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Abstract

We develop a theory of non-monetary costs incurred by CEOs when deciding about layoffs and test its predictions on French data. Our results support the idea that, being strongly embedded in their social environment, CEOs find it more difficult to fire employees closer to their own workplace. This effect is stronger whenever social interactions are less anonymous in the CEOs' local environment. It is weaker when CEOs live further away from where they work, because of limited exposure to local discontent.

Keywords: layoffs, non-monetary costs, CEO, social embeddedness

JEL codes: J63, M12, M51, R12

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*Canst thou, O partial sleep, give then repose
To the wet sea-boy in an hour so rude,
And in the calmest and most stillest night,
With all appliances and means to boot,
Deny it to a king? Then (happy) low, lie down!
Uneasy lies the head that wears a crown.*

William Shakespeare, *Henry IV*, Part 2, Act III, Scene 1, 26-31

1. Introduction

This paper investigates the non-monetary costs of layoffs for Chief Executive Officers (CEOs) in business companies. Mainstream economics and management have it that firms engage in layoffs in order to raise efficiency, thereby reducing unit labour costs – see e.g. Cahuc et al. (2014). However, there is abundant evidence in the literature that layoffs are also costly.

First, they entail large costs to the employees who have lost their job and to the people close to them. Individual earnings losses following job displacement have been shown to be particularly persistent, ranging from 15 to 25% up to five to twenty years after displacement – see Sullivan and von Wachter (2009), Couch and Placzek (2010) and Huckfeldt (2022) for the United States; Hijzen et al. (2010) for the United Kingdom; Schmieder et al. (2022) for Germany; Huttunen et al. (2011) for Norway. Job displacement also deteriorates health – see Carrington and Fallick (2017) for a review of the literature. In their seminal paper, Sullivan and von Wachter (2009) find a 10 to 15% increase in annual death hazards following displacement, still significant more than 15 years after displacement. In addition to increased mortality, job loss also harms other aspects of individuals' health – Deb et al. (2011), Browning and Heinesen (2012), Black et al. (2015) –, especially mental and emotional health – Browning et al. (2006), Eliason and Storrie (2009), Osthus et al. (2012), Schaller and Stevens (2015). This cost of job loss borne by the dismissed employees may also spill over into their family. Bhalotra et al. (2021) show that both male and female job loss lead to large and pervasive increases in domestic violence. The welfare of the local community may also be affected, e.g. in terms of revenue – see Gathmann et al. (2020) – but also as regards local security – see Dell et al. (2019) and Britto et al. (2022).

Beyond the cost for the dismissed individuals and their environment, layoffs may also be costly for firms as organisations. They first generate direct legal costs due to the existence of employment protection legislation in most countries – see OECD (2020) and Boeri and Van Ours (2013). More broadly, and consistent with the resource-based view of the firm – Penrose

(1959) –, employment destructions entail a loss of organisational competences – Leana and van Buren (1999) and Guthrie and Datta (2008). The remaining workers have also been shown to react to the dismissal of their colleagues by reducing their effort and organisational engagement – Brockner et al. (1992), Datta et al. (2010), Drzensky and Heinz (2016), van Dick et al. (2016), Lopez et al. (2017) and Heinz et al. (2020) –, thereby lowering labour productivity. This is why, although downsizing is usually implemented for the sake of cost savings, it sometimes proves ineffective – Sucher and Gupta (2018). In addition, layoffs are harmful to firm reputation as assessed by senior executives and outside directors in the America's Most Admired Corporations (AMAC) survey – see Flanagan and O'Shaughnessy (2005), Love and Kraatz (2009), Schulz and Johann (2018). These negative effects of layoffs on firms' overall performance are reflected in the fact that they do not systematically increase firm value. In their extensive review of the literature, Datta et al. (2010) emphasise that, on average, downsizing announcements have a negative effect on stock prices. Even though, more recent work finds more ambiguous effects of layoffs on firm long-term value – see e.g. Goesaert et al. (2015), Carriger (2017), Alnahedh and Alrashdan (2021), and Bassanini et al. (2023) –, there is no evidence of a systematic, large-scale positive effect of downsizing on firm performance.

In addition to the cost for the organisation, layoffs are also costly to the dismissing agents themselves. The literature on "necessary evils" – see Margolis and Molinsky (2005) and (2008) – suggests that watching another human being suffer and being the cause of that suffering is a source of psychological distress. Focusing on managers who are required to carry out layoffs they have not decided, Clair and Dufresne (2004) show that they indeed suffer from long-lasting emotions, referred to as "emotional costs". As coping mechanisms for self-protection and self-preservation, they tend to distance themselves from the tasks emotionally, cognitively, and physically – Clair and Dufresne (2004), Clair et al. (2006) and Gandolfi (2009).

This literature leaves open the question as to whether, beyond the economic cost borne by their company, CEOs incur a personal, non-monetary cost when laying employees off. The answer to this question is far from obvious. On the one hand, executive officers are the ones who decide about layoffs. So, in contrast to the downsizing agents studied by Clair and Dufresne (2004), Clair et al. (2006) and Gandolfi (2009), they do not have to implement layoffs that have been decided by others, which may be a source of stress if this generates a control-demand imbalance (see Karasek, 1979). On the other hand, layoffs are often seen as unfair since they breach an implicit commitment to long-term employment (Rousseau and Anton, 1988; Charness and Levine, 2000). As such, they may trigger negative social reactions in the local community

where they take place. Since CEOs bear the ultimate responsibility for layoff decisions, they are likely to be the direct target of local discontent. To the extent that they are strongly embedded in their local environment, especially in small and medium-sized firms (Lefebvre, 2023), this may generate a significant non-monetary cost to them.

In this paper, we provide a theory of non-monetary costs incurred by CEOs when deciding about layoffs, because of their social embeddedness in the environment where the layoffs take place. We will call these costs “embeddedness costs” for brevity hereafter. Our theory yields predictions that we test on French data. The development of our theory builds on a small number of exploratory interviews with CEOs of medium-sized companies who have been confronted to layoff decisions. All our CEOs report that laying workers off has been a trying experience for them, in the case of both downsizing events and dismissals on personal grounds. The non-monetary cost they have experienced is due, not only to their awareness that they are harming the dismissed employees and their families, with whom they have direct or indirect social ties, but also to the negative social reactions that this may trigger in the local community and whose consequences they will have to bear. In consequence, CEOs develop strategies to distance themselves from the workers and/or the community that may be affected by the layoffs.

We therefore propose that executive officers will find it easier to fire employees belonging to local communities that are further away from their own workplace. We test this prediction on a unique large-scale matched employer-employee dataset, containing more than 50,000 establishment-year observations. Our results support this view by showing that, within (multi-establishments) firms, layoff rates are higher in establishments located further away from the headquarters, where CEOs work. We also propose that this effect will be relatively more important when social interactions at the firm headquarters are less anonymous. In this case, CEOs are indeed more exposed to the direct expression of the discontent caused by their decisions, and hence more inclined to avoid layoffs in their immediate surroundings. Our quantitative results confirm this hypothesis: we show that layoff rates increase with the distance to the firm headquarters only when the latter are located in rural areas, i.e. in environments where population density is low and hence anonymity is low too. Finally, we propose that CEOs will feel a lesser need to put distance between where layoffs take place and where they work whenever they live further away from their workplace. In this case, they will indeed have fewer interactions with the employees and the local community affected by the layoffs, and hence be less exposed to the expression of local discontent. Our results support this prediction since we

find that dismissals increase with the distance to the firm's headquarters only when CEOs live within 50 km of the latter, whereas this effect is insignificant when they live further away.

Beyond the various strands of literature on the cost of layoffs discussed above, our paper speaks, more generally, to the literature in economics and management that sees the firm and its decision-making process as embedded in its social environment. In his seminal work, Granovetter (1985) defines social embeddedness as the extent to which economic decisions are linked to actions, norms and networks that are non-economic in content and purpose (see also Granovetter, 2005). While the idea that non-economic institutions affect production choices and processes has become widespread in economics (e.g. North, 1990; Acemoglu et al., 2005), a number of authors go beyond institutions and view other aspects of the social environment, such as the shared identity or culture in a society, as crucial determinants of economic decision-making (e.g. Akerlof and Kranton, 2000; Freeman, 2019). Social embeddedness is therefore seen as framing the cognitive categories that determine organisational and collective learning, adaptation and strategic decisions (e.g. Dosi, 2023). Individual and group identities stemming from social interactions are also seen as shaping – and coevolving with – the balance of power within organisations and, ultimately, the effectiveness of the organisational mode of production (e.g. Dosi and Marengo, 2015; Dosi et al., 2021). In this paper, we speak to this stream of literature by providing theory and evidence suggesting that CEOs are strongly affected by their interactions with their social environment when considering human resource management decisions that may violate the social norms shared by their local community, and adopt strategies to minimise their perceived non-economic cost.

The remainder of the article is organised as follows. Section 2 develops our theory. Section 3 lays out our empirical specification. Section 4 describes the data. Section 5 presents the results and Section 6 concludes.

2. Theory development

Chief executive officers bear a key responsibility in layoff decisions. Accordingly, we propose that when contemplating the possibility of laying employees off, they will anticipate the

reactions of their employees or of their local environment and the embeddedness cost that these reactions may imply for them.

To explore this possibility, we conducted exploratory interviews with nine French CEOs with previous experience of layoff decisions. Using the 2007 REPOSE survey,¹ we selected multi-establishment private companies with more than 10 employees in the business sector. We focused on companies that reported laying off employees in the three years preceding the survey and contacted their CEO by email. The response rate was low, which explains why we only use these interviews as exploratory material.

They suggest that layoffs are difficult to carry out for CEOs because of an "inner struggle" – as described by sociologist Bernard Lahire (2006) – between two different perceptions of layoffs: one that considers them a necessary evil and another one considering them as shameful.

GS, the CEO of a firm specialised in hygiene products in the South-East of France, points out that layoffs are always painful to carry out. He had to dismiss the export manager recruited 3 or 4 years earlier because her capacities were no longer sufficient to cope with the development of her position and of the company. He emphasises that, although it was a necessity from the business point of view, this decision was not easy to make:

"It's not for the love of it. [...] Contrary to what you might think, uh... it's not because you're a boss that it's easy to say to someone: "You know what, we're done. Go home and then... and then thank you," you know".

GT, the CEO of one of the leading companies in Europe specialised in the prevention and control of risks in manufacturing sectors, located in the North of France, underlines that even dismissals on economic grounds are not easy to decide and implement – even if his personal experience has not been too bad in this respect:

"I've been lucky that it's gone pretty well most of the time. But it's always too much, anyway".

One of the reasons why layoffs generate embeddedness costs for CEOs is that they anticipate the difficulties that their decision will create to the dismissed employees and are often aware of the fact that these difficulties may extend to the whole family of the dismissed employee. DC, the CEO of a family company producing extinguishers in Ile-de-France (the region surrounding

¹ *Relations Professionnelles et Négociations d'Entreprise*.

Paris) had to conduct several dismissals for misconduct and inappropriate behaviour. She acknowledges that this decision was not easy to make:

"My first layoffs were intellectually difficult, because when you lay someone off, you always think of all the consequences it will have on the person's life: loss of job, drop in salary, difficulties in finding a new job, the impact on the children, blah, blah, blah, it's difficult".

The embeddedness costs incurred by the CEO when firing a worker tend to come from the fact that the negative consequences of the dismissal for the employee may spread to her, to some extent. WM, the CEO of a plastics processing company located to the East of Paris, had to conduct a mass layoff. He remembers his difficulties and fears:

"You feel fragile, you think "Wow...", I think about people, families... Yeah it's going to... it's going to create a problem for them, I'm going to create a problem for people, for sure. It's going to be perceived wrong, so I'm going to be the bad guy again".

Embeddedness costs triggered by layoffs appear to be higher when CEOs have to lay off employees who are closer to them. This may happen because they have known these employees for a long time. GT inherited his company from his father. When it came under financial distress, he had to lay off employees who had known him since he was a child:

"And the last factor that made it difficult for me at the time... As I said, it was a family business and most of the people I had to lay off were people who had known me when I was 10 or 15 years old – and for whom I was the boss. In front of the numbers, you put names (filled with emotion). And among the names, I had people who had worked with my father who were 60 years old, who had known me when I was a kid...".

It may also turn out difficult to lay off employees who contributed to the start of the company and trusted the CEO at times when the business was facing an uncertain future. GS explains:

"And among the starting team of 7-8 people, there is one, indeed, where... where I would have to part with him. I'm not doing it. I won't do it". He explains why: "Because I also think that it could break a dynamic. It could break a relationship of trust with the whole team". He adds a second reason: " It's a person who trusted me because when you join a team, uh... a company creation, you also have to trust the creator."

Finally, in small and medium-sized companies, CEOs may have developed personal relationships with some of their employees, which makes it even harder if they have to lay them off:

"She had met me 10 years before I became CEO, and so... well, we were on first-name terms, well... I'm not going to say that we were friends because we didn't see each other outside the company, but we had a good relationship, and it was... It was not an easy time" (DC).

This problem is well known to MC's partner² who attended the interview and jumped in when we touched that point:

"When there are questions about redundancy, when you are in a family business, you know the people behind it and the families behind it [...] even if they are employees and not buddies or people with whom you have a particular affinity, they are people you know and you know the family that will be affected".

These accounts suggest that CEOs incur an embeddedness cost when laying employees off. In order to cope with it, they use different means. Several of them mention the importance of discussing their decision with their partner. He/she provides good advice and helps rationalising the difficult decision:

"My only advisor is my wife. That's it. Whenever I have an important question, uh... I talk to her. And I must admit that it's a good thing she's there because she always has the right advice" (GS).

MC emphasises that when he must lay an employee off, his wife tries to encourage him to protect himself.

"She tells me: "You cut off a branch to try to save the tree. [...] You may be saving more families by sacrificing a few"".

Friends are less frequently consulted since their reaction is harder to predict. MC insists that he never discusses layoffs with his close friends. Most of them are teachers and artists who usually disapprove of the dismissals mentioned on the press with comments such as: "Yeah uhhhhh can you imagine all those bosses laying off... doing all that crap...". Some CEOs even use professional assistance when layoffs are particularly difficult. DC indeed used a coach in

² MC is the CEO of an agency specialised in waterway transport in the Rhône-Alpes region.

management when she had to lay off a friend (twice in her career) or some relatives (her former husband and father of her children, as well as her cousin's husband).

However, the most widespread strategy used by the CEOs we interviewed consists in distancing themselves from their employees as much as possible, so as to minimise social interactions. After facing the inconvenience of laying two friends off, DC now stays away from her employees and avoids any friendship with them:

"But those two experiences were too hard, and I didn't want to have to go through them again [...]. And then there were these two experiences and I realised that in the end I would never have friends in the company".

MC refuses any personal relationship with his employees:

"You see, I'm going to be 40 years old. All the employees I recruited were either my age or 3 years younger. In fact, I was often invited to their homes for barbecues and things like that. And I always refused. Because that's the trap. The personal trap, the relational trap, but also the emotional trap. Because you tell yourself that the day you have to make a decision that doesn't necessarily go their way, well, it might come back to bite you. So, I always refused...".

Similarly, although WM may spend time with some of his retired employees, he never does so with current ones:

"I keep in touch, and I go to lunch with people who have retired. Now, I don't have a problem with retired people. But I've never gone to lunch or dinner at the home of someone who's still working at one of the companies. And I think I would refuse because I want to have that emotional freedom to be able to say negative things... or if there are problems...".

In order to avoid any direct interaction with his employees, MH (the CEO of a family business in the construction sector, in western France) even hired a human resource manager (BH):

"BH is a kind of shield for me, that is to say that she protects me, to avoid being in direct contact, because in fact when I grew up, as a child I knew all the names of the employees of the company, I even knew their sizes, because every year I gave them the work clothes and the pair of shoes that went with them".

This distancing may also be strategic in case of mass layoffs. When WM bought his company, it was located on two different sites: the headquarters and the production facility. He decided

to close the latter and outsource production. During the closure stage, he was very careful not to spend too much time at the production facility:

"During that year I was still 4 days a week on the other site [the headquarters], so this site that I closed I was only there one day, so people knew me, but with a certain distance".

Overall, our interviews suggest that CEOs incur an embeddedness cost when laying employees off and that this cost is increasing in their social and personal proximity to the dismissed workers. This leads us to propose that when considering firing employees, executive officers will find it easier to fire employees that are more distant from them.

The social distance between CEOs and their employees is hardly observable. However, using the French *Contact entre les personnes* ("Contact between people") survey, Bassanini et al. (2021) show that social relations decrease with geographical distance between individuals. As a consequence, we hypothesise:

Hypothesis 1: within firms, layoff rates are higher in establishments located further away than in establishments located closer to the headquarters – where CEOs work.

The embeddedness cost borne by CEOs when laying off also arises from the reactions they expect from their local environment. They are particularly afraid of how clients may react. KS, the CEO of a family delicatessen and catering company in Alsace (close to the German border), hesitated before laying off an employee with whom there were many small problems. This employee was indeed employed in one of the stores of KS's company located in a village, and KS was afraid of the potential reactions of the local customers:

"Yes, what made me hesitate was this third store, eh? She was recruited at the time when this store, uh, uh, started up. And she was from the village. I was a bit afraid that in the village, uh... she was a girl from a village family and I was afraid uh... of the reaction of... certain customers, even if there were some who could uh... criticise... well... criticise her... her way of working, others could support her. And think: "Ah well... they're... they're really not nice, they've... they've fired her." That's it".

Beyond clients, the reaction of the broader community is also a concern. MC emphasises that such reactions may be triggered by employees leaving the company even in the absence of a proper layoff. Two years before the interview, two of his collaborators quitted and he reports:

"we were told 'damn!' there is much turnover at *COMPANY XX* this year. And when you hear that... it means that people were used to stability before, which reassured them. And when you have turnover, it's not reassuring. Because turnover is very bad".

Layoffs are likely to trigger stronger reactions than quits from the local community. Beyond the CEO herself, these may affect her closest family. MH recalls that, after firing an employee, the following episode took place:

"He was an ex-colleague. Hmm the children are at school together, they are the same age, they share the same passion for soccer, and it happened to me to take the young people to the match. Well, this man refused to take my son, under the pretext that he was my son...".

MH insists that difficult HR decisions typically have far-reaching consequences:

"My wife doesn't always live it well, to be honest with you, without confiding too much in me, but... She doesn't always live it well in these situations, because as I was saying earlier, it's nice when it goes well, but when it doesn't go well, it's the person concerned who makes you feel it, and more so if it goes through the children, and more so if it goes through your wife, and more so if it goes through her, and she's in the local business, and so she loses a client. And even, I had the case, it is whole families that turn their backs on you".

Local reactions to layoffs are, of course, more likely and more worrying when the firm has a strong visibility because it is one of the key actors in the local economy. GT started his career as the CEO of a stationery company which was then sold out to an English group. GT had to downsize the company by one third:

"It was all the more complicated because we were in a small town where the company was well known. With 115 employees in *TOWN XX*, we were a relatively large employer in *TOWN XX*. So, everyone knew this company. It was a company that had nice premises on the road leading to the airport... so it was a company that had visibility".

These accounts suggest that, beyond the fear of harming the dismissed employees and their families, the embeddedness cost triggered by layoffs also arises from the potential reactions of the local community. These tend to be fiercer and more costly for CEOs and their family when the latter are more visible in the local community. Since population density is lower in rural than in urban environments, we expect anonymity to be weaker and hence the embeddedness cost attached to layoffs to be higher in rural areas. As a consequence, putting distance between

where CEOs work – i.e. the firm headquarters – and where layoffs take place will be particularly crucial in such environments. Formally, we hypothesise that:

Hypothesis 2: within firms, the gap in layoff rates between establishments located further away and establishments located closer to the firm headquarters is larger when the latter are located in a rural than in an urban environment.

To shield themselves from frequent social interactions with their employees and the local communities, some CEOs choose to live at a distance from their headquarters. WM lives in the immediate outskirts of Paris while the headquarters of his company are located about 130 km to the East. This appears to be a strategic choice on his part: "thanks to the fact that I live in Paris, it really allows me to keep this distance, and so...". He concludes, "I'm not locally anchored". MH indeed insists that living in the very small town where one's own company is located is very demanding:

"You can't take a step in your daily life or spend a weekend or go to an event, a party... without being called upon for solicitations of all kinds, so it's really an art of living in the sense that... I'm often called YY [this is the name of his company]. You are never totally free, it goes on for 24 hours a day, on Saturdays, Sundays...".

This is why MH's HRM manager, BH, also decided to live away from the company's headquarters:

"I don't want to do my shopping or go for a walk and be confronted with employees where they will very often tell me about their difficulties, their requests for salary increases, and so for me this is an important parameter. It's not to be too close".

When CEOs have distanced themselves from their workplace by living further away from the company's headquarters, they will be less socially embedded in the local community of the headquarters, which should reduce the embeddedness cost they incur when considering layoffs. As a consequence, they will probably feel a lesser need to put distance between their workplace and the workers who are laid off. We therefore hypothesise:

Hypothesis 3: within firms, the gap in layoff rates between establishments located further away and establishments located closer to the firm headquarters is smaller when CEOs live further away from these headquarters.

The remainder of the paper is devoted to testing these three hypotheses.

3. Empirical Specification

Hypothesis 1 – Within firms, layoff rates are higher in establishments located further away than in establishments located closer to the headquarters – where CEOs work.

To test this hypothesis, we compare layoff rates across secondary establishments of given firms according to their distance to the firm headquarters. Headquarters are excluded from our analysis since they are functionally different from secondary establishments and may hence have lower layoff rates for this reason, while being at zero distance from themselves, by definition. Formally, we estimate the following equation:

$$LR_{jHt} = \beta_0 + \beta_1 Dist_{jHt} + X_{jHt}\beta_2 + CZ_{jH} + D_t + D_H + \varepsilon_{jHt} \quad [1]$$

where LR_{jHt} denotes the layoff rate in establishment j of a firm with headquarters H at year t . $Dist_{jHt}$ is the distance from establishment j to the firm headquarters at year t . CZ_{jH} is a dummy variable for the commuting zone³ in which establishment j is located, D_t and D_H are year and headquarters dummies, respectively, and ε_{jHt} is an error term. By including both headquarters and commuting zone fixed effects, we control for the geographical characteristics of the establishments, the firms and their headquarters.⁴ Finally, X_{jHt} is a vector of additional establishment-level controls which include establishment size (7 categories) and age (6 categories), the occupational structure of the workforce (4 categories), 2-digit industry dummies and the time-varying *département*-level⁵ unemployment rate (to capture short-term local shocks that are not captured by time-invariant commuting zone's dummies). Standard errors are clustered at the *département* level.

In this specification, we expect β_1 to be positive and significant, thereby indicating that, within firms – characterised by their headquarters H – layoff rates are higher in establishments located at a greater distance from the firm headquarters than in establishments located closer.

The distance between an establishment and its firm headquarters may, however, be endogenous. This is the case, for example, if distant establishments, being harder to monitor, are more likely to perform badly and hence shut down. Since these establishments would have had high layoff rates had they remained in operation, this generates a downward bias in the OLS estimates of

³ Commuting zones are travel-to-work zones defined based on daily commuting patterns as observed at the beginning of the 1990s. In mainland France in 1990, there were 341 such zones, which usually contained one city and its catchment area. The average size of these zones was 1,570 km², which corresponds to an average radius of about 22 km around the barycentre.

⁴ Since headquarters are unique for a given firm in a given year, firm fixed effects would be collinear with headquarters fixed effects. This is why we do not include them.

⁵ *Départements* are administrative subdivisions, larger than municipalities but smaller than regions.

equation [1]. To circumvent this problem, we rely on the method used by Bassanini et al. (2021). We instrument the distance between one establishment and its headquarters by the potential distance, defined as the distance between the headquarters and the place where the establishment would have been located (its potential location) had this location been chosen only to maximise its contribution to the firm market potential⁶ – see Appendix A.1 for a description of the method. Bassanini et al. (2021) show that this potential distance is a valid instrument, i.e. that it affects the outcome variable only through actual distance, and is therefore unrelated with any unobserved plant-specific characteristics that may affect this outcome after conditioning on actual distance.

Hypothesis 2: within firms, the gap in layoff rates between establishments located further away and establishments located closer to the firm headquarters is larger when the latter are located in a rural than in an urban environment.

To test this hypothesis, we split our sample into firms whose headquarters are located in a rural environment and firms with headquarters located in an urban one. We then re-estimate equation [1] on each of these two subsamples. We expect β_1 to be larger when estimated on the sample of firms with rural headquarters than when estimated on the sample of firms with urban headquarters. This would confirm that CEOs find it more necessary to put distance between their workplace and the employees they lay off when working in an environment where anonymity is lower and hence encounters with the dismissed employees and/or their family, friends and relatives, are more likely.

Hypothesis 3: within firms, the gap in layoff rates between establishments located further away and establishments located closer to the firm headquarters is smaller when CEOs live further away from these headquarters.

We test this hypothesis by splitting our sample across firms whose CEO lives within 50 km from the firm's headquarters and firms whose CEO lives further away. We then re-estimate equation [1] on each of these two subsamples. We expect β_1 to be larger on the first subsample than on the second one since our prediction is that CEOs will find it more necessary to put distance between where workers are laid off and the firm headquarters when they live closer to the latter.

⁶ The market potential is a standard measure of the relative advantage of a location in terms of access to final demand (see Harris, 1954).

Hypotheses 2 and 3 are crucial to test our theory. In fact, Hypothesis 1 could hold true even if layoffs do not trigger any embeddedness cost for the CEO. Landier et al. (2009), Giroud (2013) and Kalnins and Lafontaine (2013) indeed suggest that a positive relation between layoffs and the distance to the firm headquarters may arise because of information asymmetries and/or monitoring costs. In contrast, the fact that distant layoffs are relatively more important when the headquarters are located in a rural environment – Hypothesis 2 – and/or when the CEO lives closer to the headquarters – Hypothesis 3 – can only be accounted for by our theory of embeddedness cost incurred by CEOs when deciding about layoffs.

4. Data

Our period of study spans 2003-2009. Before 2003, the occupational classification used by the French statistical institute does not allow us to identify CEOs from other company executives. By the end of 2008, the French government introduced a new form of separation called "termination by mutual consent". This procedure made it possible for employers and employees to agree on the termination of an open-ended contract provided that the employer pays a severance payment at least as high as the one she pays to dismissed workers. Employees who are the subject of such termination are eligible to unemployment benefit, which is not the case if they quit. In parallel, employers using such termination are not required to exhibit a just cause and are unlikely to be sued in front a labour court, in contrast to what happens in case of layoff. The ramping up of the new system took some time: terminations by mutual consent only represented 7.7% of all layoffs in 2009, but they eventually substituted part of the dismissals – as well as part of the quits.⁷ Since their introduction modified the financial cost of separations, our study period ends in 2009.

We rely on several data sources to conduct our analysis. The first one is the so-called DADS, *Déclarations Annuelles de Données Sociales*. The DADS cover all establishments and firms in all industries except agriculture, part of the food-processing industry and rural financial institutions. For each year, they have information on the municipality (or *arrondissement*⁸) where the establishment is located as well as its age, industry and the occupational structure of

⁷ Terminations by mutual consent represented 57.7% of all layoffs as of 2011.

⁸ *Arrondissements* are subdivisions of municipalities. They exist only for the three largest French cities: Paris, Lyon and Marseille.

the workforce as of December 31st. We lag the latter variables by one year to use it as a control in our regressions.

For each establishment in the DADS, we know the identifier of its headquarters and the municipality/*arrondissement* where they are located. Since 8.2% of our establishments change headquarters over the period we study, we consider the location of the headquarters as time-varying over our sample period. The DADS also have information on the legal category of the firm to which the establishment belongs (business company, public administration, charity, etc.).

The second source that we use are the DMMO/EMMO databases. The DMMO (*Déclarations sur les Mouvements de Main-d'Œuvre*) have exhaustive quarterly information on layoffs for establishments with 50 employees or more. The EMMO (*Enquête sur les Mouvements de Main-d'Œuvre*) has the same information for a representative sample of 25% of the establishments whose size ranges from 10 to 49 employees.⁹ For each quarter, we compute the layoff rate as the sum of all layoffs in this quarter divided by the average employment in the quarter.¹⁰ Given that firms' headquarters only vary on a yearly basis, we then compute yearly averages of quarterly layoff rates.

The *Répertoire Géographique des Communes*¹¹ provides information on the latitude and longitude of all municipalities in France. We collected the same information for the *arrondissements* of Paris, Lyon and Marseille from the website *Carte de France*.¹² We computed great-circle distances across establishments assuming that each establishment is located at the barycentre of its municipality/*arrondissement*. Since the largest cities are divided into *arrondissements* and since there are 36,570 municipalities in France – of which only 0.04% have a surface larger than 190 km² – the error we make on the actual location is very small. Given our definition of distance, two establishments located in the same municipality/*arrondissement* are at zero distance from each other, by construction. We also know in which *département* each municipality is located and whether this *département* was classified as mostly rural or mostly urban in the 2000 OECD Regional Database. Finally, the

⁹ We do not have any information on worker flows for establishments with less than 10 employees.

¹⁰ The average employment level in a quarter is defined as half of the sum of the employment levels at the beginning and the end of the quarter (see e.g. Davis et al., 2006).

¹¹ This database is produced by the French *Institut National de l'Information Géographique et Forestière* (formerly *Institut Géographique National*, IGN).

¹² <http://www.cartesfrance.fr/>

Base Communale des Zones d'Emploi allows us to know to which commuting zone municipalities belong.¹³

We match these datasets and keep all business companies – excluding non-profit organisations (charities, foundations, etc.) and public administrations. Since our empirical strategy relies on the comparison of layoff rates across secondary establishments within firms, we only keep companies with at least two of them in our dataset.¹⁴ We drop establishments for which layoff rates or some of our establishment-level controls are missing. Given that Paris is an outlier in terms of economic activity and number of headquarters, we also exclude establishments with headquarters located in the Paris area and its close suburbs (the so-called "*Petite Couronne*"), as standard in the literature in economic geography – see e.g. Combes et al. (2010). Our final sample contains 51,502 establishment-by-year observations, corresponding to 18,909 different establishments belonging to 4,283 firms.

The DADS dataset also allows us to determine where CEOs live to the extent that they are wage-and-salary employees of their firm. This is not always the case since CEOs may alternatively be *mandataires sociaux* in which case they are self-employed and hence out of the scope of the DADS. As a consequence, we have information on the CEOs' place of living only for a subsample of our observations, i.e. 2,396 firms covering 9,244 establishments. In this subsample 75% of the CEOs live and work at the same place and the average (resp. median) distance between CEO's places of living and firms' headquarters is 73.32 km (resp. 12.72 km).

Descriptive statistics of our main regression sample are provided in Appendix Table A1. Average quarterly dismissal rates are on average slightly more than 1% (1.29%), slightly larger in the manufacturing and energy sector than in construction and services. The average distance from secondary establishments to firm headquarters is 240.5 km – see Appendix Table A2. The mean distance to the closest (resp. farthest) establishment is 47.5 km (resp. 481.6 km).

5. Results

We first test Hypothesis 1 which states that, within firms, layoff rates are higher in establishments located further away than in establishments located closer to the headquarters – where CEOs work. The impact of the distance to the firm headquarters on establishments' layoff

¹³ This database is provided by the French Statistical Institute (INSEE).

¹⁴ These establishments may not be observed the same year. For example, in the case of 2 establishments, one of them may be observed at one year and the other one at another year.

rates is first estimated by OLS. The raw correlation between both variables is presented in column (1) of Table 1. It is positive and significant at the 10% level: when the distance from the establishment to the firm headquarters increases by 100 km, the layoff rate in the establishment increases by 0.047 percentage points, i.e. by 3.6%, as measured at the sample average. This raw correlation is computed on all establishments, whether they belong to the same firm or not. When adding headquarters dummies – thereby comparing establishments belonging to the same firm – as well as time dummies, the point estimate hardly changes: 0.041, significant at the 10% level – column (2) of Table 1. Finally, if we include a full set of establishment-level controls, the point estimate increases to 0.060, significant at the 5% level – see column (3). This implies that, when the distance to its firm headquarters increases by 100 km, the layoff rate of a secondary establishment increases by 4.7%.

As mentioned in Section 3 though, the distance to the firm headquarters may be endogenous. To circumvent this problem, we instrument the actual distance between one establishment and its headquarters by the potential distance of this establishment – see Appendix A.1. As evidenced when considering the first-stage estimate – column (4) of Table 1 – and the Kleibergen-Papp F-test of weak identification – column (5) –, the instrument is strongly correlated with the endogenous variable and hence far from being weak. The estimated IV coefficient on the distance to the firm headquarters is as high as 0.087, significant at the 5% level. This estimate is conservative since it controls for (time-invariant) firm-level heterogeneity, the geographic characteristics of the establishment – as well as a number of other workplace attributes –, and the endogeneity of the actual distance between the establishment and its firm headquarters. Nonetheless, this result supports our first hypothesis since, when the distance to the firm headquarters increases by 100 km, the layoff rate increases by 6.7%.

This finding is consistent with the idea that CEOs incur an embeddedness cost when laying employees off and that this cost is increasing in their social and personal proximity to the dismissed workers. However, as emphasised in Section 3, in isolation, this finding is not enough to validate our theory since the positive relation we find between the distance to the firm headquarters and the establishment layoff rate could be due to alternative factors such as information asymmetries and monitoring costs, for example. We now turn to testing Hypotheses 2 and 3 to fully validate our theory.

We first split our sample across firms with headquarters located in rural vs urban environments, and re-estimate equation [1] on each subsample, so as to test Hypothesis 2. As evidenced in columns (1) and (2) of Table 2, the OLS and IV estimates of the impact of the distance to the

firm headquarters on establishments' layoff rates are positive and significant, at least at the 5% level, when headquarters are located in rural environments. In contrast, the point estimates are never statistically significant when estimated on the subsample of firms with urban headquarters – see columns (3) and (4). These findings are consistent with our prior that the embeddedness cost associated with layoffs partly arises from the potential reactions of the local community. Since anonymity is weaker in rural environments, these reactions will likely reach CEOs more directly, thereby increasing the level of the embeddedness cost attached to layoffs. As a consequence, putting distance between where CEOs work and where layoffs take place is particularly crucial in such environments.

To test Hypothesis 3, we re-estimate equation [1] separately for firms whose CEOs live within 50 km from the headquarters and firms with CEOs living further away. The corresponding results are reported in Table 3. Consistent with Hypothesis 3, the distance from the establishment to the firm headquarters has a positive and significant impact on establishments' layoff rates, whenever the CEO lives within 50 km of the headquarters. This holds true whether this effect is estimated by OLS or by IV – see columns (1) and (2). In contrast, we find no significant effect of the distance to the headquarters on the layoff rate whenever the CEO lives further away from the headquarters. This supports the idea that when CEOs have distanced themselves from their workplace by living further away from the company's headquarters, the embeddedness cost attached to layoffs is lower, so that they do not need to put distance between where they work and where employees are laid off.

The empirical analysis conducted in this section therefore supports Hypotheses 1 to 3. By the same token, it validates our theory of embeddedness cost borne by CEOs when deciding about layoffs. In fact, the differential impact of the distance to the firm headquarters on layoff rates observed when headquarters are located in low-density (rural) vs high-density (urban) areas and when CEOs live closer to vs further away from the headquarters cannot be explained by confounding factors such as monitoring costs and/or informational asymmetries. In contrast, the existence of an embeddedness cost borne by CEOs when laying workers off accounts for the three empirical findings we highlight, altogether.

Conclusion

In this paper, we provide a theory of non-monetary costs incurred by CEOs when deciding about layoffs, and take it to the data.

Our exploratory interviews suggest that CEOs incur embeddedness costs when laying employees off and that these costs are increasing in their social and personal proximity to the dismissed workers. So, we first propose that executive officers will find it easier to fire employees belonging to local communities that are far away from their own workplace. The corresponding empirical prediction is that, within firms, layoff rates will be higher in establishments located further away than in establishments located closer to the headquarters – where CEOs work. We also observe that the non-monetary cost triggered by layoffs partly arises from the potential reactions of the local communities in which CEOs are embedded. Since CEOs are more likely to be directly confronted with local discontent wherever population density is lower, our second prediction is that the gap in layoff rates between establishments located further away and establishments located closer to the firm headquarters will be larger when the latter are located in a rural than in an urban environment. Finally, to shield themselves from frequent social interactions with their employees and the surrounding local community, CEOs may choose to live at a distance from their headquarters. When they do so, the embeddedness cost they are subject to when considering layoffs will likely be lower, so that they will feel a lesser need to put distance between their workplace and the workers who are laid off. Our third empirical prediction is thus that, within firms, the gap in layoff rates between establishments located further away and establishments located closer to the firm headquarters is smaller when CEOs live further away from these headquarters.

We test these three predictions using a large French administrative dataset. Our results provide empirical evidence in favour of all of them, thereby supporting the relevance of our theory. As a matter of fact, while the positive relation that we uncover between layoff rates and the distance between establishments and their firm headquarters could, in principle, reflect confounding factors such as monitoring costs or information asymmetries, this is not the case of the differential impact of distance on layoffs when CEOs work in rural vs urban areas and/or when they live closer to vs further away from the firm headquarters.

The existence of an embeddedness cost borne by CEOs when deciding about layoffs supports the idea that non-monetary costs play a crucial role in firms' decision making, as does the social environment in which their executives are embedded.

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Tables

Table 1 – Distance to Headquarters (HQ) and Layoffs in Secondary Establishments 2003-2009

Method	(1) OLS	(2) OLS	(3) OLS	(4) IV-1 st stage	(5) IV-2 nd stage
Dependent variable	Layoff rate	Layoff rate	Layoff rate	Distance to HQ	Layoff rate
Distance to headquarters	0.047* (0.026)	0.041* (0.022)	0.060*** (0.021)		0.087** (0.040)
Potential distance to HQ				0.589*** (0.104)	
Kleibergen-Papp F-test of weak identification	-	-	-	-	32.29
Observations	51,502	51,502	51,502	51,502	51,502
R-squared	0.001	0.202	0.220	0.653	-
Headquarters dummies	no	yes	yes	yes	yes
Year dummies	no	yes	yes	yes	yes
Establishment characteristics	no	no	yes	yes	yes

Note – In all columns except col. 4, the dependent variable is the yearly average of quarterly layoff rates in percentage multiplied by 100. In col. 4, the dependent variable is the actual distance between an establishment and its firm headquarters. Actual and potential distances to headquarters are measured in hundreds of kilometres. Establishment characteristics include: commuting-zone and industry dummies, the unemployment rate in the *département* of the establishment, establishment age (6 classes) and size (7 classes) dummies as well as the occupational structure of the workforce (4 categories). Robust standard errors clustered at the level of the *département* of the headquarters in parentheses. IV models are estimated with 2SLS estimators. *** p<0.01, ** p<0.05, * p<0.1

Table 2 – Distance to Headquarters (HQ) and Layoffs in Secondary Establishments 2003-2009. Rural vs Urban Headquarters.

Method	(1) OLS	(2) IV-2 nd stage	(3) OLS	(4) IV-2 nd stage
Sample	Rural Headquarters		Urban Headquarters	
Dependent variable	Layoff rate	Layoff rate	Layoff rate	Layoff rate
Distance to headquarters	0.109*** (0.030)	0.188** (0.083)	0.025 (0.018)	0.035 (0.048)
Kleibergen-Papp F-test of weak identification	-	126.59	-	8.49
Observations	25,407	25,407	26,095	26,095
R-squared	0.246	-	0.202	-
Headquarters dummies	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes
Establishment characteristics	yes	yes	yes	yes

Note – The dependent variable is the yearly average of quarterly layoff rates in percentage multiplied by 100. Actual and potential distances to headquarters are measured in hundreds of kilometres. Rural (resp. urban) headquarters are headquarters located in a *département* classified as mostly rural (resp. mostly urban) in the 2000 OECD Regional database. Establishment characteristics include: commuting-zone and industry dummies, the unemployment rate in the *département* of the establishment, establishment age (6 classes) and size (7 classes) dummies, as well as the occupational structure of the workforce (4 categories). Robust standard errors clustered at the level of the *département* of the headquarters in parentheses. IV models are estimated with 2SLS estimators. *** p<0.01, ** p<0.05, * p<0.1

Table 3 – Distance to Headquarters (HQ) and Layoffs in Secondary Establishments 2003-2009. CEOs living closer vs further away from the firm Headquarters.

Method	(1) OLS	(2) IV-2 nd stage	(3) OLS	(4) IV-2 nd stage
Sample	CEOs \leq 50 km		CEOs $>$ 50 km	
Dependent variable	Layoff rate	Layoff rate	Layoff rate	Layoff rate
Distance to headquarters	0.059* (0.035)	0.229** (0.0113)	-0.067 (0.102)	-0.115 (0.077)
Kleibergen-Papp F-test of weak identification	-	62.26	-	33.00
Observations	10,483	10,483	4,660	4,660
R-squared	0.332	-	0.313	-
Headquarters dummies	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes
Establishment characteristics	yes	yes	yes	yes

Note – The dependent variable is the yearly average of quarterly layoff rates in percentage multiplied by 100. Actual and potential distances to headquarters are measured in hundreds of kilometres. Establishment characteristics include: commuting-zone and industry dummies, the unemployment rate in the *département* of the establishment, establishment age (6 classes) and size (7 classes) dummies, as well as the occupational structure of the workforce (4 categories). Robust standard errors clustered at the level of the *département* of the headquarters in parentheses. IV models are estimated with 2SLS estimators. *** p<0.01, ** p<0.05, * p<0.1

Appendix

A.1 Derivation of the Instrument

Bassanini et al. (2021) instrument the distance between one establishment and its headquarters by the *potential distance* defined as the distance between the headquarters and the place where the establishment would have been located (*its potential location*) had this location been chosen only to maximise its contribution to the firm market potential (irrespective of other plant characteristics). This instrument is built following the procedure presented hereafter.

In economic geography, the market potential is a measure of the relative advantage of a location in terms of access to final demand (see Harris, 1954). It is defined as the sum of the purchasing capacities of surrounding local markets weighted by the inverse of their distance – which typically proxies transportation costs to customers. By analogy, we define the market potential of a multi-establishment firm F as:

$$MPF_F = \sum_k \frac{PC_k}{\min_{j \in F} \{Dist_{kj}\}}$$

where PC_k stands for the purchasing capacity of local market k and j indexes the establishments of the firm, including the headquarters. In other words, the market potential of firm F is the sum of the purchasing capacities of each local market weighted by the inverse of the distance ($Dist$) of these markets to the closest establishment of the firm. We capture purchasing capacity by current population and local markets by French commuting zones. Let K_j denote the set of local markets for which j is the closest establishment among all establishments of firm F , i.e. for which $Dist_{kj} < \min_{i \in F \setminus \{j\}} (Dist_{ki})$ where $F \setminus \{j\}$ is the set of all establishments of firm F excluding j . Then, market potential MPF can be rewritten as:

$$MPF_F = \sum_{j \in F} \underbrace{\sum_{k \in K_j} \frac{POP_k}{Dist_{kj}}}_{CMPF_j}$$

where POP denotes population. $CMPF_j$ can be interpreted as the contribution of establishment j to the market potential of firm F . It can be seen as a proxy of the relative size of the local demand served by each establishment of F .

Once the contribution to the firm market potential is defined in this way, for each establishment of each firm in our sample, we identify the commuting zone where this establishment should have been located to maximise its contribution to the firm market potential. We call it the *potential location* of the establishment. In practice, for each firm in our sample, we pick up one of its secondary establishments and remove it. We then consider each commuting zone in France and consider what would be the contribution to the firm market potential if an additional plant were located there. We take the commuting zone that maximises this contribution: this is the potential location. In doing so, we consider all the establishments of firm F in France and not only the establishments belonging to our regression sample.

Formally, the *potential location* of establishment j (PL_j) is defined as:

$$PL_j = \operatorname{argmax}_h \{CMPF_h\} = \operatorname{argmax}_h \left\{ \sum_{k \in \{Dist_{kh} < \min_{i \in F \setminus \{j\}} (Dist_{ki})\}} \frac{POP_k}{Dist_{kh}} \right\} \quad [2.2]$$

where h indexes the commuting zones. One concern here could be that the population we use to compute $CMPF$ is not pre-dated with respect to our sample. To overcome this problem, as suggested by the literature in economic geography – see e.g. Combes et al. (2010) and Nunn and Puga (2012) – we use local terrain ruggedness as an exogenous predictor of local population. The underlying assumption is that more rugged locations are less inviting so that fewer individuals settle there. Taking the maximum value of ruggedness in our data minus the effective ruggedness of the area as an exogenous proxy of population (data are from Combes et al., 2010), PL_j can be written as:

$$PL_j = \operatorname{argmax}_h \left\{ \sum_{k \in \{Dist_{kh} < \min_{i \in F \setminus \{j\}} (Dist_{ki})\}} \frac{RUG_{max} - RUG_k}{Dist_{kh}} \right\}$$

where RUG_k denotes ruggedness of the commuting zone k and RUG_{max} is the maximum ruggedness over all commuting zones. We then compute the distance between the potential location and the location of the firm's headquarters, which we call *potential distance*.

Bassanini et al. (2021) show that, conditional on firm fixed effects, this potential distance is a valid instrument, i.e. it affects the outcome variable only through actual distance, and is therefore unrelated with any unobserved plant-specific characteristics that may affect this outcome after conditioning on actual distance.

A.2 Appendix Tables

Table A1 – Descriptive statistics of observations. Main sample (51,502 observations).

<i>Variables</i>	Mean	S.D.	<i>Variables</i>	Mean	S.D.
Layoff rates (% of plant employment)	1.29	5.07	Manufacturing and Energy	0.20	0.40
* manufacturing and energy	1.42	7.49	Construction and Services	0.75	0.43
* construction and services	1.27	4.21	Establishment size	80.96	177.75
Structure of the workforce (share of plant employment)			Establishment age (years)	7.24	5.86
Managers	0.12	0.17	Local unemployment rate (%)	8.15	1.70
Technicians and supervisors	0.21	0.20			
Clerks	0.30	0.33			
Blue collars	0.37	0.34			

Note – Observations are establishment-year couples. In this table, services correspond to business sector services (i.e. industry codes ranging from NACE 45 to 82).

Table A2 – Distance to headquarters. Main sample (51,502 observations).

<i>Variables</i>	Mean	S.D.	Median
Distance to HQ (km)	240.5	218.0	185.6
Distance to the closest establishment (km)	47.5	101.3	6.2
Distance to the farthest establishment (km)	481.6	294.9	549.9

Note – Observations are establishment-year couples.