

CEO Identity and Labor Contracts: Theory and Evidence from CEO Transitions *

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Abstract

This paper assesses how CEO transitions shape labor contracts within firms. We argue that family links between a new CEO and his predecessor act as a commitment device for upholding implicit contracts with the workforce. We jointly model CEO choice and labor contracts, allowing for interactions with economic shocks. Our empirical findings confirm the two main predictions of the model. First, dynastically-promoted CEOs, relative to external CEOs, are associated to lower layoff risks but also to both lower entry wages and wage raises. Second, we show that differences, in terms of layoffs, between dynastic and non-dynastic CEO successions are significantly greater when labor markets are more frictional.

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1. Introduction

A growing body of literature studies the role played by CEO attributes in shaping employment policies within firms. However most of these papers have abstracted from the role played by CEO turnover in the design of labor contracts (Sraer and Themar, 2007; Mueller and Philippon, 2011; Bassanini et al., 2010). This is despite evidence from hostile takeovers that labor contract renegotiations are most likely to materialize when new executive management comes into the firm (Shleifer and Summers, 1987). The reason is that core elements of labor contracts are not explicitly contractible and thus rely heavily on implicit agreements the credibility of which depends on the attributes of the acting CEO. CEO changes may therefore lead to the breach of existing implicit agreements and to altogether new contractual terms with the labor force.

This is the first paper that takes into account these important distinctions. We assess theoretically and empirically how, at times of CEO transitions, the identity of the CEO successor shapes labor contracts within firms. We compare the evolution of unemployment risk and wages around CEO transitions depending on whether or not the CEO successor belongs to the same family as the departing CEO. Belonging to a dynasty of CEOs is one of the strongest signals of loyalty: family-promoted CEOs are likely to share their predecessor's attachment to the existing workforce and to eventually transmit similar preferences to future CEOs. The idea developed in this paper is that, in contrast to external professionals, CEOs promoted from within the family are bound by the employment promises of their predecessors and can credibly engage into new long term contracts.

Our empirical analysis relies on unique information on French firms' labor contracts coming from matched employer-employee data. We thus focus on the French economy, an intriguing case study for our purposes. Recent evidence by Bach (2010) estimates that more than one in five French employees in the private sector work in dynastically managed firms. This evidence is in line with recent empirical work highlighting the role played by family management in various countries, including the US (Astrachan and Shanker, 2003; Franks et al., 2010).

The main empirical challenge is that neither firms experiencing dynastic transitions nor firms experiencing transitions to external professionals can be considered random draws. Based on stylized facts that emerge from our data we develop a simple model of implicit contracts and dynastic management, in order to disentangle the dynastic commitment hypothesis from a simple self-selection hypothesis. Indeed, our model captures and differentiates both alternatives, since it allows for economic shocks and the existence of private benefits related to dynastic management to play a key role in determining the identity of the successor CEO and the intensity of layoffs. The theoretical framework draws on the literature on implicit contracts and job insecurity (Baily, 1974; Azariadis, 1975) but extends it to model CEO identity. The contribution to this literature is that we make explicit the mechanism through which these implicit contracts become credible.

We test the predictions derived from our model in a well-suited differences-in-differences setting. The first prediction we test is that family-promoted CEOs, relative to external CEOs, are associated with (i) lower layoffs of the incumbent workforce and (ii) lower wage raises for the incumbent workforce and lower entry wages for the arriving workforce. This is because in

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an implicit contract setting the firm offers a joint product relative to employment and wage insurance and workers need to be compensated for the greater termination risk faced after increased layoffs by external CEOs. It is difficult to explain this twofold result if it does not rely on a dynastic commitment hypothesis. Indeed, we maintain that competing theories - based on profitability shocks driving both CEO identity and restructuring needs - would fail to simultaneously account for higher unemployment risk and higher wages when an outsider becomes the CEO.

The second prediction differentiating the implicit contract hypothesis from alternative theories relates the relative benefits of family management to employees' work opportunities outside of the firm and to labor relations within an industry. Greater commitment to long-term contracts associated with family management should be more valuable in industries where (i) external labor markets are more frictional and (ii) labor relations are more conflictual. We test these predictions by interacting the identity of the successor CEO with our industry-specific indicators for labor market conditions and labor relations. We find evidence that differences between dynastic and non-dynastic CEO successions in terms of layoffs are significantly stronger whenever the external labor market is more frictional and labor relations are more conflictual. We view these findings as compelling evidence that the connection between CEO identity and labor contracts is due to the greater commitment to long-term contracts associated with dynastic management.

Finally we also show, as a robustness check, that differences in labor policies are (i) directly affected by private benefits from dynastic management, (ii) that these differences are not driven by the ex-CEO remaining on the board of the firm, (iii) are not driven by the composition of our control group, and finally (iv) are not driven by changes in the financial structure of the firm.

Our paper most directly contributes to the literature relating CEO attributes to employment policies. Sraer and Themar (2007) shows, in a cross-section of publicly listed French firms, that heir-managed firms offer lower wages but also shield their workforce from industry-wide shocks. It is not clear however whether these two stylized facts are linked to each other by an implicit contracting mechanism, let alone caused by the identity of the CEO, given that, in the cross-section, there cannot be any within-firm variation in either CEO identity or labor contracts. In contrast, our paper exploits time variation in both of these characteristics. This allows us to not only establish a direct link between dynastic management and the implicit contracts hypothesis but also to pinpoint the time at which commitment provided by CEO choice is of greatest value. In addition, our data allows us to test the hypothesis of implicit contracts more directly by distinguishing incumbent workers from new entrants in the firm.

Other recent papers have focused on the impact of large individual blockholders on human resource management. Mueller and Philippon (2011) finds that firms with such ownership structures are more numerous in industries where labor relations are more conflictual. Bassanini et al. (2010) shows, in a cross-section of French firms, that firms with large individual blockholders provide more employment security to their workforce. However, this definition largely ignores differences between dynastically and non-dynastically managed firms. Our results suggest that,

even in our sample of tightly held corporations, this distinction is of importance as trust and credibility are likely to be linked to personal ties rather than individual blockholdings *per se*.

Another strand of the literature argues that shareholders' interests can also be in conflict with those of employees. For instance, in Sweden, more entrenched managers have been found to offer higher wages and lower unemployment risk to their employees, thus sharing a rent created at the expense of shareholders (Cronqvist et al., 2009). Likewise, among US listed firms, it has been shown that employees that are geographically closer to headquarters are less likely to be fired (Landier et al., 2009).

Finally, our work also relates to the literature that explores the link between firm and worker characteristics. Bandiera et al. (2010) studies the endogenous matching between ownership types, workforce characteristics and labor contracts. Lippi and Schivardi (2010) shows that CEOs' enjoyment of private benefits from employment relationships with managers lead the former to keep the latter in office even though a better replacement is available. However, these papers focus mainly on the relation between the identity of the incumbent CEO and labor contracts as opposed to changes in CEO identity.

The remainder of the paper is organized as follows. Section 2 presents a detailed discussion of the dataset and of the variables used in the analysis. Section 3 presents stylized facts on the distinctive features of dynastic firm management prior to the CEO transition. Section 4 presents the theoretical and empirical framework that embeds the analysis. Sections 5 and 6 present the main empirical results as well as various robustness checks. Section 7 concludes.

2. Data Description

2.1. Data Sources

Our empirical analysis combines a unique dataset on French CEO transitions for the period 1997 to 2002 together with balance-sheet and matched employer-employee datasets for the period 1995 to 2004. As in Bach (2010), we identify CEO transitions on the basis of CEO names available in the DIANE dataset, a dataset covering all French corporations. Firm- and industry-level datasets are based on accounting data extracted from tax files, as in Bertrand, Schoar and Thesmar (2007). Finally, our main source of information on firms' labor contracts comes from matched employer-employee data. This dataset consists of mandatory employer reports of the gross earnings of each employee subject to French payroll taxes and is similar to the one used by Abowd, Kramarz and Margolis (1999). It covers all employed persons in the economy and provides information about an individual's age, gender, occupation, total net nominal earnings during the year, and hours worked. In addition, it contains information about whether the individual began or left his employment at the plant during the year.¹

¹In this dataset there is, however, no employee identifier that would allow us to re-trace the entire sequence of labor contracts across more than two periods.

2.2. Data Organization

Between 1997 and 2002, we compare monthly issues of DIANE in order to track CEO successions. Given the occurrence of a succession, we compare the spouse and maiden name of both the departing and the incoming CEO in order to track the dynastic status of each CEO transition. Whenever departing and incoming CEOs share the same name, we classify a CEO succession as dynastic. We exclude foreign-owned firms as well as firms in which the arriving CEO is another corporation.² Focusing on firms that experienced a single CEO succession between 1997 and 2002, we obtain a dataset of more than 14,000 observed successions, 20% of which could be identified as dynastic transitions.

We thus classify firms as dynastic on the basis of the successor CEO's name. This categorization has two important implications for our analysis. First, it defines dynastic firms on the basis of direct involvement of the family in running and directing the firm as opposed to a simple ownership perspective. Indeed, welfare paternalism, understood as an implicit labor contract, is generally thought by business and labor historians to be linked to the figure of the CEO rather than to the more general concept of closely held corporations.³ Second, the comparison group of non-dynastic CEOs might include not only family-directed firms that become non-family-directed, but also non-family-directed firms in which an external CEO replaces another external CEO. We will discuss and address this last issue later on.

For each firm experiencing a CEO transition, we extract employee tax files for the entire workforce. The workforce hierarchy is identified on the basis of the occupational status declared by the employer. For each of these employees we first identify their position within the firm, daily wages, occupational status and age. This information is available for each employee for the current and the previous year of observation. Note that the administrative data do not distinguish between different modes of employee exit such as redundancies or voluntary exits. Even such detailed information would be difficult to interpret given that institutional (labor and pension laws) and cultural conventions would lead employers to under-report redundancies. We aggregate workforce layoffs, hirings and promotions at the firm level and divide it by total workforce size at the beginning of the year. We also average the wage level, wage raises, and the skill and age composition of the firms' workforce. Within the overall workforce of the firm, we compute these measures separately for different hierarchical categories within the firm so as to explore potential heterogeneity in labor contracts according to the skill composition within the firm. The reader is referred to Appendix A for a detailed description of all the variables.

Our analysis focuses mainly on intermediate layers of the firm composed of non-executive, white-collar workers. Within this intermediate layer of non-executive management we then distinguish between high management such as engineers and administrators, and middle management composed of salesmen and product line managers. We mainly focus on intermediate layers of the workforce for two reasons. First, because white-collar workers are most likely to make firm-specific investments and are also those employees for whom a change at the very top

²For an in-depth discussion of the data we refer the reader to Bach (2010).

³James (2006) provides an analysis of paternalism in family firms in the iron industry; Moutet (1975) describes the characteristics of paternalism among French industrial firms at the beginning of the 20th century.

has potentially the largest consequences. Bhagat et al. (1990) in their study of hostile takeovers in the 1980s find that layoffs disproportionately affect white-collar employees. Second, at lower levels of the firm workforce, turnover is likely to be substantially over-estimated because of accounting conventions for the tax administration.⁴

Using our unique firm identifier we merge our sample of CEO transitions together with the corresponding balance-sheet and workforce characteristics for two years preceding and following the transition. We delete as outliers firm successions whose average OROA (Operating Return on Assets) during the two years prior to the transition falls outside a multiple of five of the interquartile range, and firm successions that involve another CEO transition within the next year following the first CEO transition. In each estimation we also delete as outliers firm succession observations in terms of the dependent variable using the same procedure.

3. Employment Policies in Dynastic Firms

3.1. Stylized Facts

This section aims at documenting the distinctive features of dynastic and non-dynastic firms in terms of employment policies prior to the CEO transition. Indeed, if incumbent CEOs can credibly commit to the identity of the successor CEO, we would expect them to be in a better position to offer long-term contracts to their workforce. More specifically, we explore three inter-related features of the employer-employee relationship prior to the CEO transition: layoff risks, compensation, and length of the employer-employee relationship.

Dynastic Firms and Employee Turnover Table 1 provides a first insight into employment policies in firms experiencing a CEO transition. It presents layoff rates of the management workforce averaged over the two years preceding the CEO transition separately for dynastic and non-dynastic firms.

[Table 1 Here]

Table 1 confirms the widely held view that dynastic management is relatively more friendly to incumbent employees. Prior to the CEO transition, dynastic firms lay off on average 9% of their workforce. Layoff rates in non-dynastic firms are therefore about 3 percentage points higher than layoff rates in dynastic firms, the difference being most important for the high management category.

Dynastic Firms and Wage Policies Tables 2 and 3 investigate wage policies in dynastic and non-dynastic firms prior to the CEO transition. They report two inter-related dimensions

⁴This problem is traditionally addressed by the French statistical institute INSEE through the construction of an employee panel based on social security identifiers. Since such a panel is constructed only for a random subsample of the population, we will use this information mainly as a robustness check.

of wage-setting policies: entry wages and wage dynamics.

[Tables 2 and 3 Here]

Table 2 reveals significant differences in entry wages across firms prior to the CEO transition. Newly hired employees in dynastic firms earn on average 12% less in terms of daily wages than their counterparts in non-dynastic firms. Differences in entry wages do not seem to be driven by the skill composition of the hired workforce, since these differences are large in magnitude and statistically significant across occupational categories. Theoretically, lower entry wages could be compensated by a steeper wage profile across time. However, Table 3 shows that wage raises of management in dynastic firms are on average 1 percentage point lower compared to wage raises in non-dynastic firms. The differences in wage dynamics are again similar and significant across management categories. Although this evidence is consistent with the greater use of long-term contracts in dynastic firms, alternative explanations are possible. Bandiera et al. (2010) show that endogenous matching between firms and managers might lead to similar patterns, i.e., more able and more risk-loving managers match with non-family firms in which compensation schemes offer steeper incentives together with higher fixed pay. We will come back to this alternative explanation later.

Dynastic Firms and Long-Term Relationships Table 4 explores the length of the employer-employee relationship in firms prior to a CEO change. To compute the tenure of the workforce we have to use a random extract of our initial data consisting of white-collar employees who were born in October of even-numbered years.

[Table 4 Here]

In Table 4 we find that the workforce in dynastic firms has, on average, 1.9 more years of tenure compared to the workforce in non-dynastic firms. Interestingly, the length of the employer-employee relationship differs most for the high management category. Higher management in dynastic firms has, on average, 9.8 years of tenure prior to the CEO change compared to an average of 6.5 years of tenure in non-dynastic firms. The difference is lower in magnitude for other categories but still economically and statistically significant. To check that similar patterns hold across our entire sample of CEO transitions, we use, in unreported statistics, age of the incumbent workforce as a proxy for tenure differentials. We find that the managerial workforce in dynastic firms is, on average, older in dynastic firms compared to non-dynastic ones.

Other Differences Table 5 provides descriptive statistics on firm balance-sheet characteristics prior to the CEO transition.

[Table 5 Here]

On average, we find that firms experiencing dynastic successions are significantly smaller, both in terms of employment and sales, than firms experiencing transitions to external professionals. Dynastic successions occur in firms with a workforce half the size of non-dynastic ones, on average. This is in line with previous findings by Bennedsen et al. (2007) that indicate that dynastic firms in Denmark are four times smaller in terms of assets than non-dynastic ones. Firms experiencing a dynastic transition also do significantly better in terms of profitability prior to the CEO change. The average profitability of dynastic firms during the two years preceding the transition is 1.3 percentage points higher than the average profitability of non-dynastic firms. Such evidence is consistent with several explanations. It might hint at the endogeneity of the timing of the transmission decision (Bennedsen et al., 2007) or possibly at the existence of significant founder effects (Adams, Almeida and Ferreira, 2005).

3.2. *Employment Policies and CEO Transitions*

Figure 1 provides a first insight into changes in employment policies following a change of CEO. In Figure 1 we plot the trade-off between job security in terms of layoff rates (left-hand side) and wage dynamics in terms of wage raises (right-hand side) for the workforce of dynastic and non-dynastic firms for each of the two years before and after the control transition.⁵

[Figure 1 Here]

As noted before, firms experiencing dynastic successions structurally differ with respect to firms experiencing non-dynastic transitions even prior to the transition. Both layoff rates and wage raises are significantly lower before control transitions for dynastic firms compared to non-dynastic ones. One also notices the existence of a structural increasing trend in layoff rates and wage raises around the time of succession. However, the trajectories of layoff rates and wage raises appear parallel for both groups before the succession.

At the time of a CEO transition, baseline differences in labor policies are reinforced through the choice of the successor CEO. Indeed the difference in average layoff rates jumps from 3 percentage points before the transition to over 5 percentage points after the transition. A naive interpretation of these figures therefore suggests that the dynastic identity of the CEO successor reduces layoff rates by about 2 percentage points. The constant difference following the succession suggests that the change in layoff behavior occurs right after the succession and is persistent (up to two years after the succession). At the same time average wage raises of the management workforce also displays a jump after the control transition. The difference between the two groups increases from 1.5 percentage points to over 2.5 percentage points for the high management category. These differences also appear across workforce categories.

⁵As in Bennedsen et al. (2007), we exclude the transition year itself.

These descriptive statistics would suggest that observed differences in labor policies between dynastic and non-dynastic firms prior to the transition are reinforced under the successor CEO. In other words family-promoted CEOs might inherit not only control of the firm but also a set of long-term commitments that affects the scope of firm restructuring.

4. Implicit Contracts and Dynastic Firms

4.1. Theoretical Framework

Model Setup The main empirical challenge is that neither firms experiencing dynastic transitions nor firms experiencing transitions to external professionals can be considered random draws. This section builds on the stylized facts presented in the previous section to develop a simple model of implicit contracts and dynastic management, in order to disentangle the dynastic commitment hypothesis from a simple self-selection hypothesis. Indeed, our model captures and differentiates both alternatives, since it allows for economic shocks and the existence of private benefits related to dynastic management to play a key role in determining the identity of the successor CEO and the intensity of layoffs.

The theoretical framework draws on the literature on implicit contracts and job insecurity (Baily, 1974; Azariadis, 1975) but extends it to model CEO identity. The contribution to this literature is that we explicit the mechanism through which these implicit contracts become credible. CEO attributes provide a natural commitment mechanism to the extent that such attributes are easily observable but not easily manipulable. This feature also allows us to distinguish the independent roles of CEO choice and economic shocks in determining wages and unemployment risk.

To keep the model tractable, we abstract from incentive considerations linked to the use of implicit contracts.⁶ It offers two intuitive predictions. In the cross-section, equilibrium wages are lower in firms with large private benefits from dynastic management. This cross-sectional difference should also hold within a panel framework: firms that experience a non-dynastic succession should increase wages more than those experiencing a dynastic succession. Second, the expected level of layoffs after a CEO change is decreasing in founders' private benefits, and the more so in industries where workers are a) relatively more affected by layoffs and b) "tough" in wage negotiations.

Timeline Consider a firm that is run and owned by a CEO and that employs labor to generate earnings. As shown in Figure 2, the model is composed of three periods ($t=1,2,3$) and two overlapping generations of workers ($g=A,B$) each living for two periods ($p=young,old$). In the first period the CEO and the first generation of workers A decide on a wage contract w_A and the firm produces constant output Q . The workforce can then be interpreted either as the sum of homogeneous workers or as a reduced form aggregation of heterogeneous workers, while

⁶The relationship between job security and worker incentives can be found in Jeon and Shapiro (2007). Intuitively, this type of mechanism reinforces the value of long term commitment.

the object of the negotiation is the total wage bill. This also reflects the fact that individual labor contracts are usually embodied in higher-level negotiations within the firm. In addition we assume that wages are sticky and therefore set for both periods at the level w_g initially negotiated by each generation.⁷

Between period 1 and period 2 family shareholders decide on whether to continue managing the firm after observing a shock λ_A that affects the productivity of incumbent workers A . One way to think about this is to consider human capital as embodied in a generation of workers, so that a technological change may render obsolete only workers embodying a particular vintage of human capital. In the second period this shock creates incentives to lay off part of the incumbent workforce L_A and a new generation B of workers arrives. Firm size is very crudely chosen in this set-up: we assume that each generation is recruited as a whole with a fixed number of employees but later on can be pruned depending on how productive it is. Therefore, we abstract from the possibility, suggested by Bach (2010), that non-dynastic firms might choose a higher scale. While this matters for unemployment in macroeconomic terms, we focus here on the direct, more microeconomic effect of dynastic firms on unemployment risk. We could include the scale choice in the model, though, by saying that at the time of recruiting a new generation of workers, employers jointly decide on the number of employees and wages. Assuming constant returns to scale, this would mean that the only constraint on scale choice is the potential for higher firing costs in the next period: non-dynastic employers would then be less reluctant to recruit more since they also bear lesser costs of firing some of the workforce later on. In that sense, the observation that dynastic firms are smaller only confirms the claim of this paper that dynastic firms are bound by implicit contracts with the workforce.

In the third period a new productivity shock λ_B occurs, *i.i.d.* with respect to the one taking place between periods 1 and 2, and the CEO decides again on whether the incumbent generation of workers should be laid off L_B . For an in-depth discussion and derivation of the model the reader is referred to Appendix C.

[Figure 2 Here]

Worker Preferences Each generation of workers has to accept the proposed wages. This is why we posit that employers face an employee participation constraint of the following form :

$$w_g + \delta[(1 - E(L_g))w_g + E(L_g)\underline{u}] \geq \underline{w} \quad g = A, B \quad (1)$$

where δ is the discount rate, $E(L_g)$ is the expected percentage of workers laid off in their second period of existence, \underline{u} is the utility level enjoyed by laid-off workers, and \underline{w} represents the structural “toughness” of the workforce as a negotiating party. In order for the model to provide non-trivial insights, it is necessary to put some bounds on those last two parameters:

$$\underline{w} > \underline{u}(1 + \delta) \quad (1a)$$

⁷All results of the three-period model can be generalized to an N period setting.

$$\underline{w} < 1 + \delta \underline{u} \quad (1b)$$

Condition (1a) states that the outside utility \underline{u} enjoyed in case of a layoff cannot be too high, while condition (1b) states that the toughness of the workforce \underline{w} cannot be significantly higher than the maximum productivity realized in the second period of labour contracts. The underlying assumption in equation (1) is that private benefits B_1 from dynastic management are common knowledge and are therefore taken into account by the workforce through their effect on the expected level of layoffs $E(L_g)$. Note that the sticky wage assumption is not new in the literature on the macroeconomics of unemployment. Moreover, even in the presence of perfectly flexible wages, there would still be fewer worker exits in dynastic firms if the corresponding private benefit also reflected non-pecuniary value attached to working with personally-known individuals. In this case, wages would decrease less in case of a bad shock in dynastic firms, thus keeping workers from going and working elsewhere. Another implicit assumption is that the workforce behaves as a risk-neutral entity. However, intuitively, assuming workers are risk-averse would only reinforce their willingness to trade wages for protection against layoff risks.

Profit Function Each generation produces for two periods. In the first period of each generation, the firm has a constant amount Q of sales produced by a measure 1 of this generation. However, the firm can minimize costs by reducing wages w_g . The profits generated by an incoming generation of workers is given by:

$$\pi(w_g|p = young) = Q - w_g \quad (2)$$

In the second period of each generation, the incumbent workforce is subject to a productivity shock λ_g that is a random variable determined between each period of existence and which determines the subsequent output of this generation of workers.⁸ The firm can now lay off a fraction L_g of its incumbent workers between 0 and 1. Linear lay off costs are linked to long-term bonds, i.e. B_2 , that make it harder for dynastic-minded owners to lay off old-time but unproductive workers. Profits derived from the incumbent generation of workers in their second period of work have the following form:

$$\pi(w_g|p = old) = \lambda_g(1 - L_g) - w_g(1 - L_g) + B_2(1 - L_g) \quad (3)$$

Profits generated by each generation of workers $\pi_{g,p}$ are related to firm's total profits Π_t in the following way:

$$\begin{cases} \Pi_1 = \pi(w_A|p = young) \\ \Pi_2 = \pi(w_A|p = old) + \pi(w_B|p = young) \\ \Pi_3 = \pi(w_B|p = old) \end{cases} \quad (4)$$

⁸It follows a uniform distribution with support $]0; 1[$

Succession Rule Before the successor CEO decides on the number of layoffs for the first generation of workers, the initial owners of the firm have to decide whether they will retain ownership of the firm. In our setting, management and ownership cannot be separated: switching CEOs means switching ownership as well. We also assume that the family will face an additional fixed cost F if it decides to keep on managing the firm, whatever its expected profitability. This reflects risks specific to family firms such as sudden death of the founder, absence of qualified heirs, infighting within the family, inheritance taxes, etc. Given that owners do not derive any utility from external CEOs pandering to the workforce in period 2, they would choose the buy out offer that provides the greatest monetary benefits: in these terms, the highest bidder should be the one who does not enjoy any private benefits from running the firm. Note that when there is a dynastic transition $B_1 = B_2$, whereas in the case of a non-dynastic transition $B_2 = 0$. Conditional on the absence of a family shock, the successor CEO is therefore dynastic if

$$\begin{aligned} \Pi_{2+3}(B_2) &\equiv \pi(w_A|p = old) + \pi(w_B|p = young) + \pi(w_B|p = old) \\ \Pi_{2+3}^*(B_1) - F &> \Pi_{2+3}^*(0) \end{aligned} \tag{5}$$

where $\Pi_{2+3}^*(\cdot)$ denotes the equilibrium profits of the firm in periods 2 and 3 and B_1 denotes the private benefits of the initial owners in period 1. Private benefits enhance the utility of dynastic owners because of some attachment to a tradition; however, as can be seen from equation (3), such a long-term bond comes with a cost, since it is more difficult to lay off old-time but unproductive workers. The extra lay off costs incurred by the dynastic CEO provide a micro-foundation for the reputation that the founding family has in the eyes of the workforce in the initial wage bargaining. This in turn provides one last argument for family owners to keep the firm: their leadership allows them to obtain more favourable wage terms in bargaining with future generations of workers. Finally, in order to make sure that the cost of dynastic successions F does not prevent any family succession from taking place, one has to assume the following:

$$F < \Pi_{2+3}^*\left(\frac{w}{1+\delta}\right) - \Pi_{2+3}^*(0) \tag{1c}$$

Dynastic Transitions, Wages and Layoffs We solve the model by backward induction.

Equilibrium in Third Period: In the third period, productivity shock λ_B is revealed and the CEO chooses lay offs L_B given fixed w_B . It is convenient to divide the problem into three different regions for λ_B .⁹

1. $1 > \lambda_B \geq w_B - B_2$ The marginal productivity of workers is greater than the wage so that there are no layoffs: $L_B^* = 0$.
2. $w_B - B_2 > \lambda_B > 0$ Workers are remunerated above their marginal productivity so that all employees are fired. It is increasing in wages w_B set in the second period, decreasing with

⁹The problem is formally defined in Appendix C.

productivity λ_B and private benefits B_2 .¹⁰ Intuitively, greater attachment to workers (high B_2) makes it more likely to keep them in the firm in spite of their low productivity.

Equilibrium in Second Period: In the second period the CEO chooses w_B and L_A , taking as given the revealed productivity shock λ_A and the level of private benefits B_2 . Again L_A is determined according to two different regions for λ_A and w_A . The optimal level of lay offs is increasing in wages w_A set in the first period, decreasing with productivity λ_B and private benefits B_2 .

The CEO chooses wages of the second generation w_B so as to maximize total profits from this generation:

$$\begin{aligned} \max \quad & Q - w_B + \delta E(\pi(w_B)) \\ \text{s.t.} \quad & w_B + \delta[(1 - E(L_B))w_B + E(L_B)\underline{u}] \geq \underline{w} \end{aligned} \tag{6}$$

In Appendix C, we prove that second-generation workers' total expected gains from accepting an offer are strictly increasing in the wage they receive, so that their participation constraint binds (remember that employers are always happier if wages are lower). The intuition for this result is that wages are the benefit that workers want to protect by avoiding layoffs; therefore, workers' total utility increases in the wage even as this reduces the probability of keeping it. We also prove that second-generation workers' total expected gains from accepting an offer are strictly increasing in B_2 and the more so as \underline{w} is high and \underline{u} is low. The reason is that workers know that dynastic managers will be less tempted to fire employees due to higher initial wage demands. Regarding the first generation of workers in period 2, we obtain the same intuition as that for the second generation in period 3.

Equilibrium in First Period: In period 1 the CEO first chooses w_A , then λ_A is revealed and the CEO chooses his successor. Between period 1 and period 2 the decision to retain ownership is taken. A dynastic transition is more likely if either the productivity shock or the magnitude of private benefits from dynastic management is high. The relative profit condition defined in equation (5) defines a cut off $\underline{\lambda}(B_1, w_A)$, increasing in B_1 and decreasing in w_A , above which there will always be an outside transition. This cut off then defines an ex-ante probability $p(B_1, w_A)$ that the firm will stay within the family conditional on the non-occurrence of the family firm termination risk.

In period 1 the CEO again anticipates that wage setting in the first period has a direct effect on profits in the second period via the cost of restructuring. He will therefore set first period

¹⁰Recall that private benefits from management can change only between period 1 and period 2. B_2 is therefore also the private benefit of the owner in period 3.

wages so as to maximize total profits in periods 1, 2 and 3.

$$\begin{aligned}
 \max \quad & \Pi_{1+2+3}(w_A) = Q - w_A + \delta[p(B_1, w_A).E(\Pi_{2+3, B_2=B_1}^* - F) \\
 & + (1 - p(B_1, w_A)).E(\Pi_{2+3, B_2=0}^*)] \quad (7) \\
 s.t. \quad & w_A + \delta[(1 - E(L_A))w_A + E(L_A)\underline{u}] \geq \underline{w}
 \end{aligned}$$

As for the second-generation problem, we prove in Appendix C that first-generation workers' total expected gains from accepting an offer are strictly increasing in B_1 and the more so as \underline{w} is high and \underline{u} is low.

Combining these results we obtain the following predictions.

Proposition 1 There are fewer layoffs of both first- and second-generation workers following a dynastic CEO transition.

Proposition 2 Wages set before the occurrence of a CEO transition decrease with the likelihood of a dynastic transition.

Proposition 3 Following an outside CEO transition, wages of the new generation of workers are higher than if the founding family stays in place after period 1.

Proposition 4 Family successions are more likely to happen following a good productivity shock λ_1 .

Proposition 5 Family successions are more likely to happen as the “toughness” of labor relations increases or as labor markets become more frictional. The corollary is that the correlation between family successions and productivity shocks vanishes when considering industries in which labor markets are frictional and in which labor relations are “tough”.

Proposition 6 There are relatively fewer layoffs following a family CEO transition in industries where labor markets are frictional.

Proposition 7 There are relatively fewer layoffs following a family CEO transition in industries where workers' bargaining power is higher.

Propositions 1, 2 and 3 highlight how dynastic management is linked to the use of implicit contracts with the workforce. Private benefits from dynastic management allow the initial owners to credibly commit to insure employees against the risk of lay offs in exchange for lower wages. The fact that the commitment is credible follows from the extra lay off cost incurred by the initial owners. Proposition 4 suggests that a portion of the average effect of family transitions on layoffs and wages is potentially driven by self-selection rather than the effect of

dynastic commitment per se. However, Proposition 5 suggests that in frictional/conflictual labor markets this self-selection is attenuated by the higher per se commitment benefits of dynastic management. This is consistent with our sample in which dynastic transitions occur, for instance, significantly more in industries where labor markets are more frictional. This is also consistent with empirical evidence by Mueller and Philippon (2011) who show that family ownership in France is more prevalent in industries countries in which labor relations are difficult.

This means that the empirical predictions of propositions 6 and 7 are not driven by self-selection but by the commitment effect of dynastic CEOs to labor contracts. Intuitively these propositions suggest that the extra-differential in layoffs observed in more frictional/tougher markets is linked only to the commitment value of dynastic management but not to a productivity shock hypothesis.

4.2. Empirical Framework

Differences in Differences We now turn to the empirical framework for assessing the impact of dynastic CEOs on the employment policies of firms. Since the centerpiece in our models' prediction relates to layoffs, we also use it to illustrate our empirical framework. Let j denote the workers in firm i at time t . In the absence of a dynastic succession we have:

$$\begin{cases} Y_j = Y_{0j} = 1, & \text{if worker } j \text{ is unemployed;} \\ Y_j = Y_{0j} = 0, & \text{if worker } j \text{ is employed;} \end{cases} \quad (8)$$

Alternatively the CEO succession is dynastic and we denote workers' outcomes by $Y_j = Y_{1j}$. Note that only one of these outcomes is actually observed, even though all outcomes exist. Then denote the layoff rate in firm i at time t :

$$\begin{aligned} E[Y_{0j}|i, t], & \quad \text{in the case of a non-dynastic transition;} \\ E[Y_{1j}|i, t], & \quad \text{in the case of a dynastic transition;} \end{aligned} \quad (9)$$

The differences-in-differences approach assumes that:

$$\begin{aligned} E[Y_{0j}|i, t] &= \beta_t + \gamma_i \\ E[Y_{1j}|i, t] &= \beta_t + \gamma_i + \delta = E[Y_{0i}|i, t] + \delta \end{aligned} \quad (10)$$

Hence, layoff rates in a firm experiencing a CEO transition are determined by a time fixed effect β_t equal for all firms, a firm fixed effect γ_i equal for all periods, and the impact of CEO identity that appears when a firm experiences a dynastic transition. In our setting we have two groups of firms experiencing CEO transitions and both groups are observed two years before and after the transition takes place. This allows us to obtain the differences-in-differences estimator:

$$\begin{aligned}
 & \{E[Y_j|i, t = t + 1, t + 2, s = dyn] - E[Y_j|i, t = t - 1, t - 2, s = dyn]\} - \\
 & \{E[Y_j|i', t = t + 1, t + 2, s = ext] - E[Y_j|i', t = t - 1, t - 2, s = ext]\} = \quad (11) \\
 & \{\beta_{t+1,t+2} - \beta_{t-1,t-2} + \delta\} - \{\beta_{t+1,t+2} - \beta_{t-1,t-2}\} = \delta
 \end{aligned}$$

In other words, controlling for firm fixed effects, if two firms would have had the same type of CEO transition, they would also have experienced the same changes in layoff rates. Although this identifying assumption is non-testable, one can discuss its relevance. Indeed, judging from graphical inspection, the differences-in-differences framework seems pertinent since (i) both groups of firms were on similar time trends before the CEO transition, and (ii) the difference in employment policies occurred through a level shift just after the CEO transition.

This simple difference-in-difference methodology can be extended into a regression framework including a vector of firm-specific characteristics. This allows us to render more plausible the assumption that time differences in the outcomes are identical across transition types. We therefore estimate the following model by OLS:

$$[\bar{Y}_{t+1,t+2} - \bar{Y}_{t-1,t-2}]_i = \alpha \text{Dynastic}_i + X_{it-1}\beta + \epsilon_{it} \quad (12)$$

where we compare the average layoff intensity in firm i , during the two years following a transition, $\bar{Y}_{t+1,t+2}$, with the average layoff intensity in firm i during the two years preceding a transition $\bar{Y}_{t-1,t-2}$. Dynastic_i is a binary indicator of whether the transition was dynastic, and X_{it-1} are controls measured one year prior to the succession. To test Propositions 2 and 3 we will use wage information, constructed on the same principle, as a left-hand-side variable.

All specifications include controls for observable differences likely to affect both the identity of the successor CEO and restructuring needs. First of all, estimation includes the usual balance-sheet characteristics such as firm size, profitability and age as well as industry, business group, and year fixed effects. Second, we also add workforce characteristics in terms of age and organizational structure, which seem to significantly differ across both groups. These workforce characteristics affect, via legal obligations, the possibility for newly arrived CEOs to restructure the firm.¹¹ Finally, analysis of the data reveals that there is a high degree of mean reversion in the level of restructuring: firms that undergo few episodes of restructuring before the succession are more likely to have greater restructuring after the succession. This is why we control in our regressions for the average level of restructuring pre-succession. All specifications are estimated using heteroscedasticity robust estimation techniques.

Endogeneity and Differential Predictions On the basis of Proposition 4 of our theoretical framework, we recognize that a potential concern is that precisely **at** the time of a transition economic shocks arise determining both the identity of the new CEO and his labor policies. Insofar as these shocks are not captured by either time or firm fixed effects, part of the observed correlation between dynastic CEOs and labor policies is due to a self-selection effect. Note,

¹¹During the analyzed period the “Contribution Delalande,” for instance, penalized firms that laid off workers over the age of 50.

however, that, even in this case, our implicit contract hypothesis could still be identified with respect to changes in wages of the arriving workforce. Indeed, while higher layoff rates on the side of external CEOs might be consistent with adverse economic shocks, such events are also likely to drive wages down or at the very least leave them unchanged. Thus, the self-selection hypothesis is not able to simultaneously account for increased layoffs and increased wages.

Another argument is to draw on differential predictions from the theoretical model and put them empirically to the test by relating the relative benefits from family management to labor market frictions and labor relations within an industry. This approach aims to provide an additional piece of evidence consistent with a model where family-promoted CEOs are committed to upholding long-term labor contracts, while being hard to rationalize with a story of self-selection. More precisely, if the differential between dynastic and non-dynastic CEOs in terms of labor policies is driven by economic shocks, then such a differential (*i*) should not vary as a function of industry labor market characteristics (Proposition 6), (*ii*) and should not vary as a function of labor relations in the industry (Proposition 7).

We test this prediction by splitting our industries into two categories according to these dimensions. To do so we construct labor market characteristics and labor relation characteristics on the industry level and define industry m to be *Frictional* or *Conflictual* if it lies above the median of the industry distribution of the underlying variable. We then include the *Frictional* and *Conflictual* industry indicator and its interaction with the transition type in the estimated equation:

$$\begin{aligned} [\bar{Y}_{t+1,t+2} - \bar{Y}_{t-1,t-2}]_i &= \alpha_1 \text{Dynastic}_i + \alpha_2 \text{Frictional}_m + \\ &\alpha_3 \text{Dynastic}_i \times \text{Frictional}_m + X_{it-1}\beta + \epsilon_{it} \end{aligned} \quad (13)$$

Alternatively, we have:

$$\begin{aligned} [\bar{Y}_{t+1,t+2} - \bar{Y}_{t-1,t-2}]_i &= \alpha_1 \text{Dynastic}_i + \alpha_2 \text{Conflictual}_m + \\ &\alpha_3 \text{Dynastic}_i \times \text{Conflictual}_m + X_{it-1}\beta + \epsilon_{it} \end{aligned} \quad (14)$$

If differences in labor policies between dynastic and non-dynastic firms are driven by economic shocks and not by the value of dynastic management, then we should not expect α_3 to be statistically different from 0. Evidence inconsistent with this prediction would make us more confident that we are indeed capturing the effect of dynastic management and its associated commitment value.

Measurement Issues In the model we assume that switching CEOs means switching ownership as well. In the data, however, we only observe CEO identity but do not track ownership status. We will address this issue in our robustness checks but it is useful to also conceptually

discuss this potential data limitation. The case in which a family member is followed by another family member poses no major conceptual problem. When an external CEO transition takes place several cases may arise:

1. Family management and ownership switch to external;
2. Family management switches but ownership remains with the family;
3. Non-Family management switches but ownership remains with the family;
4. Non-Family management switches to family management but ownership remains with the family;
5. Non-Family management switches and dispersed ownership switches to family control;
6. Non-Family management switches and ownership remains dispersed.

Descriptive evidence from Denmark suggests that the first case by far is the most common among closely-held firms (cases 1 to 4): Bennedsen et al. (2004) report that when a firm is controlled by a family or an individual there are more than 90% chances that the CEO is drawn from the population of shareholders. Dispersed ownership (cases 5 to 6) is negligible in our sample: Bach (2010) finds in a similar sample that only about 14% of CEO successions take place in listed firms, most of which are closely-held according to Sraer and Thesmar (2007). Thus, we argue that the other cases not only are a minority but that they should bias our results **against** finding any difference between treatment and control groups. In the cases in which management changes but the family remains the ultimate owner the intuition is that the family can still intervene to enforce long term labor contracts. Another reason is that the external CEO was selected by the family-shareholders because of similar management preferences to the shareholders, i.e. loyalty filters (Akerlof, 1983). In the last case CEOs cannot ex-ante propose implicit contracts to the workforce and no difference should arise in terms of wages.

5. Differences-in-Differences Analysis

5.1. *Dynastic Management and Renegotiation*

In Table 6 we first investigate whether the identity of the successor CEO affects layoff rates of the workforce. According to our central hypothesis, dynastically promoted CEOs should be more constrained by contracts signed under the previous management and should thus be less likely to engage in restructuring the workforce. Consequently, the intensity of workforce layoffs should be lower under dynastic transitions compared to non-dynastic ones.

[Table 6 Here]

Table 6 confirms visual inspection of the differences-in-differences plots: layoff rates increase less in the case of dynastic transitions. Column (1) indicates that transitions from one family member to another decrease layoff rates of management by 3.3 percentage points, on average, compared to transitions to external professionals. In terms of magnitude, family-promoted

CEOs are therefore associated with an approximately 25% decrease in unconditional layoff rates following CEO transition. The impact of the successor CEO's identity dwarfs other economic variables such as the profitability of the firm. Indeed, an increase by one standard deviation in firm profitability before the transition reduces layoff rates only by 1.1 percentage points (.38*.028). Columns (2) and (3) suggest that the less volatile employment relationship related to dynastic transitions extends to the different managerial levels in the firm. Note, however, that graphical analysis suggests a lower layoff rate of around 2 percentage points, compared to 3.3 percentage points in our multivariate analysis. This difference may not be statistically significant. Yet, if it were significant, it would point to the existence of confounding factors driving the difference in evolution of the two groups toward zero, thus leading to an underestimation of the effect of family successions.

Finally, note that control variables have the expected sign and are generally statistically significant. Age of the firm and of the workforce reduce layoff rates at the moment of a CEO transition. Greater profitability prior to the transition is also associated with less restructuring of the workforce. Only total employment and the management to workforce ratio, as proxies for the scope for restructuring, are associated with higher restructuring during a CEO transition.

5.2. Dynastic Management and Wage Dynamics

Table 7 investigates costs associated with increased layoff risks in terms of wage compensation for the incumbent workforce (col. 1) and in terms of entry wages for the arriving workforce (col. 2). According to Propositions 2 and 3, the higher turnover in non-dynastic firms should also be associated with greater wage compensation in these firms, since external CEOs will need to compensate workers for the greater termination risk of their employment (Bailly, 1974).¹²

[Table 7 Here]

Col. 1 in Table 7 shows that external transitions are associated with a significant increase in daily wage raises on the order of 7.2 percentage points. However, this increase in wages is less pronounced in the case of dynastic transitions. Dynastic transitions reduce wage raises associated with control transitions by 1.9 percentage points. This difference is highest for the high management category where dynastic transitions lower wage raises by 2.1 percentage points. These differences are statistically significant and valid across management categories. Col. 2 in Table 7, on the other hand, investigates how entry wages evolve at times of control transitions. Once the dynastic or non-dynastic nature of the management is revealed, entry wages should be lower in dynastically managed firms. This is confirmed, since firms experiencing a non-dynastic transition have to pay, on average, a 3.5% premium on wages to newly hired managers. The greater impact of dynastic CEOs on entry wages compared to incumbents' wages could occur for two reasons. First, the incumbent workforce in non-dynastic CEO transitions is to some

¹²Although our model assumed sticky wages, one could extend it to have a generation of workers live for three periods and re-contracting initial wages after the CEO change.

extent locked into existing contracts. Second, dynastic CEOs can use the long term credibility generated by the CEO transition to write long-term contracts for the newly hired workforce. Higher entry wages could also be consistent with external CEOs hiring more competent or less risk-averse managers (Bandiera et al., 2010). However, using this hypothesis it is hard to account for the simultaneous increase in wages of the incumbent workforce. Taken together, our results therefore point to differences in management styles consistent with our commitment hypothesis.

Overview In summary, we find that the differences in labor policies observed prior to the CEO transition are reinforced at the moment of the CEO change. Family-promoted CEOs are associated not only with significantly lower layoff rates of the workforce compared to external CEOs, but also with a greater negative wage differential of the incumbent and hired workforce.

Taken together, these findings are consistent with our hypothesis of the greater commitment of family-promoted CEOs to long-term contracts while hard to rationalize relying only on self-selection. Indeed adverse economic shocks can lead to non-dynastic transitions but should not be associated to significantly larger wage increases.

6. Differential Predictions

The central hypothesis developed in this paper is that dynastic management of a firm is associated with less restructuring of the workforce. The model introduced in Section IV, however, showed that profitability shocks, not captured by either the DID framework or the control variables, could invalidate our analysis. We now turn to predictions about the link between CEO identity and restructuring that are consistent only with our dynastic management hypothesis.

6.1. *Dynastic Management and Labor Market Conditions*

If the differential between dynastic and non-dynastic CEOs in terms of restructuring is driven by long-term contracts signed under the previous management, then such a differential should be stronger whenever external labor markets in the industry are more frictional. Conversely, if differences between dynastic and non-dynastic transitions arise due to unobserved profitability shocks, then these differences should not be affected by structural labor market conditions in the industry.

We hypothesize that dynastic commitment, understood as implicit unemployment insurance, should be more valuable to workers in industries where the probability to stay unemployed once laid off is high. Although industry labor market conditions in a given year are very likely to be correlated with the shock affecting the transition firms, this is less likely when computing these measures (*i*) on a long time horizon and (*ii*) on the universe of French firms.

We construct information on industry labor market frictions by computing the probability for an employee, once laid off, to be unemployed after X months, where the time horizon X is successively defined as being 3, 6, 12 and 24 months. In order to construct this measure we

use information from the universe of panel workforce files for the period 1994-2001. We focus on men between 25 and 54 years of age who leave a firm in which they were employed for at least 3 consecutive years. The panel then allows us to identify the fraction of employees who have not found stable employment after a certain time.¹³ Again, we classify frictional industry labor markets as industries with above median industry averages in terms of the fraction of the workforce that remains unemployed after a certain time horizon.

Table 8 estimates the differences-in-differences model but interacts the identity of the successor CEO with the variable classifying an industry labor market conditions as frictional or not. Columns (1) to (4) successively define the classification for being unemployed after 3, 6, 12 and 24 months.

[Table 8 Here]

Column (1) confirms our hypothesis about the higher value of long-term commitment in industries in which it takes longer to find a new employment. Indeed, the dynastic identity of the successor still has a negative and statistically significant impact on layoff rates. However, the differential between dynastic and non-dynastic firms' employment policies is larger in industries where labor markets are frictional. On top of the baseline differential between dynastic and non-dynastic CEOs, the former tend to lay off an additional 1.7 percentage points less than their non-dynastic counterparts in markets with difficult labor market conditions. These differences are significant and of similar magnitude in the different specifications. Interestingly, frictional industries in terms of job search have no direct impact on layoffs at the time of a transition. This indirectly confirms that the classification is not correlated with firm-specific shocks affecting layoff needs but with intrinsic industry labor market characteristics. Finally, these results also contradict the view that layoffs in external transitions might be linked to voluntary exits. Indeed if this was the case then we would expect these voluntary exits to be higher in labor markets which are not frictional. Our results are consistent with Agrawal and Matsa (2010) who show, using a sample of publicly listed US firms, that the positive correlation between legally mandated unemployment benefits and firm leverage is stronger for firms where workers face greater unemployment risk and that are more likely to fire workers in adversity.

6.2. Dynastic Management and Labor Relations

A second discriminating prediction between our alternative theories comes from the role played by labor relations within an industry.

We obtain information on French employment relations through the 1998 REPOSE survey. This survey collects evidence about numerous aspects of employment relations. The data cover all economic activities and are representative of French firms with more than 20 employees. We construct labor relation variables at the industry level and classify markets as conflictual if the industry average is above the median of the distribution in the economy.

¹³Stable employment being defined as any new employment in which the worker stays for longer than 3 months.

Therefore, in Table 9 we extend our baseline specification introducing an interaction between the identity of the successor CEO and the indicator variable classifying an industry as conflictual or not.

[Table 9 Here]

Column (1) uses as a proxy for conflictual labor relations the industry average of unionization of the workforce for the period 1995-1998. Our results are consistent with the above prediction: the differential layoff rates between dynastic and non-dynastic CEOs are nearly twice as high in conflictual markets. The impact of dynastic transitions *per se* when labor relations are good remains significantly negative, indicating that the difference in layoff rates between dynastic and non-dynastic firms was not simply driven by their clustering in markets with different labor relation structures.

Columns (2) and (3) use as a proxy for conflictual labor relations the industry average of union representatives. Column (2) makes no differentiation between union representatives, whereas column (3) is based on the presence of union representatives known to be the most “hardline.”¹⁴ Column (2) shows that the differential between dynastic and non-dynastic successions does not vary according to the presence of union representatives in the industry. However, significant differences between dynastic and non-dynastic successions arise in markets where hardline union representatives are more prevalent. Dynastic transitions in these industries are associated with a 5.1 percentage point reduction in layoff rates relative to non-dynastic transitions, compared to a differential of 2.3 percentage in less conflictual industries.

Finally, columns (4) and (5) use as a proxy for conflictual labor relations the occurrence of strikes (col. 5) and more generally of worker protests (col. 4). Our results are again consistent with the prediction that the value of long-term commitment linked to dynastic management varies across industries. The interaction is of the expected sign and individually significant at the 10% level. Note also that transitions in more conflictual industries *per se* are associated with significantly more layoffs and restructuring.

6.3. Robustness Checks

In this section we provide additional support for the validity of our results and exclude potential confounding factors that could simultaneously drive differences in CEO identity and restructuring activity. Table 10 provides evidence on the direct impact of dynastic intentions on renegotiation (col. 1) and on the distinction between real versus formal control for family-promoted CEOs (col. 2). Columns (3) and (4) address issues related to the composition of the non-dynastic group of firms: column (3) controls for changes in firm leverage following a CEO

¹⁴Among French unions, the traditional division is between the “revolutionary” and communist CGT, on the one hand, and the “reformist” and social-democrat CFDT on the other hand. In the 1990’s, some “hardline” bits of the CFDT split up and formed a new union called SUD. We count as hardline union members those who belong to either CGT or SUD. See Andolfatto and Labbe (2007) for a description of French unions.

transition, and column (4) re-estimates the DID specification on the subsample of firms with high ex-ante dynastic preferences.

[Table 10 Here]

Private Benefits from Dynastic Management We observe in the data that certain characteristics of the name of the firm prior to the CEO change are highly correlated with the identity of the successor. In particular, those firms whose name is shared with that of the incumbent owner have twice as many chances of undergoing a dynastic succession. We will call these firms “eponymous” firms. Our explanation for this strong pattern is that the name conveys information about the private benefits from dynastic management of the current owner. Indeed, Burkart, Panunzi and Shleifer (2003) argue that one of the main amenity potentials linked to keeping a firm within one’s family is to have one’s own name associated with a company’s activities.

Using this information as IV would most likely yield inconsistent estimates, since private benefits from dynastic management are directly related to the ability of using long-term contracts vis-a-vis the workforce before the CEO change. An alternative approach is to directly include our proxy for high dynastic preferences in our DID estimation instead of the identity of the CEO successor. Results in column (1) of Table 10 remain qualitatively similar: the proxy has a negative, albeit smaller in magnitude, statistically significant impact on layoffs. We thus have evidence of a direct impact of dynastic intent on corporate employment policies.¹⁵

Real Versus Formal Control Another issue relates to the difference between real versus formal control in dynastic transitions. In such transitions the ex-CEO might remain the grey eminence of the firm as argued by Morck and Yeung (2003): “Family control endures with patriarchs grooming scions sometimes for decades.”

From 2003 onward, the DIANE dataset provides the names of French companies’ board members, for both public and private firms. We use this information on the composition of boards and match their members’ names to the name of the CEO who left the firm. We find that in 23% of dynastic transitions, the ex-CEO is sitting on the board of the firm in 2003. This number drops to only 9% in the case of non-dynastic transitions. In column (2) of Table 10 we extend our DID specification by including an indicator of whether the ex-CEO is still in the firm. We find that (i) the impact of dynastic transitions *per se* is virtually unaffected in size and precision, and that (ii) the presence of the predecessor on the board has a significant negative impact on layoff rates around the time of a CEO transition.¹⁶

Changes in Ownership and Leverage A potential confounding factor relates to changes in the capital structure of a firm following a change in ownership of non-dynastic transitions. If at the same time higher leverage is associated with greater bargaining power vis-a-vis the workforce, thereby allowing for greater restructuring, the correlation between CEO identity and labor restructuring is not to be ascribed to a commitment channel, but rather to a financial

¹⁵We are particularly grateful to Daniel Ferreira for helpful comments on this point.

¹⁶Non-reported specifications using interactions were not statistically significant

channel. Hanka (1998) finds that, controlling for performance, US firms with more debt pay lower wages and fund their pension plans less generously. Similarly Benmelech, Bergman and Enriquez (2009) show that airlines in distress obtain wage concessions from workers with underfunded pension plans.

Column (3) in Table 10 confirms that increases in leverage are associated with greater workforce restructuring, a percentage point increase in leverage being associated with a 1 percentage point increase in layoff rates. However, controlling for changes in leverage, the coefficient on family-promoted CEOs is still negative and statistically significant.

Composition of Control Group A potential criticism is that the comparison group of non-dynastic CEOs could be a mixed bag, since it might include not only family-directed firms that become non-family-directed, but also non-family-directed firms in which an external CEO replaces another external CEO. Note that the presence of the latter might indeed account for higher restructuring of non-dynastic firms, since they would not provide ex-ante implicit contracts, but it cannot account for the observed wage dynamics following the CEO transition.

Column (4) in Table 10 checks the robustness of our results on employment stability to the use of an alternative comparison group. Column (4) estimates the DID equation on a more homogeneous control group, i.e., eponymous firms in which the transition was non-dynastic. Although sample size is considerably reduced, neither the magnitude nor the precision of our estimate of interest is affected. As a final robustness check with respect to sample composition, we first estimated a propensity score model of dynastic transitions. Using only observations with predicted probabilities of dynastic transition lying between .1 and .9, we re-estimated our specifications and the results were unaffected.¹⁷

Extensions to Overall Workforce We focus on intermediate layers of the firm for two reasons. First, because at lower layers of the firm it is difficult to distinguish real entry and exit movements of the workforce from the noise of administrative data. Second, because the literature on implicit contracts suggests that these employees are most likely to make firm-specific investments and to experience renegotiation of these contracts. If this is the case, then including low-skill workers in the analysis should drive down the observed differential between layoffs in dynastic and non-dynastic firms following a CEO transition.

Column (5) estimates the DID specification using the entire workforce of the firm. For administrative reasons, we can, however, use only the random extract from the entire employee tax files. Column (5) indicates that when we include lower levels of the firm workforce, the differential between dynastic and non-dynastic CEO successions in terms of layoffs falls from 3.4 pp to 1.4 pp. This confirms that even for the entire workforce, commitment to long-term contracts remains a significant aspect of labor policies. However, as confirmed by the mostly theoretical literature on the subject, it is disproportionately related to labor contracts with intermediate and higher layers of the firm.

¹⁷Tables available upon request.

7. Conclusions

To the best of our knowledge, this is the first work to investigate the link between CEO choice and employment policies in firms. We exploit time variation in CEO identity and labor contracts to identify the impact of one of the most important CEO attributes, namely family ties. Our evidence suggests that employment policies in dynastically managed firms significantly differ from those in non-dynastically managed firms, as the former have a greater credibility in enforcing long-term labor contracts and an ability to sustain such credibility at times of CEO transitions.

Our main finding is that, at the time of a CEO transition, family-promoted CEOs are associated with lower layoffs of the incumbent workforce and lower wage renegotiation. This is in line with an implicit contract model in which the firm offers a joint product, relative to employment and financial intermediation, and workers need to be compensated for the greater termination risk faced after increased renegotiation by external CEOs (Bailly, 1974; Azariadis, 1975). Additionally, our results suggest that the differential between dynastic and non-dynastic CEOs in terms of layoffs is significantly greater whenever labor market conditions are more frictional and labor relations in the industry are more conflictual.

Thus, our findings provide support for the view that the connection between CEO identity and labor contracts is due to greater commitment to long-term contracts associated with dynastic management. Such a view has often been expressed in policy circles but, so far, has received little empirical support. To have a grasp of the economic importance of these phenomena, consider a firm experiencing a transition from one family member to another. According to our estimates, these firms' layoff rates remain virtually unchanged, whereas firms experiencing a transition to an external CEO experience a 3.3 percentage point increase in layoff rates. In terms of magnitude, family promoted CEOs are therefore associated with an approximate 25% decrease in unconditional layoff rates following a transition. Note that the impact of the successor CEOs dwarfs other economic variables such as the profitability of the firm. Indeed, an increase of one standard deviation in firm profitability reduces layoff rates by only 1.1 percentage points (.38*.028).

The paper highlights the importance of CEO attributes in the design of labor contracts. We have focused here on one of the most important attributes, namely family ties of the CEO. Our results open the door for future research on determinants of a CEO's credibility in the context of the workforce negotiation. Social background, education or career path prior to nomination as a CEO could, for instance act, as a signalling device to induce the trust and credibility necessary for engaging in such implicit contracts.

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8. Appendix A: Description of Variables

White-collar employees have been identified alternatively on the basis of the “Categories Socioprofessionnelles” classification and on the basis of the wage-earning distribution within the firm:

- *All Mgmt.*: Employees with CSP categorization below 50;
- *High Mgmt.*: Employees with CSP categorization below 40;
- *Middle Mgmt.*: Employees with CSP categorization below 50 but above 40;
- *All Empl.*: All employees regardless of CSP categorization;

The dependent variable is the change in the considered outcome computed as the difference between the average two-year post-succession minus the two-year average pre-succession:

- *Layoff Rates*: Total number of layoffs in the considered employment category divided by total workforce in the same category. A layoff is defined as an employee who left the firm during the year and who was employed by this firm at the beginning of the year;
- *Tenure*: (Average) Difference between the year of observation and the starting year of employment;
- *Wage Raise*: (Average) Difference between the weekly wage during the year of observation and the previous year divided by previous year’s weekly wage;
- *Promotion Rates*: Total number of promotions in the considered employment category divided by total workforce in the same category. Promotions refer, in the case of the CSP classification, to an employee with a positive change in management classification between the current and the previous year of observation;
- *Hiring Rates*: Total number of hirings in the considered employment category divided by total workforce in the same category. A hiring is defined as an employee of the firm in a given year who did not receive a wage from this firm the previous year;

The following firm characteristics have been measured alternatively one year before the transition (multivariate analysis) or as two-year averages before the CEO transition (descriptive statistics):

- *Dynastic Transition*: Binary indicator of whether the new CEO shares the same name as the departing CEO;
- *Dynastic Preferences*: Binary indicator of whether the ex-CEO shares the same name as the firm three years before the transition;
- *Father on Board*: Binary indicator of whether the ex-CEO is on the board of the firm in 2003;
- *Age of Firm*: Administrative age of the firm as indicated in the BRN tax files;
- *Log of Sales*: Natural logarithm of total sales;
- *Log of Total Employment*: Natural logarithm of total workforce;

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- *Profitability*: EBITDA divided by total assets;
- *Mgmt to Workforce*: Total management workforce divided by total employment;
- *Age of Mgmt*: Average age of management workforce;
- *Pre-Transition Levels*: Level of the outcome variable before the CEO transition;

Industry characteristics in terms of labor relations have been computed using the French workplace survey REPONSE from 1998. For each of the following variables we have computed the industry average and constructed a binary indicator equal to 1 if the industry average is above the median of the distribution in the economy:

- *Unionization*: Share of workforce of a firm that is unionized;
- *Union Reps.*: Binary indicator equal to 1 if a union representative is present in the firm;
- *Hardline Union Reps.*: Binary indicator equal to 1 if a hardline union representative is present in the firm;
- *Soft Conflict*: Binary indicator equal to 1 if in the past three years there have been worker protests in the firm;
- *Hard Conflict*: Binary indicator equal to 1 if in the past three years there have been worker protests in the firm that involved periods of strikes;

In order to construct industry labor market conditions we use the information from the panel workforce files for the period 1994-2001. We compute the probability for an employee, once laid off, to be unemployed after X months. We then classify industries as having difficult labor markets as those with above median industry averages in terms of the fraction of unemployed after X months:

- *Fraction Unemployed - X months*: Share of white-collar employees between 25 and 54 years who have been working for 3 consecutive years in a given firm and who are still without stable employment X months after being laid off;

9. Appendix B: Tables and Figures

Table 1: LAYOFF RATES PRIOR TO CEO CHANGE

	All Mgmt	High Mgmt	Middle Mgmt
Dynastic Firms	.09 (.00)	.08 (.00)	.1 (.01)
Non-Dynastic Firms	.12 (.00)	.12 (.00)	.12 (.00)
Difference	-.03*** [14661]	-.04*** [12281]	-.02*** [9283]

Note: The table reports average layoff rates of management over the two years preceding the CEO transition. CEO successions are classified into two groups: *Dynastic*, when the new CEO shares the same name with the departing CEO, *Non-Dynastic* otherwise. See Appendix A for the definition of categories and variables. Standard errors are reported in parentheses and the number of observations in square brackets. ***, **, * denote significance at the 1, 5 and 10 percent levels, respectively.

Table 2: (LOG) ENTRY WAGES PRIOR TO CEO CHANGE

	All Mgmt	High Mgmt	Middle Mgmt
Dynastic Firms	4.26 (.01)	4.37 (.01)	4.11 (.02)
Non-Dynastic Firms	4.38 (.00)	4.45 (.00)	4.25 (.01)
Difference	-.12*** [8871]	-.08*** [7346]	-.15*** [5145]

Note: The table reports average entry wages of hired management over the two years preceding the CEO transition. CEO successions are classified into two groups: *Dynastic*, when the new CEO shares the same name with the departing CEO, *Non-Dynastic* otherwise. See Appendix A for the definition of categories and variables. Standard errors are reported in parentheses and the number of observations in square brackets. ***, **, * denote significance at the 1, 5 and 10 percent levels, respectively.

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Table 3: (LOG) WAGE CHANGE PRIOR TO CEO CHANGE

	All Mgmt	High Mgmt	Middle Mgmt
Dynastic Firms	.09 (.00)	.1 (.00)	.09 (.01)
Non-Dynastic Firms	.1 (.00)	.11 (.00)	.11 (.00)
Difference	-.01*** [13870]	-.01** [12468]	-.02* [10318]

Note: The table reports average wage changes of management over the two years preceding the CEO transition. CEO successions are classified into two groups: *Dynastic*, when the new CEO shares the same name with the departing CEO, *Non-Dynastic* otherwise. See Appendix A for the definition of categories and variables. Standard errors are reported in parentheses and the number of observations in square brackets. ***, **, * denote significance at the 1, 5 and 10 percent levels, respectively.

Table 4: TENURE OF WORKFORCE PRIOR TO CEO CHANGE

	All Empl.	High Mgmt	Middle Mgmt	Workers
Dynastic Firms	7.5 (.13)	9.8 (.6)	7.7 (.13)	7.2 (.13)
Non-Dynastic Firms	6.4 (.06)	6.5 (.15)	6.4 (.06)	6.5 (.06)
Difference	1.1*** [11254]	3.3*** [1818]	1.3*** [3036]	.7*** [8068]

Note: The table reports average tenure of the incumbent management over the two years preceding the CEO transition. The sample is built on the basis of a random extract of the initial data consisting of employees who were born in October of even-numbered years. CEO successions are classified into two groups: *Dynastic*, when the new CEO shares the same name with the departing CEO, *Non-Dynastic* otherwise. See Appendix A for the definition of categories and variables. Standard errors are reported in parentheses and the number of observations in square brackets. ***, **, * denote significance at the 1, 5 and 10 percent levels, respectively.

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Table 5: FIRM CHARACTERISTICS PRIOR TO CEO CHANGE

Variable	All	Type of Succession		Difference (4)
		Dynastic (2)	Non-Dynastic (3)	
Total Employment	181 (22) [14661]	90 (11) [2795]	202 (27) [11866]	-112**
Total Sales	36.6 (2.7) [14659]	15 (1.9) [2794]	43 (3.3) [11865]	-28***
Age of Firm	18.7 (.11) [13785]	21 (.23) [2694]	18 (.12) [11091]	3***
Operating Returns on Assets	.24 (.00) [14661]	.26 (.01) [2795]	.24 (.00) [11866]	.02**
Debt to Assets Ratio	.49 (.00) [14659]	.39 (.01) [2794]	.51 (.00) [11865]	-.12***

Note: The table reports average firm balance-sheet characteristics over the two years preceding the CEO transition. CEO successions are classified into two groups: *Dynastic*, when the new CEO shares the same name with the departing CEO, *Non-Dynastic* otherwise. See Appendix A for the definition of categories and variables. Standard errors are reported in parentheses and the number of observations in square brackets. ***, **, * denote significance at the 1, 5 and 10 percent levels, respectively.

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Table 6: WORKFORCE TURNOVER AND TENURE

Dependent Variable: Changes in Management Turnover Rates (1,2,3) and Average Tenure (4)

	Management Layoff Rates			Tenure
	All Mgmt (1)	High Mgmt (2)	Middle Mgmt (3)	All Empl. (4)
Dynastic Transition	-0.033*** (0.00)	-0.028*** (0.00)	-0.018*** (0.01)	0.187** (0.09)
Age of Firm	-0.001*** (0.00)	-0.001*** (0.00)	-0.000** (0.00)	0.011*** (0.00)
Total Employment	0.003* (0.00)	0.003 (0.00)	0.003 (0.00)	-0.053* (0.03)
Profitability	-0.028*** (0.00)	-0.030*** (0.01)	-0.016** (0.01)	-0.247*** (0.08)
Mgmt to Workforce	0.016*** (0.01)	0.013*** (0.00)	0.023*** (0.01)	-0.223*** (0.08)
Age of Mgmt	-0.001** (0.00)	-0.001* (0.00)	-0.000 (0.00)	0.015** (0.01)
Constant	0.140*** (0.02)	0.145*** (0.02)	0.095*** (0.03)	1.912*** (0.34)
Pre-Transition Levels	YES	YES	YES	YES
Fixed Effects (Industry-BG-Time)	YES	YES	YES	YES
R-squared	0.257	0.266	0.265	0.099
N	13636	11359	7962	9148

The table reports OLS regressions of the effect of a dynastic transition on changes in layoff rates (cols 1-3) and on changes in average tenure of the workforce. See Appendix A for the definition of variables. Robust standard errors are reported in parentheses. ***, **, * denote significance at the 1, 5 and 10 percent levels, respectively.

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Table 7: WAGE DYNAMICS

Dependent Variable: Changes in Average Wage Raise of Incumbent Workforce col. 1;
Changes in Average Wage of Hired Workforce col. 2.

	All Mgmt		High Mgmt		Middle Mgmt	
	(1)	(2)	(1)	(2)	(1)	(2)
Dynastic Transition	-0.019*** (0.00)	-0.036** (0.02)	-0.020*** (0.00)	-0.038* (0.02)	-0.012** (0.00)	-0.075*** (0.03)
Age of Firm	-0.000* (0.00)	0.000 (0.00)	-0.000** (0.00)	-0.000 (0.00)	-0.000 (0.00)	-0.001* (0.00)
Total Employment	0.005*** (0.00)	0.037*** (0.01)	0.006*** (0.00)	0.024*** (0.01)	0.003* (0.00)	0.044*** (0.01)
Profitability	-0.014*** (0.00)	0.000 (0.01)	-0.013*** (0.00)	-0.001 (0.01)	-0.011* (0.01)	-0.033 (0.02)
Mgmt to Workforce	0.011*** (0.00)	0.056*** (0.01)	0.011*** (0.00)	0.055*** (0.01)	0.002 (0.00)	0.036** (0.01)
Age of Mgmt	-0.001 (0.00)	0.004*** (0.00)	-0.001*** (0.00)	0.007*** (0.00)	-0.001** (0.00)	0.006*** (0.00)
Constant	0.100*** (0.02)	3.153*** (0.09)	0.128*** (0.02)	3.085*** (0.10)	0.101*** (0.02)	2.912*** (0.14)
Pre-Transition Levels	YES	YES	YES	YES	YES	YES
Fixed Effects (Industry-BG-Time)	YES	YES	YES	YES	YES	YES
R-squared	0.355	0.468	0.327	0.441	0.445	0.446
N	12982	4299	10887	3356	7708	1780

The table reports OLS regressions of the effect of a dynastic transition on changes in wage raises of the incumbent workforce (col. 1) and on average wages of hired workforce (col. 2). See appendix for the definition of variables. Robust standard errors are reported in parentheses. ***, **, * denote significance at the 1, 5 and 10 percent levels, respectively.

Table 8: DYNASTIC MANAGEMENT AND LABOR MARKET ENVIRONMENT

	Dependent Variable: Management Layoff Rates			
	3 Months	6 Months	12 Months	24 Months
Dynastic Transition	-0.023*** (0.01)	-0.023*** (0.01)	-0.022*** (0.01)	-0.021*** (0.01)
Difficult Labor Mket	0.013 (0.01)	-0.004 (0.01)	0.014 (0.01)	-0.002 (0.01)
Dynastic*Labor Mket	-0.017*** (0.01)	-0.014* (0.01)	-0.017*** (0.01)	-0.015* (0.01)
Controls	YES	YES	YES	YES
Pre-Transition Levels	YES	YES	YES	YES
Fixed Effects (Industry-BG-Time)	YES	YES	YES	YES
R-squared	0.272	0.272	0.272	0.272
N	12040	12040	12040	12040

The table reports OLS regressions of the effect of a dynastic transition on changes in layoff rates as a function of long-term industry labor market conditions. Long-term industry labor market conditions are computed on the basis of the fraction of laid-off workers who did not find a new occupation after X months, where the length of time is successively defined as 3, 6, 12 and 24 months. Controls include *Age of Firm*, *Total Employment*, *Profitability*, *Mgmt to Workforce* and *Age of Mgmt*. See Appendix A for the definition of variables. Robust standard errors are reported in parentheses. ***, **, * denote significance at the 1, 5 and 10 percent levels, respectively.

Table 9: DYNASTIC MANAGEMENT AND INDUSTRY LABOR RELATIONS

	Dependent Variable: Changes in Management Layoff Rates				
	(1)	(2)	(3)	(4)	(5)
Dynastic Transition	-0.027*** (0.01)	-0.033*** (0.00)	-0.023*** (0.01)	-0.027*** (0.01)	-0.026*** (0.01)
Conflictual Ind.	-0.002 (0.00)	0.012** (0.00)	0.013*** (0.00)	0.009** (0.00)	0.014*** (0.00)
Dynastic*Conflict	-0.017** (0.01)	0.002 (0.01)	-0.028*** (0.01)	-0.014* (0.01)	-0.015* (0.01)
Controls	YES	YES	YES	YES	YES
Pre-Transition Levels	YES	YES	YES	YES	YES
Fixed Effects (Industry-BG-Time)	YES	YES	YES	YES	YES
R-squared	0.273	0.273	0.273	0.273	0.273
N	11107	11107	11107	11107	11107

The table reports OLS regressions of the effect of a dynastic transition on changes in layoff rates as a function of industry labor relations. Col. (1) divides industry labor relations on the basis of the unionization of its workforce. Col. (2) divides industry labor relations on the basis of the presence of union representatives, whereas col. (3) considers the presence of headline union representatives. Col. (4) divides industry labor relations on the basis of the occurrence of soft forms of labor conflict, whereas col. (5) considers the occurrence of hard forms of labor conflicts. Controls include *Age of Firm*, *Total Employment*, *Profitability*, *Mgmt to Workforce* and *Age of Mgmt*. See Appendix A for the definition of variables. Robust standard errors are reported in parentheses. ***, **, * denote significance at the 1, 5 and 10 percent levels, respectively.

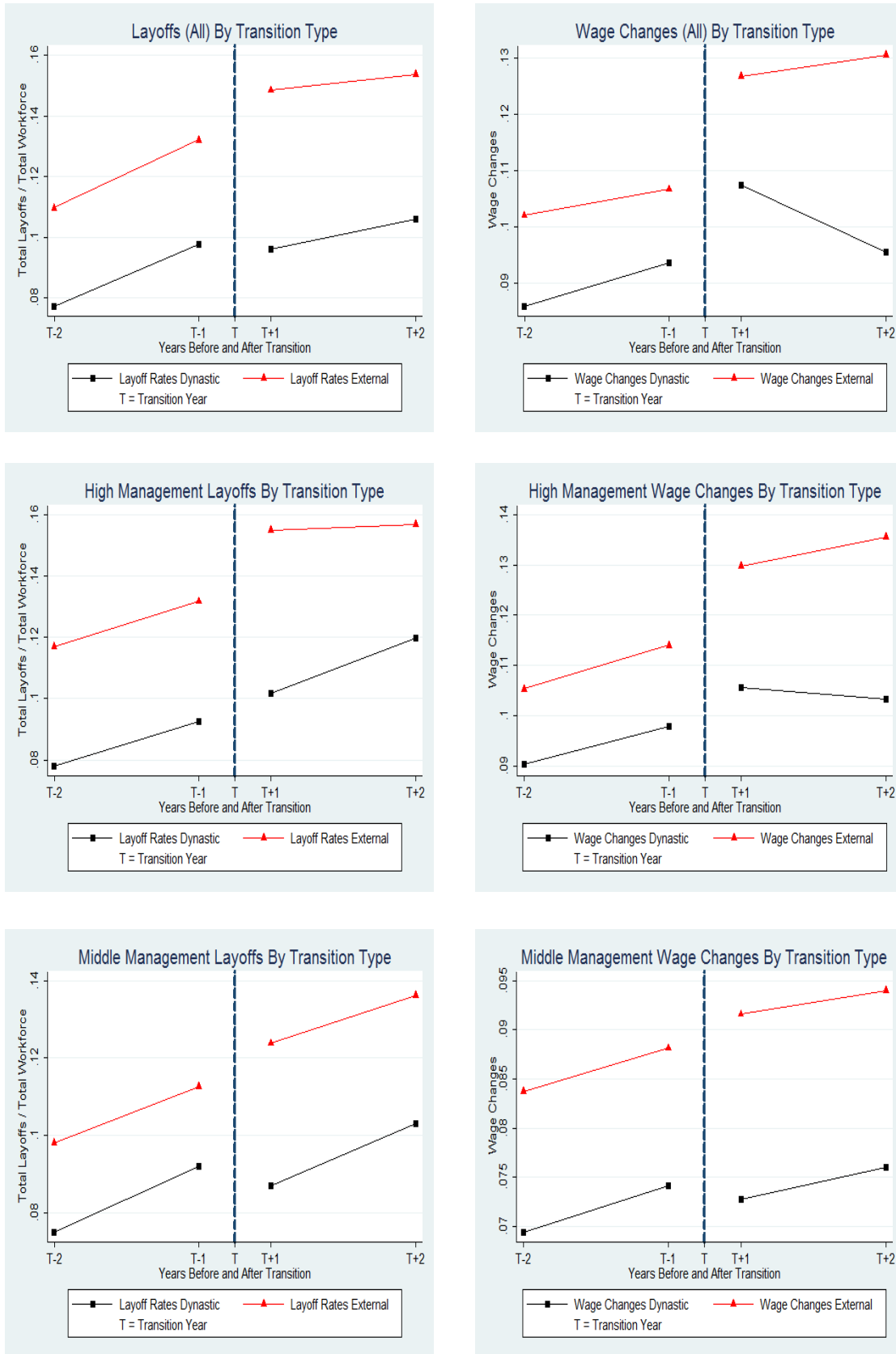
Table 10: ROBUSTNESS CHECKS

	Dependent Variable: Layoff Rates				
	(1)	(2)	(3)	(4)	(5)
		All Management		Eponymous	All Empl.
Dynastic Preferences	-0.014*** (0.00)				
Dynastic Transition		-0.034*** (0.00)	-0.032*** (0.00)	-0.034*** (0.01)	-0.014** (0.01)
Father On Board		-0.015*** (0.00)			
Δ in Leverage			0.009* (0.01)		
Controls					
Pre-Transition Levels	YES	YES	YES	YES	YES
Fixed Effects (Industry-BG-Time)	YES	YES	YES	YES	YES
R-squared	0.255	0.326	0.297	0.326	0.293
N	11223	10893	12441	2307	11662

The table reports OLS regressions of the effect of a dynastic transition on changes in layoff rates. Column 1 directly considers the impact of a proxy for dynastic preferences on labor policies. Dynastic preferences are proxied by a binary indicator equal to 1 if the incumbent CEO and the firm share the same name. Column 2 controls for the presence of the ex-CEO on the board of the firm. Column 3 controls for Δ in *Leverage* defined as the difference between average leverage after the CEO change compared to average leverage before the CEO change. Column 4 estimates the baseline specification on the subsample of eponymous firms. Column 5 uses as a dependent variable layoff rates of the entire workforce as computed from the panel workforce. Controls include *Age of Firm*, *Total Employment*, *Profitability*, *Mgmt to Workforce* and *Age of Mgmt*. See Appendix A for the definition of variables. Robust standard errors are reported in parentheses. ***, **, * denote significance at the 1, 5 and 10 percent levels, respectively.

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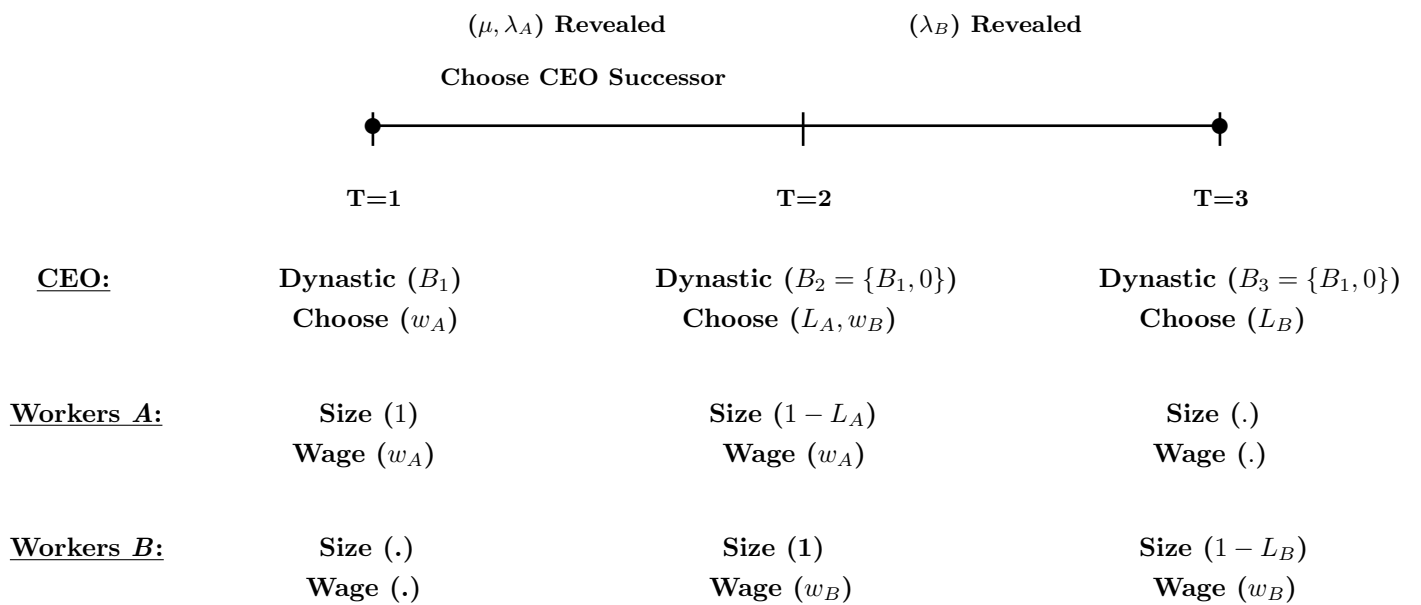
Figure 1: Differences in Differences



Note: The figure plots average layoff rates (left-hand side) and wage raises (right-hand side) for the workforce of dynamic (black) and non-dynamic (red) firms for each year before and after the control transition. *All*, *High*, *Middle* refers to management categories defined on the basis of the “Categories Socioprofessionnelles” classification used by INSEE.

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Figure 2: Timeline of CEO Succession



10. Appendix C: A dynamic model of labor force management in the presence of dynastic private benefits

The theoretical model presented in this article is to be solved by backward induction.

3rd Period Conditional on observing the productivity shock λ_B , the CEO can only choose lay-offs L_B so as to maximize profits:

$$\begin{aligned} \max_{L_B} \quad & \Pi_3(B_2, L_B) = \lambda_B(1 - L_B) - w_B(1 - L_B) + B_2(1 - L_B) \\ \text{s.t.} \quad & L_B \geq 0 \\ & L_B \leq 1 \end{aligned} \tag{15}$$

2nd Period In the second period, the bargaining with the second generation of workers takes place:

$$\begin{aligned} \max \quad & Q - w_B + \delta E(\pi_{w_B}) \\ \text{s.t.} \quad & w_B + \delta[(1 - E(L_B))w_B + E(L_B)\underline{u}] \geq \underline{w} \\ \Leftrightarrow \quad & w_B + \delta[(1 - E(L_B))w_B + E(L_B)\underline{u}] - \underline{w} = f_2(w_B, B_2, \underline{u}, \underline{w}) \geq 0 \end{aligned} \tag{16}$$

From this last expression it is clear that firms have a strict incentive to reduce wages w_B . This is because wages w_B are sticky so that increasing wages today reduces today's as well as tomorrow's profits. Employees' incentives in wage bargaining are ambiguous on the other hand. This is because higher wages today and tomorrow also mean higher layoff rates tomorrow. To see this, let us compute the formula for the expected layoff rate in period 3 as seen from period 2:¹⁸

$$E(L_B) = \begin{cases} 0 & \text{if } w_B < B_2 \\ w_B(B_2, \underline{u}, \underline{w}) - B_2 & \text{if } B_2 \leq w_B \leq 1 + B_2 \\ 1 & \text{if } w_B > 1 + B_2 \end{cases} \tag{17}$$

The two polar cases allow us to compute levels of B_2 at which layoffs, or the absence thereof, are certain events:

$$\begin{aligned} w_B(B_{2max}) = B_{2max} & \Rightarrow (1 + \delta)w_B(B_{2max}) = \underline{w} \\ & \Rightarrow B_{2max} = \frac{\underline{w}}{1 + \delta} \\ w_B(B_{2min}) = 1 + B_{2min} & \Leftrightarrow w_B(B_{2min}) = \underline{w} - \delta\underline{u} \\ & \Rightarrow B_{2min} = \underline{w} - 1 - \delta\underline{u} \end{aligned} \tag{18}$$

¹⁸We assume here that w_B has support on $[0, \bar{\lambda}]$.

By condition (1b), B_{2min} is strictly negative, so one can redefine $E(L_B)$ as:

$$E(L_B) = \begin{cases} 0 & \text{if } B_2 > \frac{w}{1+\delta} \\ w_B(B_2, \underline{u}, \underline{w}) - B_2 & \text{if } B_2 \leq \frac{w}{1+\delta} \end{cases} \quad (19)$$

In order to establish that the participation constraint of employees is binding in the interval where the probability of layoffs depends on wages, one then needs to establish that $f_2(w_B) = 0$ has a strictly positive solution and pin down the minimum solution w_B^* for this equation. This is why we develop $f_2(w_B)$ as follows:

$$f_2(w_B, \underline{u}, B_2) = -\delta(w_B)^2 + w_B(1 + \delta + \delta B_2 + \delta \underline{u}) - \delta B_2 \underline{u} - \underline{w} \quad (20)$$

This second-order polynomial admits one global maximum in $w_B = \frac{1+\delta+\delta B_2+\delta \underline{u}}{2\delta}$. Therefore, $f_2 = 0$ has a solution if and only if:

$$f_2\left(\frac{1+\delta+\delta B_2+\delta \underline{u}}{2\delta}\right) > 0 \quad (21)$$

which is guaranteed in the interval $B_2 \in [0, B_{2max}]$ as soon as condition (1b) is fulfilled. It is then easy to obtain the optimal wage level for generation B :

$$w_B^* = \begin{cases} \frac{1+\delta+\delta B_2+\delta \underline{u} - \sqrt{(1+\delta+\delta B_2+\delta \underline{u})^2 - 4\delta \underline{w} - 4\delta^2 B_2 \underline{u}}}{2\delta} & \text{if } B_2 \leq \frac{w}{1+\delta} \\ \frac{w}{1+\delta} & \text{if } B_2 > \frac{w}{1+\delta} \end{cases} \quad (22)$$

From this, one can look at the effects of private benefits B_2 on wages w_B^* :

$$\frac{\partial w_B^*}{\partial B_2} = \begin{cases} \frac{1}{2} \cdot \left[1 - \frac{1+\delta+\delta B_2-\delta \underline{u}}{\sqrt{(1+\delta+\delta B_2+\delta \underline{u})^2 - 4\delta \underline{w} - 4\delta^2 B_2 \underline{u}}} \right] & \text{if } B_2 \leq \frac{w}{1+\delta} \\ 0 & \text{if } B_2 > \frac{w}{1+\delta} \end{cases} \quad (23)$$

Condition (1a) then again guarantees that $\frac{\partial w_B^*}{\partial B_2} \leq 0$.

Proposition: Following an outside CEO transition, wages of the new generation of workers are higher than if the founding family stays in place after period 1 (Proposition 3 in the text).

In the second period the new CEO can also decide on layoffs of the generation A workers. The problem at the beginning of period 2 is very similar to the one faced at the beginning of period 3 when it comes to layoffs. Again we can divide the problem into two regions for λ_A and qualitatively similar conclusions apply. We can thus formulate our next proposition:

Proposition: There are fewer layoffs of both first- and second-generation workers following a family CEO transition (Proposition 1 in the text).

Between the 1st and 2nd Period After observing λ_A , one can show that the initial owners will choose to keep the firm if:

$$\Pi_{2+3}^*(B_1) - F \geq \Pi_{2+3}^*(0) \tag{24}$$

$$\lambda_A \geq \underline{\lambda_A}$$

This then leads to the following proposition:

Proposition: Family successions are more likely to happen following a good productivity shock λ_A (Proposition 4 in the text).

For some values of B , this happens with a probability equal to 0 or 1. Five cases may arise:

1. For any level of λ , and even with full layoffs, it is profitable for owners to keep the firm. This happens if $B_1 > B_1^{max}$ such that:

$$\Pi_{2+3}^*(B_1^{max}) - F = \Pi_{2+3}^*(0)$$

2. For any level of λ , and even with full employment, it is profitable for owners to sell the firm. This happens if $B_1 < B_1^{min}$ such that:

$$\Pi_{2+3}^*(B_1^{min}) + B_1^{min} - F = \Pi_{2+3}^*(0)$$

3. The condition $\Pi_{2+3}^*(B_1) - F = \Pi_{2+3}^*(0)$ defines a minimum level of minimum productivity for a dynastic succession that is below 0, so that all successions are then family successions. This happens when $B_1 > B_1^{max'}$ such that:

$$w_A(B_1^{max'}) - B_1^{max'} - [\Pi_{2+3}^*(B_1^{max'}) - \Pi_{2+3}^*(0) - F] = 0$$

4. The condition $\Pi_{2+3}^*(B_1) - F = \Pi_{2+3}^*(0)$ defines a minimum level of minimum productivity for a dynastic succession that is above 1, so that all successions are then outside successions. This happens when $B_1 < B_1^{min'}$ such that:

$$w_A(B_1^{min'}) - B_1^{min'} - [\Pi_{2+3}^*(B_1^{min'}) - \Pi_{2+3}^*(0) - F] = 1$$

5. In all other cases, that is when $\max[B_1^{min}, B_1^{min'}] < B < \min[B_1^{max}, B_1^{max'}]$, family successions occur whenever:

$$\lambda_A > w_A(B_1) - B_1 - [\Pi_{2+3}^*(B_1) - \Pi_{2+3}^*(0) - F]$$

Using the same logic as for the computation of the thresholds for B_2 implied in the computation of layoff probabilities, one can check that conditions (1a), (1b) and (1c) guarantee that:

$$\begin{aligned} B_1^{min'} &< B_1^{min} \\ B_1^{max'} &> \frac{w}{1+\delta} > B_1^{max} \end{aligned} \tag{25}$$

This allows to define an ex-ante probability of a dynastic transition¹⁹ $p(B_1, w_A)$, such that:

$$p(B_1, w_A) = \begin{cases} 0 & \text{if } B_1 < B_1^{min} \\ 1 - w_A(B_1) + [\Pi_{2+3}^*(B_1) + B_1 - \Pi_{2+3}^*(0) - F] & \text{if } B_1^{min} \leq B_1 \leq B_1^{max} \\ 1 & \text{if } B_1 > B_1^{max} \end{cases} \tag{26}$$

1st Period In the first period, the maximization problem is the following:

$$\begin{aligned} \max_{w_A} \quad \Pi_{1+2+3}(w_A) &= Q - w_A \\ &+ \delta \left[p(B_1) \cdot \Pi_{2+3, B_2=B_1}^* + (1 - p(B_1)) \Pi_{2+3, B_2=0}^* \right] \\ \text{s.t.} \quad f_1(w_A) &= w_A + \delta[(1 - E(L_A))w_A + E(L_A)\underline{u}] \geq \underline{w} \end{aligned} \tag{27}$$

Firms again have a strict incentive to reduce wages w_A in this model. As before, employees' incentives in wage bargaining are ambiguous. One difference with respect to the generation of workers arriving in period 2 is that workers arriving in period 1 also have to form expectations, about the risk of changing from a dynastic to a non-dynastic CEO, in the bargaining process. One can then distinguish three different situations:

1. The dynastic succession takes place with probability 0 because $B_1 < B_1^{min}$. This case is exactly parallel to what happens with the second generation. Then layoffs take place if and only if λ is smaller than $w_A(B_1)$, which happens with probability $w_A(B_1)$.
2. The dynastic succession takes place with probability 1 because $B_1 > B_1^{max}$. This case is exactly parallel to what happens with the second generation. Then layoffs take place if λ is smaller than $w_A(B_1) - B_1$ and $B_1 < \frac{w}{1+\delta}$, which happens with probability $w_A(B_1) - B_1$, or for none of the values of λ (probability 0) if $B_1 \geq \frac{w}{1+\delta}$.
3. The dynastic succession takes place with probability $1 - w_A(B_1) + [\Pi_{2+3}^*(B_1) + B_1 - \Pi_{2+3}^*(0) - F]$ because $B_1^{min} \leq B_1 \leq B_1^{max}$. In this interval, it can be easily shown that in the probability states with an outside succession, the outsider in charge has an incentive to lay off the entire workforce, while in the probability states with a dynastic succession, the insider in charge

¹⁹Conditional on the absence of a family shock.

has an incentive to keep everyone working. Then, from the workers' point of view, layoffs take place if λ is smaller than $w_A(B_1) - [\Pi_{2+3}^*(B_1) + B_1 - \Pi_{2+3}^*(0) - F]$, which happens with probability $w(B_1) - [\Pi_{2+3}^*(B_1) + B_1 - \Pi_{2+3}^*(0) - F]$.

One can now redefine $E(L_A)$ as:

$$E(L_A) = \begin{cases} w_A(B_1) & \text{if } B_1 < B_1^{min} \\ w_A(B_1) - [\Pi_{2+3}^*(B_1) + B_1 - \Pi_{2+3}^*(0) - F] \dots & \text{if } B_1^{min} \leq B_1 \leq B_1^{max} \\ \dots = w_A(B_1) - B_1 - g(B_1) & \\ w_A(B_1) - B_1 & \text{if } B_1^{max} < B_1 < \frac{w}{1+\delta} \\ 0 & \text{if } \frac{w}{1+\delta} \leq B_1 \end{cases} \quad (28)$$

This in turn allows us to pin down the optimal wage setting in period 1, and the proof is very similar to what has been shown for the optimal wage setting in period 2. One can distinguish four situations:

1. Assume $B < B_1^{min}$. Then the optimal wage $w_A^*(B_1)$ would be such that:

$$-\delta (w_B)^2 + w_B(1 + \delta + \delta \underline{u}) - \underline{w} = 0$$

Condition (1b) then guarantees the existence of a solution, equal to:

$$w_A^*(B_1) = \frac{1 + \delta + \delta \underline{u} - \sqrt{(1 + \delta + \delta \underline{u})^2 - 4\delta \underline{w}}}{2\delta}$$

2. Assume $B_1^{min} \leq B_1 \leq B_1^{max}$. Then the optimal wage $w_A^*(B_1)$ would be such that:

$$-\delta (w_B)^2 + w_B(1 + \delta + \delta [B_1 + g(B_1)] + \delta \underline{u}) - \delta [B_1 + g(B_1)] \underline{u} - \underline{w} = 0$$

Condition (1b) then guarantees the existence of a solution, equal to:

$$w_A^*(B_1) = \frac{1 + \delta + \delta [B_1 + g(B_1)] + \delta \underline{u} - \sqrt{(1 + \delta + \delta [B_1 + g(B_1)] + \delta \underline{u})^2 - 4\delta \underline{w} - 4\delta^2 [B_1 + g(B_1)] \underline{u}}}{2\delta}$$

3. Assume $B_1^{max} < B_1 < \frac{w}{1+\delta}$. Then the optimal wage $w_A^*(B_1)$ would be such that:

$$-\delta (w_B)^2 + w_B(1 + \delta + \delta B_1 + \delta \underline{u}) - \delta B_1 \underline{u} - \underline{w} = 0$$

Condition (1b) then guarantees the existence of a solution, equal to:

$$w_A^*(B_1) = \frac{1 + \delta + \delta B_1 + \delta \underline{u} - \sqrt{(1 + \delta + \delta B_1 + \delta \underline{u})^2 - 4\delta \underline{w} - 4\delta^2 B_1 \underline{u}}}{2\delta}$$

4. Assume $\frac{w}{1+\delta} < B_1$. Then the optimal wage $w_A^*(B_1)$ would be equal to $\frac{w}{1+\delta}$, as then the

wage does not affect layoff and/or succession probabilities anymore, so the optimal period wage is such that the discounted sum of wages is equal to the workers' bargaining position \underline{w} .

Summing up, wages set in period 1 are as follows:

$$w_A(B_1) = \begin{cases} \frac{1+\delta+\delta\underline{w}-\sqrt{(1+\delta+\delta\underline{w})^2-4\delta\underline{w}}}{2\delta} & \text{if } B_1 < B_1^{min} \\ \frac{1+\delta+\delta[B_1+g(B_1)]+\delta\underline{w}-\sqrt{(1+\delta+\delta[B_1+g(B_1)]+\delta\underline{w})^2-4\delta\underline{w}-4\delta^2[B_1+g(B_1)]\underline{w}}}{2\delta} & \text{if } B_1^{min} \leq B_1 \leq B_1^{max} \\ \frac{1+\delta+\delta B_1+\delta\underline{w}-\sqrt{(1+\delta+\delta B_1+\delta\underline{w})^2-4\delta\underline{w}-4\delta^2 B_1 \underline{w}}}{2\delta} & \text{if } B_1^{max} < B_1 < \frac{\underline{w}}{1+\delta} \\ \frac{\underline{w}}{1+\delta} & \text{if } \frac{\underline{w}}{1+\delta} \leq B_1 \end{cases} \quad (29)$$

This function is continuous in B_1 and one can easily check that it is decreasing in B_1 as long as condition (1a) is fulfilled. This leads to:

Proposition: Wages set before the occurrence of a CEO transition decrease with the likelihood of a dynastic transition (Proposition 2 in text).

Heterogeneous effects Now, we can come back to the analysis of the likelihood of a dynastic transition ex-ante:

$$p(B_1, w_A) = \begin{cases} 0 & \text{if } B_1 < B_1^{min} \\ 1 - w_A(B_1) + [B_1 + g(B_1)] & \text{if } B_1^{min} \leq B_1 \leq B_1^{max} \\ 1 & \text{if } B_1 > B_1^{max} \end{cases} \quad (30)$$

From the equation defining B_1^{min} , one can easily prove that:

$$\frac{\partial B_1^{min}}{\partial \underline{w}} = - \frac{\frac{\partial [\Pi_{2+3}^*(B_1^{min}) - \Pi_{2+3}^*(0)]}{\partial \underline{w}}}{1 + \frac{\partial [\Pi_{2+3}^*(B_1^{min})]}{\partial B_1^{min}}} < 0 \quad (31)$$

From the equation defining B_1^{max} , one can easily prove that:

$$\frac{\partial B_1^{max}}{\partial \underline{w}} = - \frac{\frac{\partial [\Pi_{2+3}^*(B_1^{max}) - \Pi_{2+3}^*(0)]}{\partial \underline{w}}}{\frac{\partial [\Pi_{2+3}^*(B_1^{max})]}{\partial B_1^{max}}} < 0 \quad (32)$$

In the interval $[B_1^{min}, B_1^{max}]$, an increase in \underline{w} has two opposing effects on the probability of family transition $p(B_1, w_A)$. On the one hand, this tends to increase the wage given to employees, which makes it more costly for owners to leave the firm to the family. On the other hand,

this increases the comparative advantage of family CEOs in obtaining lower wages with future generations of workers. In fact, one can show that for high enough values of B_1 , the latter effect dominates the former. More generally, the former (negative) effect is tied to a single generation of workers, while the latter (positive) effect comes from employment relationships with all future generations. Note that in the N period model one can show that these conclusions hold for all values of B_1 . Therefore, if initial owners factor in enough future periods in their decision to keep or sell, then an increase in \underline{w} always increases the probability of a family transition. Hence, we have the following proposition:

Proposition: Family successions are more likely to happen as the smoothness of labor markets decreases or the “toughness” of labor relations increases. The corollary is that the correlation between family successions and productivity shocks is lower as the smoothness of labor markets decreases or the “toughness” of labor relations increases. (Proposition 5 in the text).

To look at the impact of labor market conditions on the differential between dynastic and non-dynastic firms in terms of layoffs, we need to assess the sign of the cross-derivative $\frac{\partial^2 E(L_B)}{\partial B_2 \partial \underline{w}}$ ²⁰. To assess the former, we need to compute the derivative of w_B^* w.r.t. \underline{w} :

$$\frac{\partial w_B^*}{\partial \underline{w}} = \begin{cases} \frac{1}{\sqrt{(1+\delta+\delta B_2+\delta \underline{w})^2-4\delta \underline{w}-4\delta^2 B_2 \underline{w}}} & \text{if } B_2 \leq \frac{\underline{w}}{1+\delta} \\ \frac{1}{1+\delta} & \text{if } B_2 > \frac{\underline{w}}{1+\delta} \end{cases} \quad (33)$$

From this, we compute that:

$$\frac{\partial^2 E(L_B)}{\partial B_2 \partial \underline{w}} = \begin{cases} -\frac{\delta(1+\delta+\delta B_2-\delta \underline{w})}{\sqrt{(1+\delta+\delta B_2+\delta \underline{w})^2-4\delta \underline{w}-4\delta^2 B_2 \underline{w}} \cdot [(1+\delta+\delta B_2+\delta \underline{w})^2-4\delta \underline{w}-4\delta^2 B_2 \underline{w}]} & \text{if } B_2 \leq \frac{\underline{w}}{1+\delta} \\ 0 & \text{if } B_2 > \frac{\underline{w}}{1+\delta} \end{cases} \quad (34)$$

So $\frac{\partial^2 E(L_B)}{\partial B_2 \partial \underline{w}}$ is always inferior or equal to zero. Since firms that are initially run by families have a positive private benefit as opposed to non-dynastic firms, this leads to the following propositions:

Proposition: There are relatively fewer layoffs following a dynastic CEO transition in industries where labor markets are frictional. (Proposition 6 in the text).

Proposition: There are relatively fewer layoffs following a dynastic CEO transition in industries where workers are tougher (Proposition 7 in the text).

²⁰The obtained results hold when we consider instead $\frac{\partial^2 E(L_B)}{\partial B_2 \partial \underline{u}}$, $\frac{\partial^2 E(L_A)}{\partial B_1 \partial \underline{w}}$ and $\frac{\partial^2 E(L_A)}{\partial B_1 \partial \alpha \underline{u}}$.