalented incumbents falls with deregulation whithin "No Sales" equilibria. Hence, decreases in ε in the red and yellow regions are opposed by untalented incumbents. Also, when deregulation triggers a change from a "No Sales" to an "All Sell" equilibrium, untalented incumbents are also worse off because the associated reduction in profits forces them to sell. Thus, the presumption is that by boosting entry and competition, deregulation reduces the profits of untalnted incumbents, the price at which they sell their licencies and ultimately their welfare. We formally show that indeed this is often the case

Proposition 2: *It is impossible to find a deregulation that untalented incumbents will support for every status quo* (ε, ϕ).

Thus, the implementation of deregulation may be threatened by the ooposition of untalented incumbents. The simple reason is that since deregulation induces entry and competition, the value of incumbents´ licencies falls with their profits. This result is in line with the recent literature on entry (Acemoglu 2003, Perotti and Volpin 2004).

Legal Reform In equilibria where the untalented sell their licencies, legal reform (increases in ϕ), raise the price p they receive on the sale. Our assumption that talent is not scarce ($\lambda > \alpha$) implies that $p = \min\left[\pi^H(f,1) - w(f,1), \phi\pi^H(f,1)\right]$. Thus, whithin "All Sell" equilibria untalented incumbents are weakly sympathetic to legal reform (increases in ϕ). By making higher licence prices enforceable, legal reform is likely to increase the net worth of untalented incumbents. Hence, there is a presumption that the latter may welcome legal reform because it increases the value of their property. We indeed find:

Proposition 3: *For every status quo* (ε, ϕ)*, one can find an efficiency enhancing legal reform that is supported by the untalented incumbents.*

This proposition supports the notion that legal reform is politically more viable than deregulation. The reason is that while all incumbents oppose deregulation because stiffer competition reduces their rents, legal reform improves the situation of untalented incumbents by increasing the price they receive on the sale of their licencies. Hence, legal reform is politicall more viable because it divides the front of incumbents.

5 Conclusions

Failures of economic meritocracy may impose severe inefficiencies in economies with high incidence of family firms or in transition economies. In this paper we have pointed out that two conditions allow inefficient control to persist: limits to market competition and anemic contract enforcement. We have seen that deregulation and legal reform are to some degre substitutes in bringing about greater meritocracy: in highly competitive economies transfers of control may occur even if legal enforcement is fairly lousy. Conversely, in the absence of competition, an effective contractual infrastructure allows the talented to acquire the firms of the untalented. We have also discussed the implications of this "substitutability" between enforcement and competition for the political feasibility of efficiency-enhancing reforms. We have argued that while it is always possible to find legal reforms that the untalented incumbents will support, only under very stringent conditions is it possible to find pro-competitive reforms that this constituency will support. Since in general talented incumbents (workers) will oppose (support) both types of reform, reforms that enhance contract enforcement have a greater chance of passing than reforms that boost entry.

6 Mathematical Appendix

Proof of Lemma 1. *(i)*: Figure 1 shows how smaller ε always increases s. This is indeed true both whithin yellow (Entry, No Sales) equilibria where s is set according to (6), and in transitions from red (No entry, No Sales) equilibria to yellow equilibria, as well as in transitions from yellow to green (Entry, All Sell) and from red to green equilibria. In all other transitions as well as whithin the other equilibria, a reduction in ε does not affect s. It is also immediate to find that an increase in ϕ always increases s. s effectively jumps in response to increases in ϕ only in transition from red to blue and yello to blue equilibria. In both cases, s increases.

(ii): Whithin any given equilibrium decreases in ε always reduce entry. This can be immediately seen by looking at the entry condition (5) in the yellow and green regions. Accordingly, entry increases when ε goes down in transitions from red to yellow and blue to gree equilibria. The only cases where entry can decrease with reductions in ε is in transitions from yellow to green equilibria and from yellow to blue ones. To see why this is the case, consider the entry (5) condition in a transition

from a yellow (Entry, No Sales) to a green (Entry, All Sell) equilibrium. For a given ϕ, pick two arbitrarily close ε and $\acute{\varepsilon}$ ($\varepsilon > \acute{\varepsilon}$) such that (ε, ϕ) is in the yellow region, while $(\acute{\varepsilon}, \phi)$ is in the green region. Since the entry condition condition (5) is continuous in f, without changes in s the entry levels associated with such configurtions should also be arbitrarily clos. However, in moving from (ε, ϕ) to $(\acute{\varepsilon}, \phi)$, s jumps discretely from a value $\widetilde{s} < 1$ to 1. Such drastic increase in s needs to be counterbalanced by a reduction in f: outsiders respond to much more talented competitors by reducing entry. This effect is even more pronounced in transitions from yellow to blue, where entry absolutely disappears.

(iii) Increases in ϕ do not affect entry whithin equilibrium configurations but clearly reduce it in the transition from yellow to blue equilibria.

Proof of Proposition 1. Social Welfare $Y(f, s)$ increases in f and s. Hence, according to Lemma 1 we should only be worried about the welfare impacts of deregulations inducing a jump from the yellow to green region and from the yellow to blue region because they increase s at the expense of f. Let us begin with transitions from yellow to green. For any given ϕ, the lowest welfare level in the green region is achieved by entry costs lying close to the frontier of the yellow region – i.e. by $(1+\varepsilon) = 1/(g-\phi)$. By the same token, in the yellow region maximal welfare is achieved on the frontier. The entry conditions implieas that for such arbitraily close entry costs, the wage levels in the yellow and green equilibria will be approximately equal. Now recall that social welfare can also written as $\frac{1-f}{1-\alpha} w(f, s)$. Hence, for a constant wage rate $w(f, s)$, the jump from the yello to the green region increases welfare the associated reduction in f increases Y. Thus, deregulation that move the economy from a yellow to a green equilibrium necessarily improve welfare. Consider now deregulations moving the economy from a yellow to a blue equilibrium. Now the reduction in ε moves the real wage from $(1-\alpha)\left(\frac{\alpha}{(1-\alpha)(1+\varepsilon)}\right)^{\alpha}$ to $w(\eta, 1)$. Since for this transition to be possible it must be that $\varepsilon > \varepsilon_1$, it is immediate to see that the reduction in ε induces an increase in the real wage. As a result, social welfare increases as well.

Consider now the effect of legal reform. An increase in ϕ improves s at the expense of f only in transitions from yello to blue equilibria. Again, the fact that this can only occur for $\varepsilon > \varepsilon_1$ implies that such legal reforms increase social welfare as well.

Proof of Proposition 2. Deregulation unambiguously increases wages and re-

duce incumbents´ profits. Hence, whithin No Sales equilibria (red and yellow regions) reductions in ε reduce $\pi^L(f,s)$, the welfare of untalented incumbents falls and they therefore oppose deregulation (in the red region they are indifferent because deregulation has no effect). Also, when deregulation moves the equilibrium from a "No Sales" (red or yellow) to an "All Sell" (blue or green) equilibrium, untalented incumbents also oppose deregulation because the associated reduction in profits cuts the price of their firms, forces them to sell and reduces their welfare. Thus, it is impossible to find a deregulation that untalented incumbents will support for every status quo (ε,ϕ), in particular for those laying in the red region. It is interesting to notice that things may be different whithin "All Sell" equilibria: if buyer's participation constraint binds, $p=\pi^H(f,s)$ and deregulation reduces untalented incumbents´ welfare; however, since reductions in ε increase w, if the buyer's incentive compatibility constraint binds $p=\phi\pi^H$, the seller's welfare is $\phi\pi^H+w$, which could go up due to the increase in w. This issue arises exclusively in the green region. The buyer´s incentive compatibility constraint binds when $\phi\leq 1-\frac{1}{1+\varepsilon}$, and the condition for a drop in ε to *increase* sellers ´welfare is $\phi\leq\frac{\alpha}{1-\alpha}\frac{1}{1+\varepsilon}$. There is a region close to the origin where this condition is satisfied. Such region cannot extend above $\phi\leq\alpha$ ($\phi=\alpha$ is the highest intersection between the region where the buyer´s IC binds and where the seller´s payoff decreases in ε). As a result, for $\phi>\alpha$ it is *impossible* to find a deregulation that is supported by untalented incumbents. In addition, if $\phi\leq\alpha$, it is easy to see that there are many status quos (ε,ϕ) from which it is impossible to find a deregulation endorsed by untalented incumbents. When $\phi\leq\alpha$, sellers ´ post-deregulation utility is maximized for given ϕ by setting $1+\varepsilon=\frac{1}{1-\phi}$; the corresponding utility of the seller is $(1-\alpha)^{1-\alpha}\alpha^{\alpha}(1-\phi)^{\alpha-1}$. In the other equilibria, sellers get always at least $\pi^L(f,s)$. In equilibria with entry (certainly one of the worst for the seller) unatelnted incumbents enjoy $g(1-\alpha)^{1-\alpha}\alpha^{\alpha}(1+\varepsilon)^{1-\alpha}$. Whenever this payoff is larger than $(1-\alpha)^{1-\alpha}\alpha^{\alpha}(1-\phi)^{\alpha-1}$, there are status quos (ε,ϕ) from which it is impossible to find a deregulation endorsed by untalented incumbents. the reason is that everywhere else their payoff decreases in ε, so setting $1+\varepsilon=\frac{1}{1-\phi}$ has the best chance of being welcome by them. It is immediate to find that in the (nonempty) region $\phi\leq 1-(1/g)^{\frac{1}{1-\alpha}}/(1+\varepsilon)$,the untalented incumbents will not support a deregulation setting $1+\varepsilon=1/(1-\phi)$.

Proof of Proposition 3: Since in "No Sale" equilibria untalented incumbents' welfare is $\pi^L(f,s)$, they are indifferent to changes in ϕ. In "All Sell" equilibria their

welfare depends on the price of their licence, which under our assumption $\lambda > \alpha$ is equal to $p = \min\left[\pi^H(f,1) - w(f,1), \phi\pi^H(f,1)\right]$. Thus, whithin "All Sell" equilibria untalented incumbents are weakly sympathetic to legal reform (increases in ϕ). Increases in ϕ may also trigger changes in the features of the equilibrium. For given ε, since transitions from the yellow to the green region leave wages and profits unaffected, they are welcomed by untalented incumbents because the larger ϕ increases the price of their firms. Consider now a red (No Sale, No Entry) to blue (All Sell, No Entry) transition. Although profits decline, untalented incumbents can reap the benefits from a better management of their assets. Their welfare goes from $\pi^L(\eta,\lambda)$ to $\pi^H(\eta,1)$ (red to blue transitions occur when ϕ goes above ϕ_2, so the participation constraint is always binding). Since $\pi^L(\eta,\lambda) < \pi^H(\eta,1)$, untalented incumbents welcome this reform as well. This implies that they also welcome transitions from "Entry, No Sales" (yellow) to "No Entry, All Sell" (blue) equilibria. By setting $\phi = 1$, policymakers guarantee to untalented incumbents a welfare level ($\pi^H(\eta,1)$) that is certainly larger than what they obtain in the yellow region ($g(1+\varepsilon)w < \pi^L(\eta,\lambda)$).

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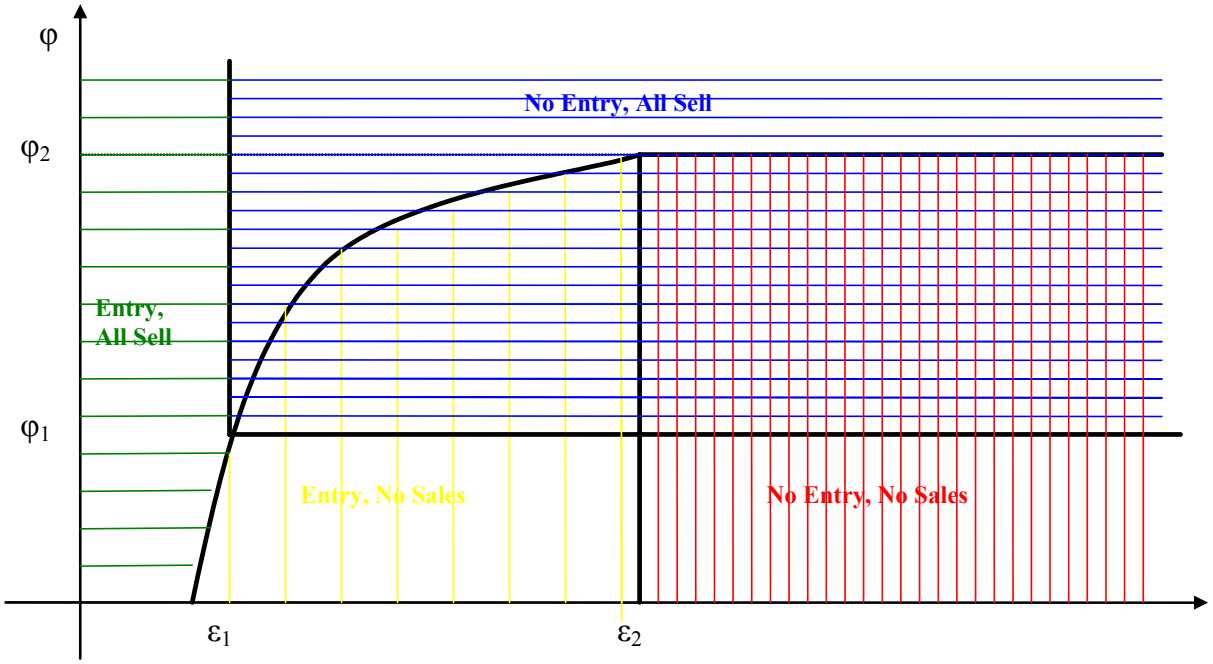
φ
φ2
φ1
No Entry, All Sell
Entry,
All Sell
Entry, No Sales
No Entry, No Sales
ε1
ε2

Figure 1: