

# Credit Constraints, Competition, and Meritocracy

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## 1 Introduction

What happens when those who own firms are not the same people who know what to do with them? In countries with a high incidence of family firms this is a first-order question, as many companies are handed out across generations and, inevitably, the heirs are often not of the same caliber as those who have founded and grown the firm. More generally, this problem is likely to arise whenever the technological or institutional environment in which the firm operates changes.

In the absence of agency problems the answer is: nothing bad. The talented borrow money and buy the untalented off. Or – which is essentially the same – the untalented hire the talented as managers. But the world we live in is fraught with agency problems, nowhere more so than in the relationship between the poor talented and the rich untalented. These agency problems make it hard for the former to borrow money – as he may default – and for the latter to hire an outside manager – because he fears to be cheated. As a result, many firms decline for want of good stewardship. More importantly, society at large also suffers when productive assets are not made to yield their full potential.

This paper studies a simple model of the talent-ownership mismatch – or failure of meritocracy – brought about by credit market imperfections that arise as a consequence of agency problems in the borrower-lender relationship. Our model highlights the interaction between the market for firms and the labor market. The key mechanism is that – for given

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severity of the credit market imperfections – an increase in the wage brings about greater meritocracy. Specifically, a higher wage increases the incentive of untalented firm owners to relinquish the control of their firms, because it improves the payoff they get as workers and reduces – by increasing labor costs – the profit they earn as entrepreneurs.

From this we derive two main results. First, there may be multiple equilibria in the degree of meritocracy. In a meritocratic society most firms are well run and wages are high. When wages are high untalented owners transfer control to the talented, thereby validating the high level of meritocracy. Conversely, if the level of meritocracy is low, wages are also low, etc.

Second, the severity of the misallocation of talent depends on the degree of concentration on the good market: the more competitive the environment – again, for a given severity of credit-market imperfection – the greater the demand for labor, the higher the wage, the larger the number of firms given up by the untalented. Hence, in highly concentrated markets transfers of controls from the untalented to the talented can only occur in the presence of extremely efficient credit markets, allowing wealth-constrained talented to buy off the huge profits of the incumbents. On the other hand, when competition is strong incumbents are willing to sell their firms even when credit markets are very inefficient.

One of the messages of the paper is therefore that reforms that improve the workings of the credit market (such as better enforcement of contracts), and reforms that increase competition (such as deregulation) are to some degree substitutes in bringing about greater meritocracy. A natural question is then which reform strategy is more likely to enhance efficiency without violating political constraints. We define a reform to be more viable if it mobilizes a smaller opposition against itself. We find that legal reform is likely to be more politically viable than deregulation. While workers favor any reform because it increases their wages, incumbent firm owners tend to oppose deregulation because it reduces the value of all firms. Legal reform reduces the value of the firms owned by incumbents as well, but it also allows the untalented among them to cash-in on the sale of their firms. By dividing the front of incumbents, legal reform is thus likely to attract less political opposition.

A few other authors have studied the consequences of credit market imperfections in the presence of heterogeneity in both wealth and talent.<sup>1</sup> Evans and Jovanovic (1989)

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<sup>1</sup>There is of course a much larger literature on the macroeconomic consequences of credit market imper-

may have been the first to emphasize that credit constraints are especially bad for the *talented* poor. Kiyotaki (1998), Lloyd-Ellis and Bernhardt (2000) and Caselli and Gennaioli (2002) study the dynamic implications of the talent-wealth mismatch. Kiyotaki is interested in the possibility that this mismatch leads to cycles; Lloyd-Ellis and Bernhardt focus on patterns of industrialization and inequality; Caselli and Gennaioli study the implications for cross-country productivity differences. Giné and Townsend (2004) and Jeong and Townsend (2004) have successfully brought some of these models to the data. The paper closest to ours is Ghatak et al. (2002), who also emphasize the interaction between labor and credit market, and obtain a multiple-equilibria result similar to ours. However, their mechanism is quite different.<sup>2</sup> Furthermore, they do not explore the interaction between credit constraints and competition. Finally, our observations on the relative political feasibility of legal enforcement and competition policy are related to Perotti and Volpin (2004), Parente and Prescott (2000), and Acemoglu (2003). The first paper studies political-economy equilibria in which incumbents try to stifle entry by preventing financial reform (so that entrants cannot raise capital), while in the others incumbents try to impose formal or informal barriers to entry. We know of no study comparing incumbents' preferences for financial constraints vs. degree of concentration.

## 2 The Model

Our model is a simplified version of Caselli and Gennaioli (2002), though we use it here to look at a different set of issues. The economy is static. There is a continuum (of measure 1) of individuals. Individuals can be either managers or workers. A manager combines his own managerial services with homogeneous labor input to produce output. If agent  $i$  is a fraction with heterogeneity in wealth (but not talent). Some of the key references are Galor and Zeira, 1993, Banerjee and Newman, 1993, Aghion and Bolton, 1997, and Piketty, 1997.

<sup>2</sup>In their model it is assumed that everybody who wants to run a firm needs to borrow, that talented borrowers are less likely to default than untalented ones, and that talent is unobservable. A lower wage induces more untalented individuals to want to borrow in order to become entrepreneurs, thereby worsening the adverse selection problem faced by banks. As a result, banks tighten credit. As a result, there is less working capital in the economy, which validates the lower wage.

manager and hires  $L_i$  units of labor, the final output from his production unit, or firm, is

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

where  $\alpha < 1$ . An individual's managerial talent can be high,  $\bar{\theta}$ , or low,  $\underline{\theta}$ . The key assumption is that the efficiency level  $A_i$  reflects the ability of the manager: if the manager is talented then  $A_i = \bar{\theta}$ , if he is not, then  $A_i = \underline{\theta}$ . We call  $\lambda$  the fraction of agents of type  $\bar{\theta}$ .

In order to run a firm as a manager one needs to own a government-issued license. This is our metaphor for the existence of barriers to entry. There is a fixed number of licences  $f$ , and these are randomly distributed among the population at the outset. Hence,  $f\lambda$  licences are owned by talented managers, while  $f(1 - \lambda)$  are owned by untalented managers. The  $f$  initial license holders are thus the “incumbents,” or those who inherited firms. We assume that assignment to the incumbents is random to reflect the fact that managerial talent is not inheritable.<sup>3</sup> To make the story interesting, we assume  $\lambda > f$ .

Other than through initial random assignment, licences can also be obtained through purchases. There is a secondary market for licences on which incumbents can transfer ownership rights to somebody else, for a price  $p$ . Because buyers are wealthless, the purchase of firms is financed with debt, and the price  $p$  can only be paid at the end of the period, out of the profit flow the new owner will generate.

The following sequence of events takes place. First, the market for licences meets, giving rise to a new distribution of licences among people. All those who own a license to produce then 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)  $\pi_i$ . 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  $\phi$  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.<sup>4</sup>

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<sup>3</sup>It could also reflect a technological shock that makes some of the current incumbents unfit to lead firms in the new environment.

<sup>4</sup>Considering a situation where untalented owners can transfer control by hiring a talented manager does

## 2.1 Wages, Profits and Managerial Quality

We study the model starting with the labor market. Each manager  $i$  maximizes his firm's profits, equal to  $\pi_i = A_i L_i^{1-\alpha} - w L_i$ , taking the wage  $w$  as given. The resulting aggregate labor demand function can be set equal to the supply of labor,  $1 - f$ , to solve for the equilibrium wage

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

where  $s$  is the fraction of firms that are run by competent managers, an index of meritocracy. The quantity  $\left[ (1 - s) \underline{\theta}^{\frac{1}{\alpha}} + s \bar{\theta}^{\frac{1}{\alpha}} \right]^\alpha$  is then a measure of the average efficiency of firms in the economy. The aggregate wage depends positively on the number of firms,  $f$ , reflecting greater competition among firms for labor services, and on the level of meritocracy,  $s$ , reflecting higher labor productivity.

With the aggregate wage at hand, it is easy to find that the profits of each license owner are

$$\pi(A_i, f, s) = \alpha \left( \frac{1 - f}{f} \right)^{1-\alpha} \frac{A_i^{\frac{1}{\alpha}}}{\left[ (1 - s) \underline{\theta}^{\frac{1}{\alpha}} + s \bar{\theta}^{\frac{1}{\alpha}} \right]^{1-\alpha}}.$$

Talented managers make greater profits but – holding managerial talent constant – increases in both  $s$  and  $f$  reduce profits, because they increase wages. Below we will use the notation  $\pi^H(f, s) = \pi(\bar{\theta}, f, s)$ , and  $\pi^L(f, s) = \pi(\underline{\theta}, f, s)$ .

Finally, aggregating across firms' outputs we find total income  $Y$ , the measure of social welfare in our model:

$$Y(f, s) = f^\alpha (1 - f)^{1-\alpha} \left[ (1 - s) \underline{\theta}^{\frac{1}{\alpha}} + s \bar{\theta}^{\frac{1}{\alpha}} \right]^\alpha.$$

$Y$  can be decomposed into the contributions of different productive factors: managerial ( $f$ ) and labor ( $1 - f$ ) and the productivity term,  $\left[ (1 - s) \underline{\theta}^{\frac{1}{\alpha}} + s \bar{\theta}^{\frac{1}{\alpha}} \right]^\alpha$ . In the remainder, we

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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. If courts have a difficult time enforcing debt contracts, they will also have a difficult time providing managers with the incentives not to steal a firm's profits from the owner. 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.

assume that  $f < \alpha$ , which guarantees that  $Y$  increases in the number of firms,  $f$ .<sup>5</sup>  $Y$  is obviously also increasing in  $s$ , the measure of meritocracy. This makes  $s$  the endogenous variable of greatest interest in this paper.<sup>6</sup>

## 2.2 Market for Firms

While owning a licence allows a talented manager to obtain profit  $\pi^H$ , it only entitles an untalented one to receive  $\pi^L$ ,  $\pi^L < \pi^H$ . On the market for firms, licence-less talented individuals bid for the licences of untalented managers. Such a trade in licences can improve the quality of management in the economy and be mutually advantageous because the surplus  $\pi^H - \pi^L$  could be suitably shared by the parties to the transaction.<sup>7</sup>

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.<sup>8</sup> The contract says that if the buyer breaks his promise, the seller is entitled to seizing the profits flow from the firm. However, contract enforcement is imperfect and courts are only able to seize a fraction  $\phi$  of the debtor's profits when he reneges on his obligations. Thus, the maximum price the buyer can credibly promise to pay for a licence is  $\phi\pi^H$ . In equilibrium,  $p$  must therefore satisfy the constraints:

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

The first condition is the seller's participation constraint and says that  $p$  must be large enough to compensate him for the income he loses by becoming a worker ( $\pi^L - w$ ). The second condition is the buyer's participation constraint, and says that the price of a licence

<sup>5</sup>This is not really an assumption. As we will see, there cannot be more than  $\alpha$  active firms in the economy, otherwise licence owners would prefer to shutdown their firms and become workers.

<sup>6</sup>Consistent with our Cobb-Douglas formulation of the production function, the total wage bill is a share  $(1-\alpha)$  of total output; economy-wide profits reap the rest of the pie. Hence,  $w = \frac{(1-\alpha)Y}{(1-f)}$ ,  $\pi_i = \alpha Y \frac{A_i^{\frac{1}{\alpha}}}{f(s\theta^{\frac{1}{\alpha}} + s\theta^{\frac{1}{\alpha}})}$ .

<sup>7</sup>Clearly only transfers of property from low- to high-ability individuals will take place.

<sup>8</sup>Introducing the possibility of borrowing from third parties (e.g. foreign banks) does not change the results, because it does not change the incentive compatibility, and participation constraints that we state below.

should be small enough to make him at least as well off as he would be by remaining a worker. The third inequality is the buyer's incentive compatibility (no-default) constraint.<sup>9</sup>

Since  $\pi^L < \pi^H$  the first and second conditions combined do not impose any restriction on the transfer of firms. Hence, licences are transferred on the secondary market whenever

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

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:

$$\phi \geq g - \frac{(1-\alpha)}{\alpha} \frac{f}{1-f} [g + s(1-g)], \quad (1)$$

where we have introduced the notation  $g = (\underline{\theta}/\bar{\theta})^{1/\alpha} < 1$ . If  $\phi \geq g$ , the above condition is always satisfied and all licences are transferred from bad to good managers. This is very intuitive: when  $\phi$  is large the buyer can credibly commit to a fairly high price for the firms, making the deal attractive for the seller; when  $g$  is low the gains from trade are large, and the deal is attractive to both parties. We focus on the more interesting case where  $g > \phi$ .

With  $\phi < g$ , the condition says that, *ceteris paribus*, it is more likely that licences will be sold when  $\phi$  is large and  $g$  is small. In addition, sales are now also more likely when  $f$  and  $s$  are larger. This is because both an increase in the overall number of firms ( $f$ ), and an improvement in the average quality of management ( $s$ ), induce greater labor market competition, which makes sales more appealing via two channels: by increasing the wage sellers earn as workers, and by reducing the profits they enjoy as entrepreneurs.

### 2.3 Equilibrium

Given the preliminaries above, one can imagine 3 possible scenarios: we may have no sales of firms whatsoever [when (1) does not hold]; we may have that all firms are sold by untalented

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<sup>9</sup>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.

incumbents [(1) holds with inequality], or we may have an intermediate situation where only some firms are sold [(1) holds with equality].

We also need to check that in equilibrium those who run firms would not rather be working. In equilibria where only talented individuals run firms it must be that  $\pi^H \geq w$ , in equilibria where both talented and untalented individuals run firms we must check that  $\pi^L \geq w$  (since  $\pi^L < \pi^H$ ).

### 2.3.1 No Sales

We start by checking the conditions under which no transfers of control take place in equilibrium. With no sales, we have  $s = \lambda$ . Therefore this equilibrium requires

$$\phi < g - \frac{(1-\alpha)}{\alpha} \frac{f}{1-f} [g + \lambda(1-g)] \equiv \phi_2 \left( \frac{f}{1-f} \right).$$

In Figure 1 we draw the  $\left(\frac{f}{1-f}, \phi\right)$  space, and in this space we plot the  $\phi_2 \left(\frac{f}{1-f}\right)$  function. It is easy to see that  $\phi_2$  is decreasing,  $\phi_2(0) = g$ , and  $\phi_2$  has a horizontal intercept, which we call  $f_2$ . The formula for  $f_2$  is  $\alpha g / \{(1-\alpha)[g + \lambda(1-g)]\}$ , which is less than  $\alpha/(1-\alpha)$  (recall that  $f < \alpha$ ).

No sales equilibria generally obtain for  $\phi$  and  $f$  small. How small a  $\phi$  depends on  $f$ , and how small an  $f$  depends on  $\phi$ . The larger the number of firms, i.e. the fiercest the competition, the less profitable for incumbents to hold on to their firms, and therefore the lower the value of  $\phi$  needed to induce them to do so. Indeed, for  $f$  large enough ( $f/(1-f) > f_2$ ), holding on to firms is so unprofitable for bad managers that there is no value of  $\phi$  such that they will do so.

In this equilibrium with good and bad entrepreneurs, the no sales condition automatically guarantees that the latter are willing to run their firms. If an untalented manages his firm rather than selling it for a non-negative price, he will a fortiori run it rather than shutting it down (i.e. selling it for a 0 price).

### 2.3.2 All Sell

In this equilibrium  $s = 1$ . The condition that supports this equilibrium is

$$\phi \geq g - \frac{(1-\alpha)}{\alpha} \frac{f}{1-f} \equiv \phi_1 \left( \frac{f}{1-f} \right)$$



In Figure 1 we draw  $\phi_1\left(\frac{f}{1-f}\right)$ . Again this is a downward sloping curve, with vertical intercept  $g$ , and horizontal intercept  $f_1$ . The formula for  $f_1$  is  $\alpha g/(1-\alpha)$ .

Equilibria where all sell obtain for high  $\phi$  and high  $f$ : high  $\phi$  insures that the seller does not get ripped off when transferring control; high  $f$  implies that incumbents' profits are low. The higher  $f$ , the lower the level of legal enforcement,  $\phi$ , incumbents require in order to sell.

Since we have only talented individuals running firms we need to check that  $\pi^H - w > 0$ . This is easily seen to be satisfied as long as  $f < \alpha$ , which we have already imposed.

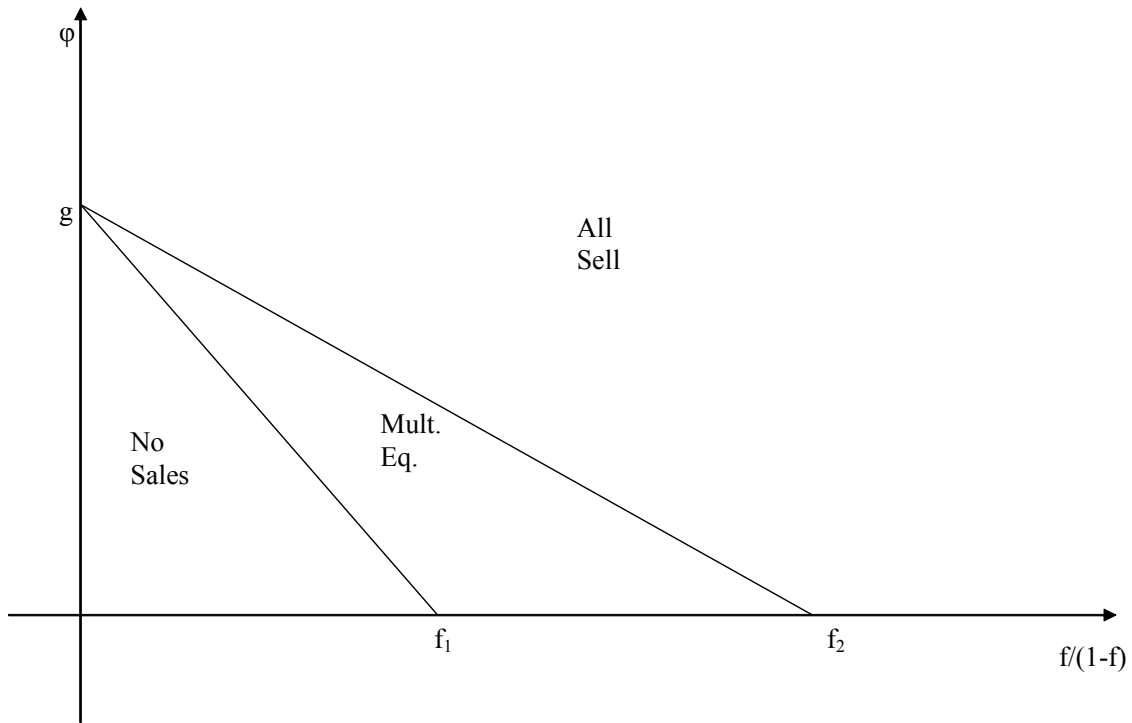


Figure 1: Determination of the equilibrium

### 2.3.3 Multiple Equilibria

Because  $\lambda < 1$ , it is immediate to see that  $\phi_1$  is everywhere below  $\phi_2$ . As a result, if  $\phi_1(f) < \phi < \phi_2(f)$  both All Sell and No Sales are possible equilibria. In this region, if all

incumbents sell, average efficiency and therefore wages increase, giving incumbents a strong incentive to sell their properties. If instead untalented incumbents hold on to their properties, wages stay low and the incentive to sell vanishes.

If  $\phi$  is too low (for a given  $f$ ), there can be no equilibrium with sales, and if  $\phi$  is too high there can be no equilibrium without them, so the region of multiplicity is for intermediate  $\phi$ . Also, the range of values of  $\phi$  such that there are multiple equilibria widens with  $f$ : the greater the number of firms, the greater the importance of strategic complementarities.

### 2.3.4 Partial Sales

There can be no equilibria with partial sales (aside for some measure 0 combination of parameters). The point is that some people selling their firms always make it more desirable for others to sell as well. Hence, sales are always by everybody or by nobody at all.

## 3 Welfare and Policy

Aggregate output in our economy increases in the number of firms,  $f$  and the degree of meritocracy,  $s$ . In turn,  $s$  increases in  $f$  and in enforcement quality  $\phi$ . Although high values of  $f$  and  $\phi$  enhance social welfare, powerful constituencies may stand to lose from such changes. Higher  $f$  and  $s$  reduce profits, so incumbents have a strong incentive to oppose both lower concentration and better contract enforcement. Since incumbents usually have a lot of political power, such opposition may kill any reform.

Our model suggests – however – that in certain circumstances and with well designed policy proposals, it may be possible to break the front of the incumbents and induce a part of them to side with the workers in supporting meritocracy-enhancing reforms. Increases in  $\phi$  and in  $f$  do erode profits – and hence the potential value of owning firms – but they can also trigger a change in the nature of the equilibrium and allow untalented incumbents to transfer control of their firms to new talented managers, and profit from the trade. In this section we thus ask the following question. Suppose that  $\phi < \phi_1$ , so that we are in a No Sale equilibrium. Can we design an efficiency enhancing change in  $\phi$  favored by both untalented incumbents and workers? Similarly, we will ask if an analogous change in  $f$  can be found.

Before proceeding, we need to decide what happens in the multiple-equilibrium region.

In particular, how will the players in the economy evaluate reform proposals that place the pair  $(\phi, f)$  in between the  $\phi_1$  and the  $\phi_2$  lines?<sup>10</sup> It makes some sense to assume that the implementation of a reform may *per se* function as a coordination device, signalling to all players the shift to a new equilibrium. We therefore assume that if the reform shifts  $\phi$  above  $\phi_1$  the new equilibrium is always an All Sell equilibrium.

Another issue that needs to be decided is the price-setting mechanism in the case of trades of licenses. When a firm gets sold a surplus  $\pi^H - \pi^L$  is created, and the price  $p$  determines how this surplus is shared between buyer and seller. Since we (realistically) assumed that  $\lambda > f$  (there is an excess supply of talent in the economy), every potential seller faces a multiplicity of potential buyers, and should therefore enjoy all the bargaining power. Accordingly, we assume that  $p$  is the minimum price that satisfies the constraints imposed by the sale contract. Recalling our discussion in Section 2.2, this implies  $p = \min(\pi^H - w, \phi\pi^H)$ , where the first argument comes from the buyer's participation constraint (PC), and the second argument from the incentive compatibility constraint (IC). The implication is that – in case of sale – the welfare of the seller  $p + w$  is  $\pi^H$  if the PC binds, and  $\phi\pi^H + w$  if the IC binds.

### 3.1 Legal Reform

Consider a reform changing  $\phi$  to  $\phi' > \phi_1$  (the reform is irrelevant if  $\phi' < \phi_1$ ). To study its welfare consequences we need to know if in the resulting All Sell equilibrium the IC is binding [in which case the sellers' post-reform payoff is  $\phi'\pi(f, 1) + w(f, 1)$ ] or if the buyers' PC is binding [and the sellers' payoff is accordingly  $\pi^H(f, 1)$ ]. The IC is binding for  $\phi\pi^H(f, 1) \leq \pi^H(f, 1) - w(f, 1)$ , or for

$$\phi \leq 1 - \frac{1 - \alpha}{\alpha} \frac{f}{1 - f} \equiv \phi_{IC}. \quad (2)$$

Since  $\phi_{IC} > \phi_1$ , for  $\phi_1 < \phi' < \phi_{IC}$  the IC constraint is binding, and for  $\phi' > \phi_{IC}$  the buyer's PC is binding. In other words, for low  $\phi$  the biggest issue in the credit relationship is the agency problem, so that the price  $p$  is set by the IC, and only when  $\phi$  becomes large enough the main consideration becomes the buyer's PC.

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<sup>10</sup>In general, this will depend on the probabilities agents attach to the two possible equilibria, and one could carry out the analysis in terms of expected utility introducing the generic probabilities  $q$  and  $1 - q$  of falling in either equilibrium.

Hence, for  $\phi' \geq \phi_1$  the welfare of untalented incumbents is strictly increasing in  $\phi$  up to  $\phi_{IC}$ , and constant and equal to  $\pi^H(f, 1)$  thereafter. It is easy to check that  $\pi^H(f, 1) \geq \pi^L(f, \lambda)$ . Since  $\pi^L(f, \lambda)$  is the untalented incumbents' pre-reform welfare, we can conclude that for  $\phi$  large enough, and certainly for  $\phi \geq \phi_{IC}$ , untalented incumbents can be persuaded to support legal reform.<sup>11</sup> Clearly this reform is also attractive to workers as  $w(f, 1) > w(f, \lambda)$ .<sup>12</sup> In sum, for any  $(f, \phi)$  combination in the No-Sale region we can find a reform  $\phi'$  that is supported by both untalented incumbents and workers.

### 3.2 Concentration

We now consider whether – always from within a No Sale equilibrium – it is possible to find a reform supported by untalented incumbents that increases the number of firms from  $f$  to  $f'$ . Since incumbents will certainly not support any reform that preserves a No Sale equilibrium, as this only reduces their profits, the reform must trigger a shift to an All Sell equilibrium.

The previous subsection implicitly shows that there exist two thresholds  $\underline{f}(\phi), \bar{f}(\phi)$  [ $\bar{f}(\phi) > \underline{f}(\phi)$ ] such that for  $f'$  in  $[\underline{f}(\phi), \bar{f}(\phi)]$  the equilibrium is All Sell and the IC binds, whereas for  $f' > \bar{f}(\phi)$  the buyer's PC is binding.<sup>13</sup> Using the definition of  $\underline{f}(\phi)$  it is easy to show that when at first crossing over from the No sales to the All Sell equilibrium the welfare of untalented incumbents jumps down discretely. Hence, the only hope to find a reform that untalented owners will support is if their payoff *increases* with  $f$  in some range of the All Sell region. Clearly this cannot happen when the buyers' PC binds, as in this case their payoff is  $\pi^H(f, 1)$ . However, in the initial interval where the IC binds, the sellers' payoff,  $\phi\pi^H(f, 1) + w(f, 1)$ , increases with  $f$  if (and only if)  $f/(1-f) \geq \phi$ . I.e. when  $f$  is large relative to  $\phi$  the gains in terms of a higher wage outweigh the loss in terms of lower price.

As a result, among all reforms  $f'$  moving the economy to All Sell, those with  $f =$

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<sup>11</sup>This does not mean that they will support any legal reform. For instance, if  $\phi' = \phi_1$  they are worse off. In other words, there exists a  $\phi_R$  between  $\phi_1$  and  $\phi_{IC}$  such that untalented incumbents support legal reform whenever  $\phi' \geq \phi_R$ .

<sup>12</sup>This is not to say that there is no conflict of interest between workers and untalented incumbents. Indeed, for  $\phi \geq \phi'$  the welfare of workers that become firm owners is decreasing in  $\phi$ , and for the same reason why it is increasing for the incumbents: the price rises.

<sup>13</sup>The two thresholds are derived from the conditions ensuring: i) All Sell equilibrium, ii) Binding IC.  $\underline{f}(\phi)$  is found by inverting  $\phi_1(f/1-f)$  for  $f$ , while  $\bar{f}(\phi)$  is found by inverting  $\phi_{IC}(f/1-f)$  for  $f$ .

$\bar{f}(\phi)$  maximize sellers' post-reform payoff provided that  $\bar{f}(\phi)/(1 - \bar{f}(\phi)) \geq \phi$ . Hence, when  $\bar{f}(\phi)/(1 - \bar{f}(\phi)) < \phi$ , or – by definition of  $\bar{f}(\phi) - \phi > \alpha$ , there exists no reform  $f'$  which is supported by the untalented. On the other hand, if instead  $\phi \leq \alpha$ , then  $f' = \bar{f}(\phi)$  maximizes sellers' post-reform payoff. Evaluated in  $\bar{f}(\phi)$ , such payoff is equal to  $\pi^H(\bar{f}(\phi), 1) = \alpha\bar{\theta}/[(1 - \phi)\alpha/(1 - \alpha)]^{1-\alpha}$ . This expression is greater than sellers' pre-reform welfare  $\pi^L(f, \lambda)$  if and only if

$$\frac{f}{1-f} > \left[ \frac{g}{g + \lambda(1-g)} \right]^{\frac{1}{1-\alpha}} \frac{\alpha}{1-\alpha} (1-\phi).$$

For low initial levels of competition ( $f$ ), the condition above is not satisfied and untalented incumbents oppose deregulation: if the market is initially so concentrated that reforms must be drastic, it may be impossible to gain the support of the untalented. Overall, the analysis suggests that for most combinations of  $f$  and  $\phi$  one cannot find a reform  $f'$  that will be supported by untalented incumbents. This result contrasts with the previous subsection, which showed that one can *always* find legal reforms that divide the front of incumbents. Hence, the analysis confirms the intuition that legal reform is politically more viable than deregulation.

## 4 Conclusions

If the inter-generational transmission of talent is imperfect, family firms are a threat to the efficient allocation of talent. Markets for the control of productive assets supported by anemic contract enforcement may have a hard time in re-allocating control to the most competent managers. This failure of meritocracy may impose severe inefficiencies on the economy at large, particularly when the technological environment in which a firm operates is subject to frequent change.

In this paper we have pointed out two properties of economies where poor enforcement of credit contracts causes misallocations in the control of firms. First, for intermediate values of legal enforcement, efficient and inefficient equilibria may coexist. Second, for given values of legal enforcement, the severity of the inefficiency depends on the degree of concentration: in highly competitive economies transfers of control may occur even if legal enforcement is fairly lousy. Both properties stem from the interactions between the market for control and

the labor market. 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 reduce concentration.

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