

Corporate Governance, Favoritism and Careers*

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Abstract

Careers are often shaped by favoritism even though this saps firm performance. If controlling shareholders trade off private benefits from favoritism against its efficiency costs, the quality of corporate governance enhances meritocratic promotions, and thereby strengthens workers incentives to acquire skills. Instead, labor market competition has an ambiguous impact on workers' skill acquisition, as it enhances their wage upon promotion but increases the retention cost of promoted workers. With endogenous skill acquisition, there are multiple equilibria, with social welfare increasing in the share of meritocratic firms. This highlights a new efficiency rationale for improvements in the quality of corporate governance.

JEL: D21, D23, M50, M51.

Keywords: corporate governance, careers, favoritism, merit, job selection, skill development.

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1 Introduction

The productive efficiency of firms largely hinges on appointing the right employee to the right task. In fact, the power to hire, fire, promote and demote employees is a key aspect of corporate control (Rohman et al., 2018). Whether this power is used to maximize profits or not depends on the alignment of managers' interests with those of investors as a whole. In companies where such misalignment is greater, employees' appointments and promotions will be more driven by favoritism, resulting in inefficiencies both in organizational design and in task assignment. Otherwise stated, the quality of corporate governance determines whether the careers of employees evolve according to merit or to favoritism. This is the starting point of the analysis presented in this paper. Based on this, we study how corporate governance and labor market competition, by affecting firms' personnel policies, impact workers' career and educational choices.

We analyze these issues in the context of a model where workers' may apply for jobs in companies that differ in their promotion policies, because they value differently the private benefits from favoritism relative to its efficiency costs in terms of forgone productivity. Workers are aware that their skills will be more rewarded in more meritocratic firms, because firms with meritocratic promotion rules pay high equilibrium wages (to deter competitors from poaching their best employees upon promotion) and feature high productivity and profitability (coordination tasks being entrusted to the firm's best talent).

In externally funded firms, the adoption of non-meritocratic promotion rules creates a conflict between controlling and non-controlling shareholders, and in such conflict the quality of corporate governance institutions affects the balance towards meritocratic promotion rules. As a result, better corporate governance increase the fraction of meritocratic firms, which attract high-skill workers, who are more likely to be promoted by such firms than unskilled workers. In a setting where the skill level of each worker is given, there is

a sorting equilibrium where skilled workers will apply for jobs in meritocratic firms, and unskilled ones will apply for jobs in non-meritocratic ones. In this sorting equilibrium, employment of high-quality workers and aggregate productivity are increasing in the quality of corporate governance and decreasing in labor market competitiveness: the former raises firms' incentives to promote according to merit, while the latter reduces them by increasing the cost of retaining promoted employees.

We then analyze the impact of corporate governance and labor market competition on workers' educational choices. Insofar as these choices are based on expected wages and promotions, better corporate governance institutions stimulate investments in education to acquire skills that are valued by meritocratic firms. However, also labor market competition affects workers' expected earnings. Interestingly, its impact is ambiguous: on the one hand, it raises the retention cost of high-skilled labor, thereby depressing the demand for it; on the other hand, it raises workers' wages upon promotion and thus their incentives to acquire education. Hence, our model predicts that while better corporate governance unambiguously increases workers' incentives to acquire education, more competition in the labor market may reduce such incentives.

We also show that, if workers' educational choices are determined endogenously, the model displays multiple equilibria: for a given constellation of parameters, there is not only an equilibrium where both meritocratic and non-meritocratic firms are active and workers sort themselves across them depending on their skill level, but also two extreme equilibria where either all firms promote according to merit (and all workers acquire education) or all firms promote based on favoritism (and no worker acquires education). Interestingly, these multiple equilibria are Pareto-ranked: social welfare increases in the share of meritocratic firms across them. This highlights a new efficiency rationale for improvements in the quality of corporate governance.

Finally, we perform a robustness check on the assumption made in the baseline model

that firms are entirely equity-financed: under fairly mild assumptions, the results of the analysis remain valid in a setup in which the firm raises funds via debt, provided such debt is risky.

Our paper bridges two broad strands of research, which so far have not spoken to each other, namely, the corporate finance literature on the separation between ownership and control and corporate governance (Tirole, 2006) and the more recent research on personnel economics (Lazear and Oyer, 2012).

The corporate finance literature has so far analyzed deviations from meritocracy mainly with reference to family firms, highlighting that family ownership often results in low reliance on merit in appointments and promotions, as it favors dynastic succession irrespective of the heir's quality (Burkart et al. (2003); Burkart and Panunzi (2006); Bennedsen et al. (2007), and is associated with nepotism and lower adoption of structured managerial practices. However, deviations from merit-based promotion rules can also be common in firms with widely held ownership, as this typically results in controlling shareholders owning a low stake and therefore not being aligned with shareholder value maximization. Indeed, in our model the incentive to promote employees based on favoritism is greater the lower is the stake of controlling shareholders. In these situations, corporate governance institutions, which limit the size of the potential private benefit extraction, can play a key role in prodding firms towards meritocratic promotions.

Our analysis is also related to research in personnel economics and, in particular, on workers careers within organizations. Specifically, Prendergast and Topel (1996) and Friebe and Raith (2004) analyze the impact of supervisors' discretion on promotions and on favoritism in organizations when supervisors prefer least productive workers over more productive ones for promotions. More generally, as favoritism implies inefficient talent allocation, this paper is related to the vast literature on talent allocation within firms competing for talent dating back to the seminal paper by Waldman (1984) and more recently, among others, DeVaro

and Waldman (2012), Dato et al. (2021) where talent misallocation is a consequence of asymmetric information about workers’ talent across firms. In these papers, however, there is no analysis of the role of corporate governance institutions in determining the promotion rules adopted by firms, and workers’ characteristics are taken to be exogenous, whereas we analyze how firms’ personnel policies affect workers’ decision to acquire skills.

The paper is structured as follows. Section 2 lays out the model’s structure. Section 3 analyzes the wage setting process. Section 4 analyzes firms’ fund raising process and the equilibrium promotion rule. Section 5 analyzes workers’ choice to apply for jobs either in meritocratic or non-meritocratic firms. Section 6 describes workers’ educational decisions before entering the job market. Section 7 shows the conditions under which the results of the model map into a framework where firms are financed through debt. Section 8 concludes.

2 The Model

We study a model of employees’ careers where favoritism can endogenously arise in promotions, depending on companies’ ownership and corporate governance. In the economy there is a mass 1 of firms with I units. Each unit has N workers and a capital stock whose cost is standardized to 1. Hence the firm’s total number of workers is NI and a firm’s total investment cost is I . The initial owner of each firm, which for brevity we refer to as “entrepreneur”, funds investment I out of her wealth A and, if necessary, by raising outside funding $I - A$ via the issuance of equity to a set of competing investors. All players are assumed to be risk-neutral and feature zero discounting.

In each firm, n_H workers per unit are high-quality and n_L are low-quality, with $n_H + n_L = N$. At the hiring stage, in the labor market there are M_H high-quality workers and M_L low-quality ones, and their total number $M = M_H + M_L$ exceeds aggregate labor demand by firms ($M > NI$).

At the hiring stage, workers know their own types. Firms, which learn workers' types after hiring them, may assign them to a basic position, in which they all produce the same output $x > 0$, or to a higher position in their hierarchy, in which they manage their production unit. Upon promotion, high-quality workers develop the ability to raise their unit's output by Δx . However, if asked to produce a private benefit B accruing to the entrepreneur, they are prevented from focusing on managing subordinates effectively and fail to generate efficiency gains: producing private benefits requires them to allocate their time and effort to hone their social skills to please the entrepreneur rather than their productive skills; it may also involve agreeing with inefficient choices proposed by the entrepreneur, as in Friebe and Raith (2004), or fraudulent practices, such as tax evasion. Hence, the output Δx forgone by such diversion of high-quality workers' skills is the opportunity cost of the private benefit B . Instead, promoting low-quality workers does not generate this trade-off: if asked to manage their units, these workers cannot raise their productivity, while they are perfectly capable of producing the private benefit B .

The private benefit that can be extracted from promoted workers varies across entrepreneurs, depending on their respective firms' corporate governance: weaker corporate governance translates into higher private benefits of control associated with promotions. For instance, in better governed firms workers' promotions are taken on the basis of structured managerial practices and discretion over them is limited by promotion committees. With no loss of generality, we assume a uniform distribution of private benefits across firms: $B \sim U[0, \bar{B}]$. The average private benefit $\bar{B}/2$ is assumed to be a decreasing function of the quality of the economy's corporate governance institutions, which is thus captured by $1/\bar{B}$.

The time line of the model consists of four stages, as shown in Figure 1. At $t = 1$, workers apply for jobs conditioning on their type, and each firm hires NI workers. At $t = 2$ firms raise external funds $I - A$ by pledging a share of their profits to competitive investors. Upon learning workers' types, at $t = 3$ each firm decides which workers to promote, and which

wages to offer so as to retain them in the face of potential competition by other employers. Finally, at $t = 4$, production occurs, and profits and wages are paid. In Section 6, we shall present an extension of the model that allows for a further, initial stage at $t = 0$, where workers can choose to acquire skills by investing in education: in this extended version, the model endogenously determines the skill composition of the workforce. The model is solved by backward induction, so as to determine the subgame perfect equilibrium of the game.

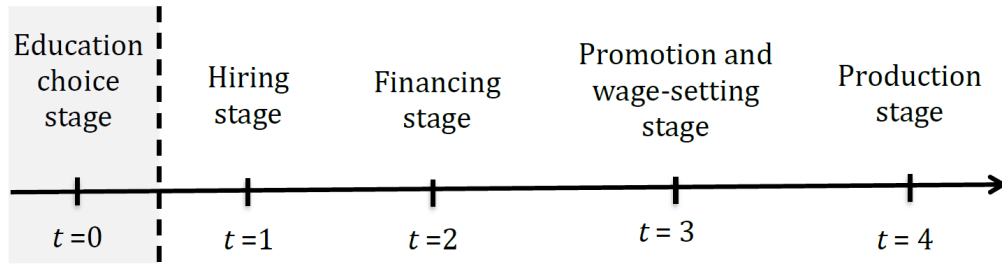


Figure 1: Timeline of the model

3 Wage Setting and Promotions

After hiring workers and before starting production, at $t = 3$ each employer sets wages and takes promotion decisions in the shadow of labor market competition: after promotion decisions, all workers may receive employment offers by other firms with probability $p \in (0, 1)$. When bidding, competing firms observe the quality of current employees and whether they were promoted. Recalling that high-quality workers' managerial talent develops upon promotion, non-promoted high-quality worker cannot expect to receive from outside employers a better offer than low-quality workers (being untrained as unit managers). As a consequence, poachers only promote workers who were already promoted in their source firm.

The incumbent employer matches poaching offers to retain workers, and is assumed to retain them in case of a tie. Hence, in equilibrium wages are

$$w = \begin{cases} p(1 + \Delta)x & \text{for high-quality promoted workers,} \\ px & \text{otherwise.} \end{cases} \quad (1)$$

Given these wages, it is immediate that only low-quality workers will be asked to produce the private benefit B upon promotion. To see why, notice that promoting a high-quality worker and requiring her to produce private benefits costs $p\Delta x$ more in terms of wages than promoting a low-quality worker to do so: entrepreneurs who wish to enjoy private benefits of control will find it efficient to do so by promoting low-quality workers, while those who do not wish to extract such benefits will promote high-quality workers and let them achieve the productivity gain Δx . The former will therefore indulge in favoritism, while the latter will adopt meritocratic promotion policies.

Each entrepreneur's choice between these two alternative policies will weigh the private benefit of control B that can be obtained with favoritism against the monetary gains from greater productivity brought by meritocratic promotions. However, an entrepreneur with a fraction α of the firm's share capital will be entitled to a commensurate share of the additional profit that the firm obtains from meritocratic promotions. This additional profit is the difference between the incremental revenue Δx and the incremental wage cost from promoting a high-quality worker, $p\Delta x$, so that the entrepreneur's pro-rata monetary gain is $\alpha(1 - p)\Delta x$. Hence, an entrepreneur will adopt a meritocratic promotion policy if her fractional stake exceeds a threshold value:

$$\alpha \geq \frac{B}{(1 - p)\Delta x} \equiv \hat{\alpha}, \quad (2)$$

and indulge in favoritism otherwise. Condition (2) shows that the entrepreneur's incentive

to adopt meritocratic promotions is increasing in her fractional ownership of the firm, as this determines the extent to which her objective is aligned with the firm's share value maximization. The threshold $\hat{\alpha}$ is increasing in the ratio between the private benefit B and its opportunity cost Δx , as well as in the probability p that employees receive offers from competing firms. Intuitively, the larger $B/\Delta x$, the stronger is the entrepreneur's incentive to engage in favoritism; the higher p , the greater is competition for talent, and thus the retention cost of high-quality workers.

It seems natural to assume that the entrepreneur will not extract private benefits of control when she is the sole owner of the firm ($\alpha = 1$), and may want to do so only when her stake is sufficiently low, so that the cost of private benefit extraction is borne to some extent by the firm's outside financiers. Hence, in what follows we shall assume that even the entrepreneur with maximal private benefit $\bar{B}$ will promote employees according to merit if she is the sole firm owner:

$$\hat{\alpha}(\bar{B}) = \frac{\bar{B}}{(1-p)\Delta x} \leq 1. \quad (3)$$

However, we will show that this assumption is not essential for the main results of the model.

4 External Funding

If the entrepreneur's wealth is insufficient to fund entirely the firm's investment ($A < I$), at $t = 2$ the firm must raise external funding $I - A$ by pledging a share $1 - \alpha$ of its total profits $\Pi \equiv \pi I$ to outside financiers, where π is the profit per dollar invested.¹ The rate of return that outside investors require on their funding $I - A$ is zero, reflecting the assumption of no discounting. Since investors are perfectly competitive and risk-neutral, the stake they

¹In the baseline version of the model, the firm is assumed to obtain external funding in the form of equity; we shall explore the robustness of our results to different capital structures in Section 7

require in order to fund the firm is given by their participation constraint:

$$(1 - \alpha)\pi I = I - A, \quad (4)$$

which implicitly defines the fractional stake $\alpha \in [0, 1]$ in the firm's total cash flow that the entrepreneur retains after raising external funds. The entrepreneur is assumed to retain control rights on promotions irrespective of the size of her stake.

The firm's per-dollar profits depend on its promotion rule:

$$\pi = \begin{cases} \pi_H = (N + \Delta)(1 - p)x & \text{with meritocratic promotions,} \\ \pi_L = N(1 - p)x & \text{otherwise.} \end{cases} \quad (5)$$

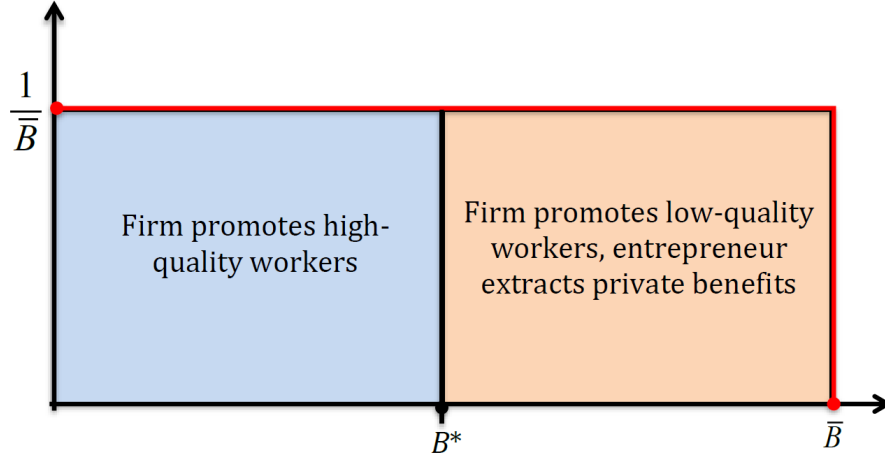
We assume that $\pi_L \geq 1$, i.e. even firms that promote low-quality workers are viable, as their profits cover their cost of capital.

The entrepreneur will choose her promotion policy by comparing her payoff per dollar invested $\alpha\pi_H$ under meritocratic promotions with her payoff $\alpha\pi_L + B$ under favoritism, while taking into account that in each of the two cases her stake in the firm is determined by investors' participation constraint (4). This defines the firm's optimal promotion policy:

Proposition 1 (Optimal Promotion Rule) *The entrepreneur promotes high-quality workers if $B \leq B^*$ and low-quality workers if $B > B^*$, where*

$$B^* \equiv \frac{\Delta(1 - p)x[(\pi_H - 1)I + A]}{\pi_H I} = \Delta(1 - p)x + \frac{\Delta}{N + \Delta} \left(\frac{A}{I} - 1 \right) > 0. \quad (6)$$

As shown by Figure 2, the fraction of meritocratic firms $q \equiv B^*/\bar{B}$ is measured by the area to the left of the cutoff B^* in the cross-sectional distribution of private benefits: it is increasing in the maximal value of private benefits consistent with meritocratic promotions



Cross-sectional distribution of private benefits of control (B)

Figure 2: Private Benefits and Promotion Rules

B^* and in the quality of corporate governance $1/\bar{B}$. Hence:

Corollary 1 *The fraction of meritocratic firms q is increasing in the quality of corporate governance $1/\bar{B}$, in the incremental productivity of promoted high-quality workers Δx , and in the entrepreneur's internal equity share A/I , and decreasing in labor market competitiveness p .*

Intuitively, better corporate governance laws lower the private benefits that entrepreneurs can obtain with favoritism, while the intensity of labor market competition raises the wages to be paid in order to retain high-quality workers after promoting them. Clearly, also the magnitude of the productivity gains attainable by promoting high-quality workers and the entrepreneur's ability to fund the firm internally improves the alignment of the entrepreneur's incentives with shareholders' interests.

5 Labor Market Allocation

At $t = 1$, workers allocate themselves across firms: they choose which jobs to apply for, and firms randomly hire from the applicants' pool. In their job applications, workers are assumed to be aware of their own quality and of firms' future promotion policies and wages, being able to distinguish firms pursuing meritocratic promotion policies from those that indulge in favoritism. Since all firms of either group offer the same wages and promotion policies, workers choose simply whether to apply for jobs in meritocratic or in non-meritocratic firms.

We denote by $m_i = M_i/M$ the fraction of workers of type i seeking jobs, and by $a_M = A_M/M$ the fraction of applicants for jobs in meritocratic firms, A_M being their absolute number. Workers choose whether to apply for a job in a given firm on the basis of their belief regarding the number of applicants competing for jobs in that firm: the larger is the expected fraction $\hat{a}_M$ of applicants for jobs in meritocratic firms, the lower is the chance of being hired by these firms, and thus the higher their chance of unemployment, which is assumed to imply a zero wage.

High-quality workers will apply for jobs in meritocratic firms if they can expect to earn more from being hired by one such firm than by a non-meritocratic one, namely:

$$\underbrace{\frac{q}{\hat{a}_M}}_{\text{Pr(hire|M)}} \left[\underbrace{\frac{1}{N_H}(1 + \Delta)px}_{\mathbb{E}(w|\text{promotion})} + \underbrace{\left(1 - \frac{1}{N_H}\right)px}_{\mathbb{E}(w|\text{no prom.})} \right] > \frac{1 - q}{1 - \hat{a}_M} px, \quad (7)$$

The left-hand side of inequality (7) is a high-quality worker's expected payoff from applying to meritocratic firms, i.e., the probability of being chosen in the respective applicant pool multiplied by the expected wage paid by these firms, which in turn comprises the wage upon promotion and that upon no promotion, weighted by the respective probabilities. Symmetrically, the right-hand side of inequality (7) is a high-quality worker's expected payoff from applying to a non-meritocratic firm, where the wage obtained upon being hired

is simply px , as in this case a high-quality worker cannot expect to be promoted. Clearly, the left-hand side is increasing in the fraction q of meritocratic firms and decreasing in the fraction a_M of workers applying to these firms, while the opposite applies to the right-hand side of inequality (7): the more meritocratic firms seeking to hire and the fewer workers apply for jobs, the greater is these workers' incentive to apply for a job in such firms.

The problem faced by low-quality workers is simpler, since they earn the same wage px whether promoted or not. They will apply for jobs in non-meritocratic firms rather than meritocratic ones if

$$\frac{1-q}{1-\hat{a}_M}px > \frac{q}{\hat{a}_M}px, \quad (8)$$

where the left- and the right-hand side expressions are their expected wages if they apply to non-meritocratic and meritocratic firms, respectively. From condition (8), the greater the fraction $1-q$ of non-meritocratic firms seeking to hire and the fewer workers apply for jobs there, the greater is low-quality workers' incentive to apply for a job in such firms.

If both conditions (7) and (8) hold simultaneously, then only high-quality workers will apply to meritocratic firms and only low-quality ones will apply to non-meritocratic firms. The following proposition provides the parameter conditions under which this sorting equilibrium occurs:

Proposition 2 (Labor Market Sorting) *High-quality and low-quality workers respectively apply for jobs in meritocratic and non-meritocratic firms if $\theta m_H < q < m_H$ where $\theta \equiv \frac{N}{(1-m_H)\Delta+N} \leq 1$, so that in equilibrium the fractions of applicants for jobs in the two types of firms respectively equal the fractions of high- and low-quality workers in the labor force ($a_M^* = m_H$ and $1 - a_M^* = m_L$).*

Proposition 2 indicates that for a sorting equilibrium to exist, the fraction q of meritocratic firms must lie in an intermediate range: intuitively, this fraction must be high enough to induce high-quality workers to apply in such firms, i.e. to satisfy condition (7), but low

enough to encourage low-quality workers to apply to non-meritocratic firms, i.e., to satisfy condition (8). This is a subgame perfect equilibrium if all workers hold rational beliefs $\hat{a}_M = m_H$, i.e. if high-quality workers are expected to apply for meritocratic firms and low-quality ones to apply for non-meritocratic firms.

In such a sorting equilibrium, meritocratic firms collectively hire qNI high-quality workers, whereas non-meritocratic ones hire $(1 - q)NI$ low-quality workers. Hence a higher fraction q of meritocratic firms translates into greater total employment of skilled workers and higher aggregate productivity. Recalling that from Corollary 1 q is increasing in the quality of corporate governance and decreasing in labor market competitiveness at $t = 2$, the sorting equilibrium can be characterized as follows:

Corollary 2 (Characterizing the Sorting Equilibrium) *In a sorting equilibrium, employment of high-quality workers and aggregate productivity are increasing in the quality of corporate governance ($1/\bar{B}$) and decreasing in labor market competitiveness (p).*

The sorting equilibrium fails to exist if the fraction q of meritocratic firms lies outside the interval $(\theta m_H, m_H)$. The question then arises if any other subgame perfect equilibrium exists for such values of q . Consider first the case in which $q \leq m_H$: then, the fraction of meritocratic firms is so low that high-quality workers have no incentive to apply for their jobs, condition (7) not being fulfilled, while low-quality workers have the incentive to apply for jobs in non-meritocratic firms, as condition (8) is satisfied. In this situation, the only rational belief is that nobody will apply for jobs in meritocratic firms ($\hat{a}_M = 0$), so that the latter will be inactive. Hence, workers will rationally expect meritocratic firms to have zero mass: the equilibrium will feature $\hat{q} = 0$, where $\hat{q}$ denotes the fraction of *active* meritocratic firms. Conversely, if $q \geq m_H$, the fraction of meritocratic firms is so high that not only high-quality workers wish to apply for jobs in these firms (condition (7) being fulfilled), but also low-quality workers wish to apply for such jobs (condition (8) being violated). In this

scenario, it is rational to expect all workers to apply to meritocratic firms, so that $\hat{a}_M = 1$ and $\theta = 1$: hence, the equilibrium will feature $\hat{q} = 1$, as only meritocratic firms are active. Formally:

Proposition 3 (Corner Equilibria) *If $q \leq \theta m_H$, there is only a subgame perfect equilibrium with $\hat{q} = 0$, i.e. only non-meritocratic firms are active. Conversely, if $q \geq m_H$, there is only a subgame perfect equilibrium with $\hat{q} = 1$, i.e. only meritocratic firms are active.*

It is important to notice that the subgame perfect equilibrium of the model is unique: depending on parameter values, there is either the sorting equilibrium where meritocratic firms are an intermediate fraction $\hat{q} = q \in (\theta m_H, m_H)$ of active firms, as described in Proposition 2, or one of the two extreme equilibria described in Proposition 3 where all active firms are either non-meritocratic ($\hat{q} = 0$) or meritocratic ($\hat{q} = 1$).

Hence, a legal reform that improves corporate governance, i.e. lowers $\bar{B}$, and thus raises q (from Corollary 2) has widely different effects depending on its magnitude: if initially the economy is in the sorting equilibrium, a small improvement in corporate governance increases q and thus the fraction of meritocratic firms; but a reform that is so drastic as to push q above the threshold m_H will modify the equilibrium so that all active firms will start promoting according to merit, i.e. $\hat{q} = 1$. Conversely, if the economy starts from the latter situation, the equilibrium will be resilient to small reductions in the quality of corporate governance. Symmetric considerations apply to reforms that worsen corporate governance: starting from the sorting equilibrium, a sufficiently large deterioration in corporate governance can modify the equilibrium so that all active firms become non-meritocratic, i.e. $\hat{q} = 0$; but, once the economy is in that extreme situation, marginal improvements in the quality of corporate governance will leave the equilibrium unaffected. In other words, when the economy features one of the two extreme equilibria, small reforms will be ineffective, since they will not trigger corresponding changes in labor market behavior. This suggests that complete disregard for

merit may be a persistent feature of careers, resilient to moderate reforms, but extreme meritocracy is an equally resilient outcome.

6 Education

So far, the analysis has been predicated on an exogenous distribution of workers' abilities, as the fraction m_i of workers of each quality $i = \{H, L\}$ was treated as a parameter. However, the skill distribution of workers can be endogenized by adding an educational choice at the start of the model's timeline. In this section we do so by assuming that, before entering the labor market, workers are of low quality unless they increase their skills by acquiring education at a fixed cost $\psi > 0$. We assume the investment in education to be socially efficient, as its social benefit exceeds its cost: $\Delta/N_H \geq \psi$.

Educational choices determine the fraction of high-skill workers m_H and is forward-looking, being based on workers' expectation of their career prospects and therefore on their belief $\hat{a}_M$ about the fraction of applicants to meritocratic firms. However, this fraction in turn depends on m_H : indeed, as previously seen, in a sorting equilibrium $a_M^* = m_H$. Hence, in equilibrium workers must hold a belief about a_M that induces them to educational choices consistent with that value. In this section, we show that for given q , the value of $\hat{a}_M$ generates multiple equilibria. Intuitively, this is because beliefs create a feedback loop between the fraction of firms expected to offer meritocratic careers (and the implied demand for skilled labor) and workers' initial educational choices (and the implied supply of skilled labor).

Specifically, the economy features three possible equilibria: (i) an intermediate equilibrium where the fraction of meritocratic firms' job applicants $\hat{a}_M$ is such that $q \in (\theta\hat{a}_M, \hat{a}_M)$ so that, once on the labor market, educated and non-educated workers respectively apply to meritocratic and non-meritocratic firms; (ii) an equilibrium where no worker acquires education and applies for jobs in meritocratic firms ($\hat{a}_M = 0$), so that these firms are in-

active; and (iii) an equilibrium where all workers acquire education and apply for jobs in meritocratic firms ($\hat{a}_M = 1$), so that only these firms are active.

We start by characterizing the choice of acquiring education and the resulting fraction of high-quality workers m_H^* in the intermediate equilibrium, where workers with different educational attainment sort themselves between meritocratic and non-meritocratic firms:

Proposition 4 (Sorting Equilibrium with Endogenous Skill Acquisition) *In the sorting equilibrium, the fraction m_H^* of skilled workers is uniquely defined by the indifference condition balancing the expected benefit of education with its cost:*

$$\frac{NI}{M} \left[\frac{q}{m_H^*} \frac{\Delta + N}{N} - \frac{1 - q}{1 - m_H^*} \right] px = \psi. \quad (9)$$

The equilibrium fraction m_H^ is increasing in the quality of corporate governance ($1/\bar{B}$). An increase in labor market competition (p) has an ambiguous effect on m_H^* : (i) if $I - A \leq (N + \Delta)Ax$, m_H^* is increasing for $p < p^*$, and decreasing for $p \geq p^*$, where $p^* \in [0, 1/2]$; (ii) if instead $I - A > (N + \Delta)Ax$, it is invariably decreasing in p .*

The effect of corporate governance on the fraction m_H^* of educated workers stated in Proposition 4 is quite intuitive: better corporate governance increases the fraction of meritocratic firms and therefore improves the expected career profile of skilled workers.

In contrast, the effect of labor market competition on the the equilibrium fraction m_H^* of educated workers is ambiguous, because two effects are at play. On the one hand, fiercer labor market competition raises workers' bargaining power, and thus the expected wage upon promotion, which encourages workers to invest in education; but on the other hand, it raises the retention cost of high-quality workers, and thus discourages firms from promoting workers efficiently, which decreases the share of meritocratic firms q , and thus career prospects of skilled workers. The first of these two effects prevails if initially the labor market is not

too competitive ($p \leq p^*$) and the agency problem hindering meritocratic promotions is not too severe ($I - A < (N + \Delta)Ax$, that is, the external funds raised by the firm are sufficiently small): these conditions will limit the extent to which an increase in the retention cost of skilled labor will induce firms to abandon meritocratic promotion policies. If instead the labor market is already highly competitive ($p > p^*$) and/or the agency problem within the firm is sufficiently severe ($I - A > (N + \Delta)Ax$), then the second effect will dominate, so that an increase in labor market competition will reduce the fraction m_H^* of educated workers.

Figure 3 illustrates the effects of the two policy parameters $1/\bar{B}$ and p for the case in which $I - A < (N + \Delta)Ax$, so that the impact of labor market competition on the fraction of skilled workers varies depending on its initial level.² Each locus in the figure is an indifference curve corresponding to a different value of the fraction of skilled workers m_H^* as a function of $1/\bar{B}$ (measured on the vertical axis) and p (measured on the horizontal axis), with higher curves corresponding to higher values of m_H^* . For low values of p , the curves are downward sloping, so both the quality of corporate governance and labor market competition tend to raise the fraction of skilled workers. Instead, for sufficiently high p , the curves become upward sloping: in this region, the quality of corporate governance still encourages workers to acquire education, while labor market competitiveness discourages meritocratic promotions.

Hence, in such an economy, a planner aiming to increase the fraction of skilled workers might either improve the quality of corporate governance institutions or strengthen workers' bargaining power vis-à-vis employers. If instead firms compete fiercely for workers, the planner can achieve this objective only by manipulating the quality of corporate governance to increase the share of skilled workers in the economy, as raising labor market competitiveness would dampen workers' incentives to acquire education.

²This figure depicts the case in which parameters have been assigned the following values: $N = 3, I = 4, M = 50, \Delta = 1.5, x = 1, \psi = 0.5, A = 2$.

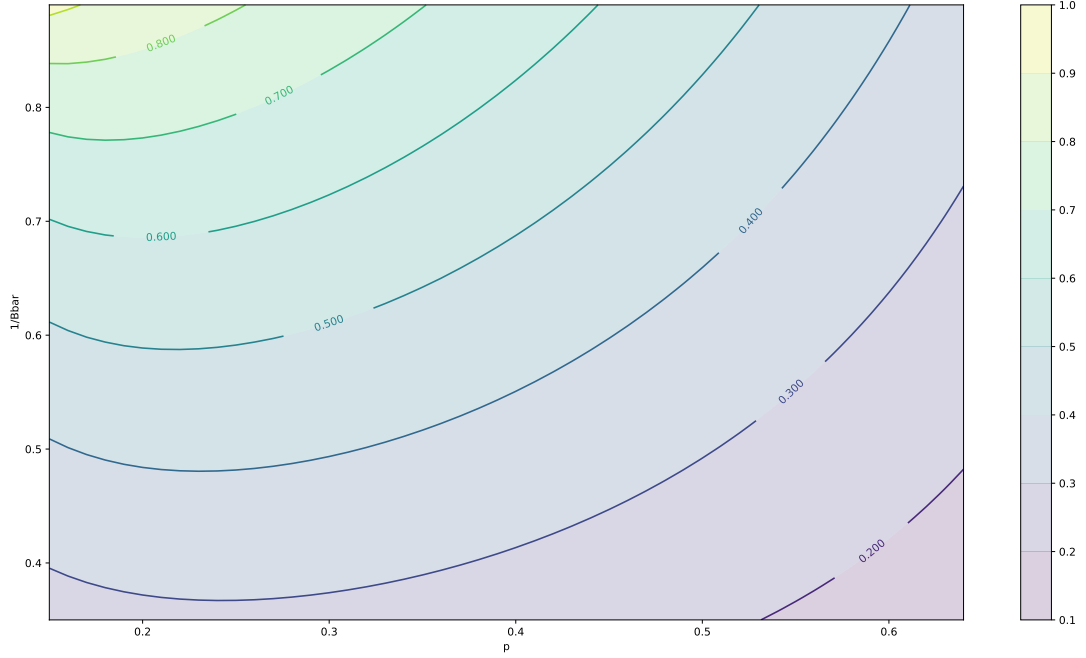


Figure 3: Policy parameters defining constant fractions m_H^* of skilled workers

As mentioned above, the equilibrium characterized so far is not unique:

Proposition 5 (Corner Equilibria with Endogenous Skill Acquisition) *The economy features two corner equilibria: (i) one where nobody is expected to apply for jobs in meritocratic firms ($\hat{a}_M = 0$) and no worker acquires education at $t = 0$, so that $m_H^* = 0$; (ii) another where everyone is expected to apply for jobs in meritocratic firms ($\hat{a}_M = 1$) and all workers acquire education, so that $m_H^* = 1$.*

Intuitively, when workers hold more extreme beliefs regarding the fraction of applicants to meritocratic firms, their choices will be extreme as well. Specifically, if workers expect no one to apply for jobs in meritocratic firms, then, they expect these firms to be inactive as they will not attract the needed workforce to operate, and therefore they will find it optimal not to acquire education. The opposite applies if workers expect everyone to apply

to meritocratic firms.

Clearly, the equilibria with a higher fraction of skilled workers are associated with higher workers' welfare, as their expected lifetime income is larger, even taking into account the cost of acquiring education. Moreover, considering that the extraction of private benefits of control is inefficient by condition (3), the whole society is better off in equilibria that feature more meritocratic promotions. Hence, the three equilibria existing in the model are Pareto-ranked, which provides a rationale for policies that induce more workers to invest in education and more firms to promote them based on merit.

7 Allowing for Debt Financing

So far we have analyzed a setting where external funding takes only the form of equity. In this section we extend the model to allow also for debt financing of investment. Debt financing will be seen to have quite different implications for promotion decisions (and therefore for the extraction of private benefits) depending on whether the firm's profits are deterministic or uncertain.

In the baseline model presented so far there is no risk: the firm is always able to repay outside investors. Insofar as it is riskless, debt has no impact on promotion decisions, differently from equity. This is because, when debt is riskless, creditors receive a fixed amount irrespective of the firm's profit, while external shareholders receive a fraction of the firm's profit, and thus bear the same fraction of the opportunity cost of favoritism. Hence, safe debt does not encourage favoritism in promotions, unlike equity. To see this, suppose that the firm funds investment by issuing safe debt, pledging to repay a fixed amount D to outside investors. Then, the entrepreneur will promote high-quality workers instead of low-quality ones if

$$[(N + \Delta)(1 - p)x]I - D > N(1 - p)xI - D,$$

that is, adopts the following promotion rule:

$$\Delta(1 - p)x \geq B.$$

Hence, when safe investment projects are funded via debt, the entrepreneur follows the same promotion rule as under full ownership, irrespective of the amount of external funds.

In contrast, equity and debt have the same impact on promotion decisions if they are equally risky, which occurs if the firm may either fail to produce anything or succeed in producing a positive amount, and shareholders have limited liability. In this case, both debt and equity distort promotions towards favoritism in the same way. To see this, consider a simplified version of the model in which both high and low-quality workers increase the unit productivity by the same amount Δx , so that the firm's productivity is $\pi \equiv (N + \Delta)x$, but this is realized with probability p_H if high-quality workers are promoted and p_L if the low-quality workers are promoted, with $p_H > p_L$. If the firm raises funds by issuing equity, the entrepreneur promotes according to merit if

$$\alpha \geq \frac{B}{(p_H - p_L)\pi} \equiv \hat{\alpha} \quad (10)$$

where $\hat{\alpha} \leq 1$ requires $B \leq (p_H - p_L)\pi$.

If instead the firm covers its funding need $I - A$ by issuing debt that promises to repay D upon success and 0 upon failure, the entrepreneur promotes high-quality workers if

$$(p_H\pi - w)I - p_H D \geq (p_L\pi - w + B)I - p_L D. \quad (11)$$

Hence the firm promotes high-quality workers if the payoff pledged to debtholders is sufficiently low:

$$D \leq \hat{D} \equiv \frac{[(p_H - p_L)\pi - B]I}{p_H - p_L}, \quad (12)$$

which implies that promotions are not meritocratic if investment I is large enough, i.e. if the firm is sufficiently indebted.

Recalling that D is the total cash flow pledged to debtholders, the model with risky debt maps one-to-one into the framework with equity. To see this, consider the maximum cash flow that can be pledged to outside financiers for promotions to be efficient. In an all-equity firm, this cash flow is defined by expression (10) taken with equality, while in a firm funded with risky debt it is given by expression (12) taken with equality. In both cases, the cash flow is given by the same expression, namely, $(1 - \hat{\alpha})\pi I$. Hence, in a debt-financed firm, the maximum indebtedness consistent with meritocratic promotions is $\hat{D} = (1 - \hat{\alpha})\pi I$.

Summarizing the above analysis, while issuing safe debt does not distort promotion decisions towards favoritism, issuing risky debt distorts such decisions in the same way as equity if the two claims feature the same payoff distribution for any given promotion rule. hence, the model developed in the previous sections applies also to firms funded with risky debt rather than equity.³

8 Conclusions

Careers are often shaped by favoritism even though this saps firm performance. We present a model where such non-meritocratic personnel policies result from the firm being controlled by shareholders whose interests are not well aligned with those of other shareholders: they may use promotions to extract private benefits of control rather than to maximize profitability. Their incentive to engage in such promotion policies also depends on the quality of corporate governance institutions, as these can limit the private benefits that those in control can

³In intermediate cases where debt is safe up to a threshold level and increasingly risky beyond such level, external debt financing tends to distort the firm's promotion decisions towards favoritism less than equity, as can be shown by assuming that the firm produces a positive surplus also in the low state or, equivalently, has some safe assets whose value can be pledged to creditors.

obtain from favoritism.

In our setting, both corporate governance and labor market competition can affect firms' promotion strategies and workers' job selection, as well as their decisions to invest in their human capital. We show that the share of meritocratic companies increases with the quality of corporate governance institutions. As a consequence, more talented workers have better career perspectives, being more likely to be hired and promoted. Hence, more workers will be willing to acquire education. Symmetrically, low-quality corporate governance enhances firms' incentives to indulge in favoritism, promoting unskilled workers. This negatively affects workers' career trajectories, as well as their incentives to acquire education.

Labor market competition also plays a role in workers' career paths and educational choices: we find that in economies where firms compete fiercely for workers, a further increase in labor market competition has two opposite effects: it raises wages upon promotion and thus workers' incentive to acquire skills, but also retention costs for firms, thus reducing the share of meritocratic firms. As a result, the equilibrium fraction of skilled workers may shrink.

Finally, we show that, when skill acquisition is endogenous, the model features multiple equilibria, with social welfare increasing in the share of meritocratic firms across equilibria. This highlights a new efficiency rationale for improvements in corporate governance quality.

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Appendix

Proof of Proposition 1

Proof. The equilibrium stake that satisfies the investors' participation constraint (4) may either violate or satisfy the entrepreneurs' incentive constraint (2). The first case occurs if the stake that meets the participation constraint is $\alpha_L^* < \hat{\alpha}$, which can be rewritten as a condition on B :

$$B > \frac{\Delta(1-p)x[(\pi_L - 1)I + A]}{\pi_L I} \equiv B^{**} \quad (13)$$

Hence, an entrepreneur extracting private benefits of control $B > B^{**}$ inefficiently promotes low-quality workers.

The opposite case occurs if the stake that meets the participation constraint is $\alpha_H^* > \hat{\alpha}$ which yields another condition on B :

$$B \leq \frac{\Delta(1-p)x[(\pi_H - 1)I + A]}{\pi_H I} \equiv B^*. \quad (14)$$

Hence, when extracting private benefits $B < B^*$, the entrepreneur promotes high-quality workers. Using (5), we can rewrite $B^* \equiv \Delta(1-p)x + \frac{\Delta}{N+\Delta}(\frac{A}{I} - 1)$.

Comparing the two cutoffs B^* and B^{**} , it is immediate to see that $B^* \geq B^{**}$, and the interval (B^{**}, B^*) is nonempty.

Let us now determine the entrepreneur's promotion strategy for any $B \in (B^{**}, B^*)$. To do so, we compare the payoffs $\alpha_H^* \pi_H I$ and $\alpha_L^* \pi_L I + BI$. As a result, the entrepreneur promotes high-quality workers in this interval if

$$\Delta(1-p)x > B$$

which is equivalent to $\hat{\alpha} < 1$ which we assume to be true. Hence, the promotion rule is such that the entrepreneur promotes high-quality workers if she extracts private benefits of control $B \leq B^*$ and low-quality ones otherwise.

■

Proof of Proposition 3

Proof. First, consider the case in which $q \leq m_H$, namely, workers expect a_M to be sufficiently high compared to the fraction of meritocratic firms in the labor market. Since workers hold homogeneous beliefs, no one will apply for jobs in meritocratic firms, so that the only reasonable belief is that $a_M = 0$. In this scenario, meritocratic firms will be unable to attract any worker and therefore will be inactive, so that in such equilibrium $q = 0$.

If instead $q \geq m_H$, namely, workers expect a_M to be sufficiently small with respect to the fraction of meritocratic firms in the labor market, then all of them will apply for these firms, so that $a_M = 1$ and $\theta = 1$. In this case only meritocratic firms will attract workforce and thus will be the only active firms in the labor market, so that in such equilibrium, $q = 1$.

■

Proof of Proposition 4

Proof. In the case in which workers' beliefs on the share of applicants to meritocratic firms ($\hat{a}_M$) is such that workers sort across firms according to their ability, and the equilibrium fraction is denoted as m_H^* . Workers have an incentive to acquire education if the marginal

benefit from doing so exceeds the marginal cost, i.e.

$$\underbrace{\frac{NI}{M} \left[\frac{q}{m_H^*} \frac{\Delta + N}{N} - \frac{1 - q}{1 - m_H^*} \right] px}_{\equiv \bar{\psi}} \geq \psi.$$

Letting $\bar{\psi}(m_H^*, N, \Delta, N, M, x, \bar{B}, p)$ denote the expected benefit from education with sorting, since $\frac{\partial \bar{\psi}(\cdot)}{\partial m_H^*} < 0$, workers will acquire education up to the point where the condition is met with equality, i.e. $\psi = \bar{\psi}(\cdot)$.

The equilibrium fraction of high-quality workers m_H^* can be derived from this equality. To determine the impact of corporate governance quality ($\frac{1}{\bar{B}}$) and labor market competition (p) on the equilibrium share of high quality workers, we can fix m_H^* and characterize the loci along which m_H^* is constant in the $(\frac{1}{\bar{B}}, p)$ -space.

First, rewrite the indifference condition (9) as follows:

$$\frac{1}{\bar{B}} = \frac{(N + \Delta)A}{(N + \Delta)(1 - p)Ax - (I - A)} \left(\frac{M\psi}{NIpx} + \frac{1}{1 - m_H^*} \right) \frac{m_H^*(1 - m_H^*)N}{[\Delta(1 - m_H^*) + N]\Delta}, \quad (15)$$

and equate its derivative with respect to p to zero in order to identify an internal extremum:

$$\frac{\partial(1/\bar{B})}{\partial p} = 0 \iff \frac{(N + \Delta)Ax}{(N + \Delta)(1 - p)Ax - (I - A)} \left[\frac{M\psi(1 - m_H^*) + NIpx}{1 - m_H^*} \right] = \frac{M\psi}{p}.$$

This equality yields the following quadratic equation

$$p^2 N I x + 2p(1 - m_H^*) - \gamma = 0 \quad (16)$$

with $\gamma \equiv \frac{M\psi(1 - m_H^*)[(N + \Delta)Ax - (I - A)]}{(N + \Delta)A}$. Since $p \in [0, 1]$, this equation delivers only one positive root:

$$p^* = \frac{\sqrt{(1 - m_H^* M \psi)^2 + N I x \gamma} - (1 - m_H^* M \psi)}{N I x}. \quad (17)$$

From (17), we see that $p^* > 0 \iff I - A \leq (N + \Delta)Ax$.

Moreover, $p^* < \frac{1}{2}$ if $(N + \Delta)Ax(NIx)^2 > -2(I - A)M\psi NIX(1 - m_H^*)$ which is trivially satisfied.

The root p^* in (17) is a minimum, since the second derivative of (15) with respect to p is positive:

$$\frac{\partial^2(1/\bar{B})}{\partial p^2} = \frac{[(N + \Delta)Ax]^3}{[(N + \Delta)(1 - p)Ax - (I - A)]^2} \left(\frac{M\psi}{NIPx} + \frac{1}{1 - m_H^*} \right) + \frac{(N + \Delta)AM\psi}{p^3 NIX} > 0.$$

which is strictly positive, Hence, condition (15) defines convex loci in the $(\frac{1}{B}, p)$ -space, so that

$$\frac{\partial(1/\bar{B})}{\partial p} \begin{cases} < 0 & \text{if } p < p^*, \\ > 0 & \text{if } p > p^*, \end{cases}$$

where $p^* > 0 \iff (N + \Delta)Ax \geq I - A$. ■

Proof of Proposition 5

Proof. Let us start with the case of $\hat{a}_M = 0$. In this scenario, no meritocratic firm is expected to be active, namely, $\hat{q} = 0$. Hence, any worker will acquire education if

$$(1 - q)px - \psi \geq (1 - q)px$$

which is never the case, since $\psi > 0$. Thus, in equilibrium, the fraction of high-quality workers is $m_H^* = 0$.

Consider now the case in which $\hat{a}_M = 1$. In this scenario, a worker will acquire education if

$$q \left[\frac{1}{N_H}(1 + \Delta) + \left(1 - \frac{1}{N_H} \right) \right] px - \psi \geq qpx \iff \psi \leq \Delta/N_H$$

which is the condition for education to be socially efficient that we assume to hold. Therefore, all workers will acquire education in this scenario and in equilibrium $m_H^* = 1$. ■