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# Not in my Community: Social Pressure and the Geography of Dismissals

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# Not in my Community: Social Pressure and the Geography of Dismissals[1]

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**Abstract:** We investigate the impact of local social pressure on firms' firing decisions. Using linked employer-employee data, we show that secondary establishments located further away from head-quarters have higher dismissal rates than those located closer. The effect of distance on dismissals is stronger, the greater the visibility of the firm in the local community of its headquarters and the larger the degree of selfishness of that community. We show that these findings can be explained by the social pressure exerted by the communities where firms' headquarters are located, which induces CEOs to refrain from dismissing at short distance from their headquarters.

**Keywords:** dismissals, social pressure, distance.

# Pas dans mon Environnement ! Pression sociale et Structure Géographique des Licenciements

**Abstract :** Dans cet article, nous étudions l'impact de la pression sociale locale sur les décisions de licenciement des entreprises. Nous utilisons des données appariées employeurs-employés et nous montrons que les établissements secondaires situés à plus grande distance du siège social ont des taux de licenciement plus élevés que les établissements plus proches. Cet effet de la distance au siège sur le taux de licenciement est d'autant plus fort que l'entreprise est plus visible dans la communauté locale de son siège social et que le degré d'égoïsme de cette communauté est plus fort. Nous montrons que ces résultats peuvent être expliqués par la pression sociale exercée par la communauté locale dans l'environnement du siège : celle-ci cherche à se protéger en faisant pression sur le chef d'entreprise pour qu'il évite de licencier à courte distance du siège social.

**Mots-clefs :** pression sociale, licenciements, distance.

**Introduction**

There is growing evidence in the literature that firms are sensitive to social pressure and that this affects their decisions. Good examples of this can be found in the area of corporate social responsibility – see e.g. Schmitz and Schrader (2015). It has been shown that firms accommodate social pressure in order to maximize their market value since socially-responsible actions increase customers' propensity to buy their goods and services – see Baron (2011), Luo and Bhattacharya (2006). Moreover, some scholars argue that, if firm's stakeholders are philanthropic, they may ask firms to do good on their behalf. More specifically, if stakeholders want firms to behave as good corporate citizens, "delegated philanthropy" may induce firms to refrain from polluting, engage in fair-trade activities, etc. In this case, social pressure affects firms' decisions even if it has no direct impact on their profits – see Benabou and Tirole (2010).

Social pressure also arises at the local level when communities try to protect themselves from projects that would generate a disproportionate cost for them. One example is the resistance of local communities against the implantation of polluting infrastructure in their district – the so-called NIMBY (Not in My Backyard) syndrome (e.g. Frey, Oberholzer-Gee and Eichenberger, 1996). Beyond polluting projects, any action that may generate damages to the local community is likely to give rise to social pressure opposing it.

Massive dismissals have long been considered as a major threat to local communities, as shown by their prominence in popular media – see, for example, Michael Moore's film *Roger and Me* (1989) focusing almost entirely on the consequences of the massive downsizing carried out by General Motors in Flint, Michigan. More generally, avoiding the social cost of dismissals is typically acknowledged as one of the key reasons justifying firing regulations (e.g. Cahuc and Zylberberg, 2008; Jung and Kuester, 2015). This suggests that local communities are likely to put firms under strong pressure in order to limit the number of dismissals in their surroundings as much as possible.

In this paper, we show that dismissal rates increase with the distance of the plant to the firm's headquarters and that a key factor explaining this fact is local social pressure at headquarters. Following Akerlof (1980), we consider that CEOs care about their reputation in the community where they work and most often live,[1] and hence have the most frequent

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[1] Data from the European Labour Force Survey indicate that, in France, 95% of the CEOs work and live in the same region.

interactions.[2] In this framework, when CEOs dismiss local employees, they are perceived as causing damage to their community which triggers social sanctions in the form of a reduction in reputation.[3] Social pressure, i.e. the threat of these sanctions, is therefore likely to induce CEOs to refrain from firing workers close to headquarters, i.e. in their local community. As emphasized by Bill Dugovich, a spokesman for the Society of Professional Engineering Employees in Aerospace, at the time Boeing moved its headquarters from Seattle to Chicago: "It really makes it easier for them to make those difficult public statements, like when you move wing production to Japan or move workers from Renton to Everett […] when you're sitting […] in Chicago".[4]

We present a simple theoretical model with employment adjustment costs in which the threat of social sanctions is perceived by the CEO as an additional dismissal cost. Since CEOs are sensitive to potential social sanctions arising from their own community and this community opposes more strongly local dismissals, perceived adjustment costs are higher for plants located closer to the headquarters. As standard in labor demand models, dismissals are decreasing with adjustment costs and hence increasing with the distance of the plant to the headquarters. We also derive two other predictions which allow us distinguishing empirically our social-pressure story from other potential explanations of a positive relationship between distance and dismissals: the distance-dismissal relationship should be steeper (i) the greater the visibility of the firm in the community of its headquarters; and (ii) the more selfish the local community at headquarters. The former prediction is consistent with the idea that the incentive that a firm has to engage in a behavior demanded by stakeholders increases with the firm's visibility with respect to these stakeholders (Benabou and Tirole, 2010). The latter prediction is consistent with the idea that when "public spirit" is lower, communities care essentially about themselves and are more prone to shift the burden of painful adjustments onto others (Frey et al., 1996).

Our empirical analysis is based on French data. Looking at France to study the geographical dispersion of dismissals is interesting because the threshold number of dismissals beyond which (more expensive) collective dismissal procedures apply is defined at

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[2] As Akerlof put it "anthropological studies abound with evidence that persons care deeply about their reputations in their communities" – Akerlof (1980, p.753).

[3] For example, such social sanctions may take the form of a strong disapproval of the CEO's behavior which makes her or his family feel embarrassed in social encounters.

[4] Luke, Timmerman. 2001. Angry unions feel betrayed, fear for future of local jobs. *The Seattle Times*, March 22. Two weeks after moving its headquarters to Chicago, Boeing announced a plan to lay off almost 30,000 employees in the Seattle area (see e.g. First Boeing employee layoffs set to take effect Dec. 14. *Daily Journal of Commerce*, September 27, 2001).

the *firm* level. This implies that, since dismissals in a plant affect the cost of dismissals in other plants of the same firm, the decision to dismiss has to be handled at the firm level. By contrast, in many other countries (e.g. the United States, the United Kingdom, etc…), the collective-dismissal threshold is set at the establishment level, so that individual plants may take dismissal decisions in a more independent way. We match two large plant-level administrative datasets, which also contain information on workers: i) the *Déclarations Annuelles des Données Sociales* (DADS), which contains complete social security records, including the geographical location of the plant and firm's headquarters, and covers all plants and firms in the non-agricultural business sector; and ii) the *Déclarations des Mouvements de Main d'Oeuvre* (DMMO-EMMO), which contains quarterly worker flows for all plants with more than 50 workers and a 25% random sample of those between 10 and 50 workers. By matching these datasets, we obtain information on the geographical dispersion of worker flows for over 5,000 multi-establishment firms and over 29,000 plants for the period 2003-2007.

Using these data, we investigate the relationship between distance to headquarters and dismissals, and the potential role of social pressure in shaping it. We first show that, within the same firm, secondary establishments located further away from the headquarters have higher dismissal rates than establishments located closer to them. When conducting our analysis, we take into account the potential endogeneity of distance to headquarters. More specifically, we instrument actual distance with potential distance, defined as the distance at which the establishment would have been from the headquarters had its location been chosen only to maximize the market potential of the firm (measuring the capacity of the firm to serve large local markets while minimizing transport costs). We discuss in detail why potential distance is likely to be a valid instrument in the current setup. As a second step, we test the additional predictions of our model and hence provide evidence that the distance-dismissal relationship is, at least partly, due to social pressure in the local community where the firms' headquarters are located. We first show that the positive effect of distance on dismissals increases with the firm's visibility at headquarters. More precisely, the larger the weight of the firm in the total employment of its headquarters' local labor market, the stronger the positive effect of distance on dismissals. We then show that the effect of distance is greater the more selfish the local community where the headquarters are located. We measure selfishness as the inverse of local generosity and capture the latter with the share of charitable giving in local GDP and, as a robustness check, as the difference in turnout rates between

national and local elections. In the light of our model, we interpret these results as providing evidence that managerial decisions regarding dismissals are affected by social pressure exerted by the CEO's local community.

We are aware of only three other papers pointing to a relationship between distance to headquarters and employment downsizing in secondary plants (Landier, Nair and Wulf, 2009, Giroud, 2013, Kalnins and Lafontaine, 2013), all using US data. These papers suggest that the positive relation between distance and dismissals is largely due to information asymmetries and monitoring costs. Landier et al. (2009) also point out that social factors are likely to be important, in particular altruistic attitudes of managers – either towards firm employees or the local community – and social pressure.[5] Although we do not exclude that other explanations may play a role in explaining the relationship between distance and dismissals, we show that only social pressure arising from the local community of the headquarters can account for the significant interactions between distance and visibility on the one hand and distance and generosity on the other. We conclude that local social pressure at headquarters is the only possible explanation that can account for all our empirical findings, thereby showing that it is a key factor shaping the geography of dismissals.

Our paper also relates to the literature on weak corporate governance and entrenchment. As shown in the literature – e.g. Bertrand and Mullainathan (2003), Giroud and Mueller (2010), and Bach and Serrano-Velarde (2015) – entrenched managers look for a "quiet life" and therefore tend to buy peace with their workers by paying them higher than profit-maximizing wages and/or offering them greater job security. Cronqvist et al. (2009) show that this effect is stronger for workers who are closer to the CEO, either within the organizational hierarchy or because they work in the same municipality. This suggests that CEOs are sensitive to the social pressure arising from within the firm. Our paper shows that they are also sensitive to local social pressure arising from outside the firm.

Our paper also speaks to the literature on image-motivated altruism and social pressure. Research in this area shows that individuals want to be liked and respected by others and that they seek to gain social approval of their behavior (see e.g. Andreoni and Bernheim, 2009). Of course, the value of image depends on visibility. It has been shown that individuals are much more altruistic when their actions are made public than when they remain private information, and that their degree of altruism increases with their visibility (Freeman, 1997,

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[5] D'Aurizio and Romano (2013) also provide evidence that, during the Great Recession, Italian family firms have faced increasing social pressure to act as social buffers: confronted with a large negative aggregate shock, they have expanded employment in the region of their headquarters, while reducing it in other regions.

Andreoni and Petrie, 2004, Ariely, Bracha and Meier, 2009, Soetevent, 2011, Filiz-Ozbay and Ozbay, 2014). Apparently altruistic behaviors are often the result of selfish individuals trying to escape the threat of social sanctions (Della Vigna, List and Malmendier, 2012). This suggests that altruism (or apparent altruism) is, at least partly, image-motivated and that individuals are sensitive to the social pressure arising from their immediate social environment. When visibility is very high, the threat of social sanctions may even lead agents to make decisions that breach professional ethics. For instance, Garicano, Palacios-Huerta and Prendergast (2005) indeed show that soccer referees internalize the preferences of the crowd attending the matches in their decisions, by systematically favoring the home team.[6] In this paper, we show that social pressure arising from the community also impacts human resource management practices when the firm is highly visible in its community.

The layout of the rest of the paper is as follows. Section 1 presents a simple model of social pressure and dismissals. Section 2 describes the data and presents summary statistics. In Section 3, we explain our empirical strategy. Section 4 reports the empirical results. Alternative explanations are discussed in Section 5. Section 6 concludes.

## 1. A Simple Model of Social Pressure and Dismissals

In this section we sketch a highly-stylized model of employment decisions under social pressure and derive three testable predictions that we use to empirically disentangle the impact of social pressure from that of other potential mechanisms explaining the relationship between distance to headquarters and dismissals.

We assume a continuum of identical firms between 0 and 1. Each firm is composed of two production plants and the headquarters. Near each plant and the headquarters lives a community. No production occurs at the headquarters. We index by 1 the plant which is the closest to the headquarters and by 2 the plant which is further away.[7] Employment decisions are taken by the CEO,[8] who works in the municipality where the headquarters are located. Following Akerlof (1980), we assume that the CEO cares about profits and her reputation. A community can sanction the CEO when she is perceived as harming it. Sanctions take the

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[6] Social pressure has also been shown to play a role in reducing the absenteeism of public sector employees (De Paola, Scoppa and Pupo, 2014).

[7] We do not model here why a firm has more than one plant, and why plants are located at different distances from headquarters.

[8] Our assumption is that employment decisions are taken centrally at headquarters. For the sake of simplicity, we represent these decisions as taken by the CEO even if, in practice, they may also be taken by other top executives.

form of a reduction in the CEOs' reputation within the community. The CEO maximizes the present discounted value of her utility, which is affected positively by profits and negatively by social sanctions. The instantaneous utility $U$ of the CEO of firm $F$ at time $t$ is given by:

$$U_{Ft} = \pi_{Ft} - SS_{Ft}$$

where $\pi$ stands for profits and $SS$ for social sanctions. Communities care about dismissals and therefore can sanction the CEOs of firms that fire employees. In principle, CEOs could be sensitive to the threat of social sanctions – that is, social pressure – exerted by any community, both those of the plants and of the headquarters. However, it is quite likely that they are more sensitive to their reputation in the community where they work and most often live. For the sake of simplicity, we assume that CEOs are only sensitive to their reputation in their own community, i.e. at headquarters, so that their behavior is not influenced by social pressure at plants. When presenting the results, we will provide evidence that this is actually the case in our data – see Section 4.2.

Modelling social sanctions as a linear function of dismissals, the CEO's instantaneous utility may be rewritten as:

$$U_{Ft} = \pi_{Ft} - b_1 D_{1Ft} - b_2 D_{2Ft} \tag{1.1}$$

where $D$ denotes dismissals and $b_i > 0$. We assume that the local community particularly dislikes dismissals when they take place at short distance, since this increases the risk that local people be affected. In addition, the more selfish the local community is, the less it cares about dismissals affecting *other* communities. This implies that $b_1 > b_2$ and that the gap between $b_1$ and $b_2$ is larger the greater the degree of selfishness of the local community where the firm's headquarters are located.

Both plants produce final output. For simplicity, their production functions are assumed to be identical and independent from one another.[9] They can be written as $f(\theta_{it}, N_{it})$, where $i = 1,2$ indexes plants, $N$ denotes employment[10] and $\theta$ is a productivity shock – with $f$ increasing in $\theta$ – taking the form of a Poisson process with two states: good ($G$) and bad ($B$), so that $\theta_G > \theta_B$. Shocks are identically distributed across plants and firms. They

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[9] Giroud and Mueller (2015) show that idiosyncratic shocks affecting one plant have, on average, no impact on the level of employment of other plants in the same firm, except if the latter is financially constrained. This suggests that our assumption of separability is not inconsistent with empirical evidence. In the case of firm-level shocks, it can be easily shown that our results also hold in the absence of separability – proof available from the authors upon request.

[10] Index $F$ is omitted hereafter to simplify the notation.

are also independent across firms, although they may be correlated across plants of the same firm. Let the instantaneous probability of transition between $G$ and $B$ be denoted by $\lambda_G$, and the probability of transition between $B$ and $G$ be denoted by $\lambda_B$. We also assume that $f$ is continuous and three times differentiable, with $f_N > 0$, $f_{NN} < 0$ and $f_{NNN} \geq 0$, where $f_N$, $f_{NN}$ and $f_{NNN}$ denote the first, second and third derivatives with respect to $N$, respectively.

Plants are wage-takers and firms are price-takers, with the price of output normalized to 1. Therefore, wages and prices do not vary according to whether plants are in a good or bad state. Employment increases with hirings and decreases with dismissals. Dismissals occur in the presence of negative shocks – productivity shifts from the good to the bad state – and hirings take place with positive shocks – or shifts from the bad to the good state. We rule out voluntary quits and churning for the sake of simplicity. Therefore, dismissals are equal to the absolute value of employment changes when the latter are negative, and zero otherwise, and hirings are equal to the absolute value of employment changes when positive, and zero otherwise. Both hirings and dismissals are costly. Adjustment costs are assumed to be linear in employment changes and identical across plants. In particular, hiring costs are given by $HC_i = c_h H_i$ – with $H$ standing for hirings – and dismissal costs are given by $DC_i = c_d D_i$.

Following Cahuc and Zylberberg (2004), we restrict our attention to stationary employment levels. Given these assumptions, we can rewrite equation (1.1) as follows:

$$U_t = \sum_{i=1}^2 f(\theta_{it}, N_{it}) - \sum_{i=1}^2 w_t N_{it} - \sum_{i=1}^2 c_h H_{it} - \sum_{i=1}^2 (c_d + b_i) D_{it}$$

where $w_t$ denotes the wage rate. By construction, this utility function is separable across plants. Therefore, the CEO's inter-temporal maximization problem comes down to maximizing separately the contribution of each plant to the present discounted value of her utility. This corresponds, for each plant, to a standard model with adjustment costs, the solution of which is well-known (see for example Cahuc and Zylberberg, 2004): optimal employment fluctuates between two values depending on whether the plant is in a good or bad state:

$$f_N\left(\theta_G, N_i^G\right) = w + \lambda_G(c_d + b_i) + (r + \lambda_G)c_h \quad if \ \theta_{it} = \theta_G \qquad (1.2)$$

$$f_N(\theta_B, N_i^B) = w - \lambda_B c_h - (r + \lambda_B)(c_d + b_i) \quad if \ \theta_{it} = \theta_B \qquad (1.3)$$

where $r$ is the discount rate of the CEO and the values $N^G$ and $N^B$ correspond to the levels of labor demand in good and bad states, respectively, under the assumption that the difference between $\theta_G$ and $\theta_B$ is sufficiently large so that $N^G > N^B$.[11]

Defining optimal dismissals as $D_i^*(b_i) = N_i^G - N_i^B$, exploiting the properties of the derivative of inverse functions and taking into account that $f_{NN} < 0$, we have:

$$\frac{\partial D_i^*}{\partial b_i} = \frac{\partial N_i^G}{\partial b_i} - \frac{\partial N_i^B}{\partial b_i} = \frac{\lambda_G}{f_{NN}(\theta_G, N_i^G)} + \frac{r + \lambda_B}{f_{NN}(\theta_B, N_i^B)} < 0 \qquad (1.4)$$

Therefore, $b_1 > b_2$ implies that the plant that is further away from the headquarters dismisses more workers when hit by a negative shock than does the plant that is closer, that is $D_1^*(b_1) < D_2^*(b_2)$. This is shown graphically in Figure 1. Adjustment costs generate a positive (resp. negative) wedge between labor productivity and the market wage in the good (resp. bad) state – see equations (1.2) and (1.3). Since this wedge is greater in plants that are closer to headquarters, in order to minimize potential social sanctions CEOs optimally choose smaller employment adjustments there.

Assuming that the economy is in a stationary equilibrium with a proportion $\rho$ of plants in good state, having a continuum of identical firms that are subject to i.i.d. shocks implies that at each point in time there are $\rho\lambda_G$ plants of both types (1 and 2) whose state shifts from good to bad thereby giving rise to dismissals. Aggregating across firms and using the law of large numbers, we obtain for each type of plant:

$$E(D_{iFt}) = \int D_{iFt} dF = \rho\lambda_G D_i^*(b_i).$$

where $E$ is the expectation operator. In other words, at any point in time, aggregate dismissals in plants of type $i$ are proportional to $D_i^*$ and therefore lower in plants located closer to headquarters than in plants located further away.

This model may be easily generalized to an arbitrary number of plants, thereby generating an inverse relation between distance to headquarters and dismissals, by assuming that $b_i$ decreases with the distance of plant $i$ to the firm's headquarters. This assumption captures the fact that the local community of the headquarters is likely to care more about

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[11] If this assumption does not hold, employment never changes so that hirings and dismissals are always equal to 0.

communities located closer – and with which its members have frequent interactions[12] – than about communities located further away.

Benabou and Tirole (2010) argue that the incentive for a firm to engage in a behavior demanded by stakeholders increases with its visibility with respect to them. We therefore expect social sanctions to be greater and hence social pressure to be more effective, the greater the visibility of the firm in the community of its headquarters. This implies that $b_i$ can be re-written as:

$$b_i = \alpha \gamma_i$$

with $\alpha$ increasing in the firm's visibility at the headquarters and $\gamma_i$ representing the sensitivity of social sanctions to dismissals for a given level of visibility. Our above-mentioned assumption that local communities particularly dislike dismissals when they take place at short distance translates into $\gamma_1 > \gamma_2$, with the gap between $\gamma_1$ and $\gamma_2$ being larger the greater the degree of selfishness of the local community where the headquarters are located. Let us therefore write $\gamma_2 = \gamma_1/\beta$, where $\beta > 1$ is a measure of the degree of selfishness of the local community of the headquarters.

We show in Appendix A1 that, if the degree of selfishness is high enough, $\partial(D_2^* - D_1^*)/\partial\alpha > 0$. In other words, if the community of the headquarters is sufficiently selfish, the more visible the firm is the stronger the effect of distance on dismissals. It also follows from equation (1.4) that $\partial(D_2^* - D_1^*)/\partial\beta > 0$, that is, an increase in the degree of selfishness at headquarters also increases the effect of distance on dismissals. Finally, as shown in Appendix A2, if the degree of selfishness is large enough, $\partial^2(D_2^* - D_1^*)/\partial\alpha\partial\beta > 0$. In other words, if the community where the headquarters are located is sufficiently selfish, the effect of visibility on the steepness of the relationship between distance and dismissals increases with the degree of selfishness.

To sum up, our model shows that the threat of social sanctions by the local community– i.e. local social pressure – may generate a positive relationship between distance to headquarters and dismissals. The model also provides three additional testable predictions.

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[12] The *Contact entre les personnes* ("Contact between people") Survey carried out by the French Statistical Institute (INSEE) in 1983, provides evidence that the intensity of social relations decreases with the distance between individuals. Using these data, one can compute the frequency of encounters of an individual with her parents, in-laws, children and friends. The dataset also provides information on the distance at which these relatives and friends live. When using the frequency of encounters as a proxy of the intensity of social relations, the latter turns out to be negatively correlated with the geographical distance between individuals: for distances higher than 5 km, involving 17,797 couples of individuals, we find that the coefficient of correlation between distance and the frequency of encounters is -0.05 – significant at the 1% level.

For a sufficiently high degree of selfishness, the effect of distance on dismissals i) increases with the firm's visibility in the community of its headquarters; ii) increases with the degree of selfishness of this community; and iii) is magnified wherever high visibility combines with a strong degree of selfishness in the community of the headquarters. In the remainder of the paper, we test these predictions and use them to disentangle the role played by local social pressure at headquarters from other explanations provided in the literature to account for the observed geographical pattern of dismissals.

## 2. The Data

Since we need to combine information on dismissals, distance of secondary establishments to headquarters, local generosity and a number of establishments' as well as local areas' characteristics, our data come from different sources.

The first data source we use contains social security records – the DADS, *Déclarations Annuelles de Données Sociales*. They cover the universe of establishments and firms in all sectors except agriculture, part of the food-processing industry and rural financial institutions (e.g. Crédit Agricole). We have access to the DADS since 1997. They contain, on average, 1,350,739 firms and 1,594,361 establishments with non-zero employment per year,[13] and contain information on the municipality where each establishment is located. However, in 2008, a new form of separation was introduced in France for workers on permanent contracts: the so-called "*rupture conventionnelle*" (conventional separation), which reduced the possibility of filing complaints in courts in case of mutually voluntary separations, while simultaneously granting access to unemployment benefits to separating workers. There is evidence that in some cases *ruptures conventionnelles* replaced dismissals while in some others – for older workers for example – they replaced quits – see Minni (2013). Because of this, the number of dismissals – and quits – is hardly comparable before and after 2008. To avoid this problem, we restrict our sample to the years prior to 2008. The location provided by the DADS is unique for each establishment with a given identifier because identifiers change when establishments move. As a consequence, the location of any establishment – identified by a given identifier – is time-invariant. The DADS also contain information on the establishment's age and industry and, consistently-available only since 2002, the number of employees excluding apprentices and trainees as well as the gender and occupational structure

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[13] These figures show that a wide majority of French firms are mono-establishment and hence outside the scope of our analysis.

of the workforce. Since this information refers to December 31st of each year and we wish to avoid having controls that are post-dated with respect to dismissals, our estimates focus on the period 2003-2007.

For each firm in our sample, the DADS provide information on the identifier of its headquarters and the municipality where they are located. A small proportion of firms in our sample (8.1%) report changes in headquarters involving changes in municipalities over time. However, some of these changes are clearly implausible. For example, some firms change headquarters several times between 2003 and 2007, going back and forth between two municipalities. To overcome this problem, we select as the unique headquarters over the sample period the establishment that is most frequently reported to be so.[14] Finally, the DADS also have information both on the legal category of the firm (commercial company, public administration, charity etc.) and on firm age.

The second source that we use is the DMMO/EMMO database. The DMMO (*Déclarations sur les Mouvements de Main-d'Oeuvre*) has exhaustive quarterly data on gross worker flows (hirings and separations, excluding temporary help workers) for establishments with 50 employees or more. The data on separations are broken down by type of flow (dismissals, quits, end-of-trial period, end of fixed-term contracts and retirement). The EMMO (*Enquête sur les Mouvements de Main-d'Oeuvre*) has identical information on a representative sample containing 25% of the establishments with 10 to 49 employees.[15] We compute separation rates by type of flow (including dismissal rates) for each quarter during the period 2003-2007. For each type of flow, the separation rate is defined as the sum of all separations of that type in a given quarter divided by average employment in that quarter.[16]

Information on the latitude and longitude of municipalities is provided by the *Répertoire Géographique des Communes*.[17] Great-circle distances between establishments are computed assuming that each establishment is placed at the barycenter of the municipality to which it belongs. This is, of course, a simplifying assumption but given that there are 36,570 municipalities in France and that only 0.04% of them have a surface larger than 190 square

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[14] When two establishments are equally frequently reported as headquarters, we select as headquarters the establishment reported in the DIANE database – provided by Bureau Van Dijk. Our results are robust to excluding all firms whose headquarters change municipality over time.

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

[16] 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, Faberman and Haltiwanger, 2006).

[17] This database is produced by the French *Institut National de l'Information Géographique et Forestière* (IGN).

kilometers, the error we are making on the actual location is very small.[18] A consequence of this assumption is that two establishments located in the same municipality are at zero distance from each other by definition. We also have information on the 94 mainland French *départements* and the 21 mainland administrative regions to which each municipality belongs. Furthermore, the *Base Communale des Zones d'Emploi*[19] provides information on the "employment areas" where municipalities are located. These are travel-to-work zones defined on the basis of daily commuting patterns as observed at the beginning of the 1990s. Most employment areas, which correspond to local labor markets, include a city and its catchment area. There are 341 such areas in mainland France with an average size of 1,570 km$^2$, which represents a relatively fine partition of the French territory.

We match these data sources (DADS, DMMO-EMMO and geographical databases), and keep all commercial companies registered in France in the non-agricultural, non-mining business sector.[20] We only consider multi-establishment firms and drop establishments for which dismissal rates or some of our establishment-level controls are missing. Since we wish to compare dismissal rates across the secondary establishments of firms, we only retain companies with at least two secondary establishments in our dataset. Our final sample contains 29,508 secondary establishments belonging to 5,019 different firms.

Descriptive statistics for this sample are presented in Appendix Table A1. Quarterly dismissal rates are on average slightly less than 1% (0.97%),[21] marginally higher in construction and services than in the manufacturing and energy sector. Their distribution by employment area is illustrated in Appendix Figure A1. Blue-collars account for one third of establishment-level employment, while clerks and technicians/supervisors are respectively 27% and 25%, and managers 15%. Women represent 37% of the workforce. While 74% of the establishments belong to the construction and service sectors, 26% are in the manufacturing and energy industries. Average firm and establishment size – measured as the number of employees per firm or establishment - are 907 and 136 respectively. Most

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[18] All French municipalities but nine are no larger than a square of 14x14 kilometers. Therefore, assuming that establishments are located at the barycenter implies that the maximum possible error for these 36,561 municipalities is less than 10 kilometers. Moreover, the nine municipalities with a surface larger than 190 km$^2$ account for only 0.12% of the French population altogether.

[19] This database is provided by the French Statistical Institute (INSEE).

[20] This corresponds to sectors 15 to 74 in the NACE-Rev1 classification.

[21] While the largest dismissal episode in an establishment of our sample involved 716 layoffs in a single quarter, the vast majority (99%) of the episodes in our sample involved no more than 20 layoffs per establishment and quarter.

establishments are at least 5 years old (63%)[22] and average firm age is 23 years. Finally, the average unemployment rate in the employment area during the selected period is 8.41%.

The distribution of headquarters and secondary establishments by employment area are presented in Appendix Figures A2 and A3, respectively. In our sample, the median and mean numbers of secondary establishments per firm are 2 and 5.88, respectively – see Appendix Table A2 – col (1). The average distance from secondary establishments to headquarters is 248km – see Appendix Table A3. The mean distance to the closest establishment is 44km, to the second closest, 73km and to the farthest establishment, 511km.

The visibility of a firm in the employment area of its headquarters is assumed to be an increasing function of its share of local employment. We measure this share as of December 31st, 2002, in order for it to be pre-dated with respect to our sample. As shown in Appendix Table A4, the distribution of the firm's share of local employment is quite skewed. Therefore, in our empirical analysis we capture high visibility with a dummy variable equal to 1 if the firm belongs to the upper 25% of the distribution and 0 otherwise. Symmetrically, we capture low visibility with a dummy equal to 1 if the firm belongs to the bottom 75% of the distribution and 0 otherwise.[23]

Information on generosity in the area where the firm's headquarters are located is obtained from the 1890 *Annuaire Statistique de la France*, which provides information on total receipts of local secular charity centers as measured, at the *département* level, in 1887.[24] We standardize these donations by *département*-level GDP.[25] The advantage of measuring generosity using data from more than one century ago is that there is no doubt that this measure is exogenous with respect to dismissals in 2003-2007.[26] However, it has been shown in the literature on charity that the total amount of charitable giving is greater in communities

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[22] Establishment age is often missing in the DADS. To preserve sample size, we construct an age variable using the presence of the establishment in previous waves of the DADS. Since our data go back to 1997 only, our age variable is truncated at 5 years and most establishments are in the oldest age category. However, in our regressions, the coefficient of the dummy variable "5 years or more" is never significantly different from that of the dummy variable "4 years old". This is consistent with the results of Haltiwanger, Jarmin and Miranda (2013) who show that most job flows occur in the earliest years of establishments' life.

[23] A similar measure of firm visibility is used by D'Aurizio and Romano (2013).

[24] The restriction to secular charitable giving is not a limitation in the context of this paper since, in France, charitable donations got out of the control of the Church and became mostly secular as early as in the mid-19th century – see Association Française des Fundraisers. 2013. Des hommes et des dons. http://www.fundraisers.fr/page/historique-de-la-profession.

[25] *Département*-level GDP is provided by Fontvieille (1982). It is measured as of 1864, which is the year closest to 1887 for which such information is available.

[26] At the same time, this measure of generosity is correlated with current generosity as measured by the 2003-2010 average ratio of charity donations to taxable income (computed at the level of *départements*). The estimated correlation coefficient is 0.22, statistically significant at the 5% level of confidence. The source of current charity donations and taxable income is the French Ministry of Finance.

with a larger number of high-income individuals (Card, Hallock and Moretti, 2010). We take this into account by adding *département* income per capita in all specifications including generosity. By so doing, we make sure that our measure of generosity does not simply capture the relative level of average income of the *départements*.

Descriptive statistics for generosity and its geographical distribution are shown in Appendix Table A4 and Figure A4. As for visibility, we consider that headquarters are located in high-generosity *départements* when they belong to the upper 25% of the donation-to-GDP distribution. Symmetrically, headquarters are considered to be located in low-generosity *départements* when they belong to the bottom 75% of the distribution.

## 3. The Econometric Model

### 3.1 Dismissals and distance to headquarters

As a first step, we estimate the following relation between dismissal rates in secondary establishments and their distance to the firm's headquarters:

$$DR_{iFt} = \beta_0 + \beta_1 Dist_i + X_{iFt}\beta_2 + D_t + D_F + \varepsilon_{iFt} \tag{3.1}$$

where $DR_{iFt}$ denotes the dismissal rate in establishment $i$ of firm $F$ at time $t$, $Dist_i$ is the distance of establishment $i$ to the firm's headquarters[27] and $X_{iFt}$ is a vector of establishment-level controls. $D_t$ and $D_F$ are quarter*year and firm dummies, respectively. In estimating this relationship, we consider only secondary establishments and hence exclude headquarters from our sample since the latter are functionally different from the former and may then have lower levels of dismissals for this reason.

Distance to headquarters, however, is most likely to be endogenous. Since plants are plausibly not randomly allocated to locations, the observed correlation between dismissals and distance could be driven, at least partially, by the correlation between distance and unobserved plant characteristics. Formally, the error term in equation (3.1) would then write: $\varepsilon_{iFt} = \mu_i + u_{iFt}$ where $\mu_i$ is a plant-specific disturbance potentially correlated with $Dist_i$ and $u_{iFt}$ is an error term uncorrelated with the regressors in equation (3.1). For example, as underlined by Kalnins and Lafontaine (2013), locating an establishment far away from the

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[27] We use time-varying dismissal rates although the distance of our establishments to their firm's headquarters is constant over time. We do so because few of our establishments are present in our sample for all quarters over 2003-2007. Therefore, the quality of the information that we have for an establishment increases with the number of quarters over which it is observed. We take into account the fact that distance does not vary over time through appropriate clustering of our standard errors – see section 4.1 below.

firm's headquarters induces various types of costs, in particular information asymmetries and monitoring costs. Rational firms locate establishments in order to minimize costs. Therefore, they open and maintain them far away from headquarters only if the new locations offer advantages which are likely to compensate for the costs – e.g. reducing the cost of serving local demand, getting closer to inputs, positive agglomeration externalities, or amenities reducing the cost of labor. If these advantages also affect dismissals, OLS estimates of (3.1) are likely to be biased. To address the potential endogeneity of distance, we need to turn to an instrumental variable (IV) strategy.

This strategy is based on two building blocks: before introducing our instrument, we define the market potential of a firm $F$ and the contribution of plant $i$ to this market potential. In economic geography, a standard measure of the relative advantage of a location in terms of access to demand is Harris' market potential (Harris, 1954). This 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:

$$MPF_F = \sum_k \frac{PC_k}{\min_{i \in F}\{Dist_{ki}\}}$$

where $PC$ stands for the purchasing capacity of local market $k$ and $i$ 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 of these markets to the closest establishment of the firm. As is classical in economic geography, we capture purchasing capacity by population[28] and local markets by employment areas.[29] Assuming, for simplicity, that two establishments are not at the same distance from a given local market, market potential $MPF$ can be rewritten as:

$$MPF_F = \sum_{i \in F} \left( \sum_{k \in \left\{ Dist_{ki} < \min_{j \in F \backslash \{i\}}(Dist_{kj}) \right\}} \frac{POP_k}{Dist_{ki}} \right)$$

where $POP$ denotes population and $F\backslash\{i\}$ stands for the set of establishments of $F$, excluding

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[28] In the economic geography literature, purchasing capacity is proxied either with income-based measures (see e.g. Combes, Mayer and Thisse, 2008) or with population-based measures (see e.g. Bottazzi and Peri, 2003; Ioannides and Overman, 2004 and Briant, Combes and Lafourcade, 2010). We use a population-based measure insofar as information on aggregate income is not available at the level of employment areas.
[29] We exclude foreign markets for which we have no data.

*i*. The term in parentheses can be interpreted as the contribution of establishment *i* to the market potential of firm *F* (*CMPF*), that is:

$$CMPF_i = \sum_{k \in \left\{ Dist_{ki} < \min_{j \in F \setminus \{i\}} (Dist_{kj}) \right\}} \frac{POP_k}{Dist_{ki}}$$

This contribution can be seen as a proxy of the relative size of the local demand served by each establishment.

Once defined the contribution to the firm's market potential, we can present our IV strategy. We use as an instrument the *potential distance*, defined as the distance to headquarters at which an establishment would have been, had its location (called the *potential location*) been chosen by the firm *only* in order to maximize its contribution to market potential – i.e. disregarding any distance-related costs other than transportation costs to customers – taking the position of the other establishments of the firm as given.

In practice, for each firm in our sample, we pick up one of its secondary establishments and remove it. We then consider each employment area in France and consider what would be the contribution to the firm market potential if an additional plant were located there. We take the employment area that maximizes this contribution and measure the distance between its barycenter and the headquarters. We call this potential distance. To qualify as a valid instrument, this variable must affect dismissals only through distance, and should therefore be uncorrelated with any unobserved plant-specific characteristics that can affect dismissals after conditioning on distance.

To show that this is the case, we need to be more specific on how we construct potential distance. Formally, potential location (*PL*) is defined as:

$$PL_i = \underset{h}{\operatorname{argmax}} \{CMPF_h\}$$

where *h* indexes the employment areas and potential distance is the distance from *PL* to the firm's headquarters. Defined in this way, potential distance is, by construction, unrelated to any component of the plant-specific disturbance $\mu_i$ that is not correlated to the *CMPF*, except if local population and dismissals are correlated – for example if people tend to migrate away from depressed areas. To overcome this problem, scholars in economic geography have used local terrain ruggedness as an exogenous predictor of population – see Combes et al. (2010) and Nunn and Puga (2012). The idea is that it is more difficult to settle in more rugged locations. Taking the maximum value of ruggedness in our data minus the effective

ruggedness of the area as an exogenous proxy of population,[30] $PL$ can be written as:

$$PL_i = \underset{h}{\operatorname{argmax}} \left\{ \sum_{k \in \left\{ Dist_{kh} < \underset{j \in F \backslash \{i\}}{\min}(Dist_{kj}) \right\}} \frac{RUG_{max} - RUG_k}{Dist_{kh}} \right\} \qquad (3.2)$$

where $RUG_k$ denotes ruggedness of the employment area $k$ and $RUG_{max}$ is the maximum ruggedness over all employment areas.

When potential location is given by equation (3.2), there is no reason that potential distance affects dismissals except through actual distance or because it could be correlated with local demand as measured by the $CMPF$. This would be a problem if the $CMPF$ simultaneously affected potential distance and dismissals. However, we show below that potential distance and $CMPF_i$ are uncorrelated. We conclude from this that our exclusion restriction is likely to hold.

We compute the contribution of establishment $i$ to the market potential of firm $F$ assuming that all other establishments of $F$ are located at the barycenter of their region. This simplifying assumption allows us to save substantial computational time, since some of our firms have a few thousand establishments.[31] The first row in Table 1 shows that the correlation between potential distance and $CMPF$ is virtually zero, independently of whether we use the population in 1999 or in 2009 to compute $CMPF$.

One potential problem with our computation of $CMPF$ is that it is heavily underestimated for the establishments located close to the sea or to a foreign country. For these, local demand should indeed include nearby areas in border and/or overseas countries for which, unfortunately, we do not have any information. Failure to account for these areas generates measurement error, which biases the correlation between the $CMPF$ and potential distance towards zero. To solve this problem, we compute this correlation on the subsample of establishments located in *départements* which have no border with the sea or any foreign

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[30] Following Combes et al. (2010), local terrain ruggedness is defined here as the mode of maximum altitudes across all pixels in an employment area minus the mode of minimum altitudes, using pixels of 1km by 1km. The correlation between ruggedness and population across employment areas is significant at the 1% level in our data.

[31] The largest firm in our sample has 3,163 establishments, most of them with fewer than 10 employees – see Table A2 – col (2). We do not have worker flows for plants smaller than 10 employees (see Section 2). Therefore, plants of this size are not included in our regression analysis so that the maximum number of plants included in our regression sample and belonging to the same firm is 863 – see Table A2 – col (1). However, we take their location into account to compute the contribution to the firm's market potential of the plants in our sample.

country, using the fact that the contribution of each employment area to $CMPF$ is weighted by the inverse of distance – see equation (3.2) – so that the measurement error due to the omission of foreign markets decreases quickly when moving away from the sea and borders. When using this restricted sample, we find very similar results: whatever the population used to compute $CMPF$ (as of 1999 or as of 2009), the coefficients of correlation with potential distance are lower than 0.02 and statistically insignificant at conventional levels. [32]

In the construction of the instrument, taking the location of all establishments but one as given imposes restrictions on the places where the potential location can be. This might be a problem for firms with a large number of plants, as these restrictions may imply that potential and actual locations either coincide or are very close. To dispel this concern, we plot in Figure 2 the distance between actual and potential locations against the number of plants in the firm. Even for firms with more than 500 establishments, we find that the distance between actual and potential locations is far from being systematically small.

*3.2 The role of social pressure*

Once established that distance to headquarters has a positive impact on dismissals in secondary establishments, we investigate the role of local social pressure at headquarters in generating this relation. As suggested by the simple model proposed in Section 1, if social pressure is a key determinant of the distance-dismissal relationship, we expect the latter to be stronger the greater the firm visibility at headquarters and the lower the generosity of the local community.

As a first step, we test whether the impact of distance on dismissals varies with firm visibility at headquarters. In order to do so, we estimate the following equation:

$$DR_{iFt} = \beta_{LV} Dist_i * LV_F + \beta_{HV} Dist_i * HV_F + X_{iFt}\gamma + D_t + D_F + \varepsilon_{iFt} \qquad (3.3)$$

where $LV_F$ and $HV_F$ denote low and high visibility of the firm at headquarters, respectively. If more visible firms are more sensitive to social pressure, we expect $\beta_{HV}$ to be larger than $\beta_{LV}$.[33]

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[32] In contrast, the *actual* distance to headquarters turns out to be positively correlated with *CMPF*: whatever the population used to compute the latter, we find a coefficient of correlation as high as 0.17. This suggests that establishments located far away from their headquarters are selected on their contribution to market potential. As hypothesized by Kalnins and Lafontaine (2013), this may be due to the fact that they incur higher costs – e.g. monitoring costs – which have to be compensated by a greater contribution to the firm's market potential.

[33] Strictly speaking, our model predicts that $\beta_{HV} > \beta_{LV}$ only for levels of generosity that are sufficiently low. For higher values of the generosity parameter, the model yields ambiguous predictions as to the relative values of $\beta_{HV}$ and $\beta_{LV}$.

As a second step, we focus on the impact of generosity. We investigate whether the positive relationship between dismissals and distance to headquarters is stronger when firms' headquarters are located in areas where the local community is more selfish (less generous). We estimate:

$$DR_{iFt} = \beta_{LG}Dist_i * LG_F + \beta_{HG}Dist_i * HG_F + X_{iFt}\gamma + D_t + D_F + \varepsilon_{iFt} \qquad (3.4)$$

where $LG_F$ and $HG_F$ respectively denote low and high generosity of the community in which the firm's headquarters are located, and where we expect that $\beta_{LG} > \beta_{HG}$.

We also check whether the impact of firm visibility on the positive relationship between distance to headquarters and dismissals increases as the local community of the firm's headquarters becomes less generous. More specifically, we estimate:

$$DR_{iFt} = \beta_{LG\_LV}Dist_i * LG_F * LV_F + \beta_{LG\_HV}Dist_i * LG_F * HV_F + \beta_{HG\_LV}Dist_i * HG_F * LV_F$$

$$+\beta_{HG\_HV}Dist_i * HG_F * HV_F + X_{iFt}\gamma + D_t + D_F + \varepsilon_{iFt} \qquad (3.5)$$

and expect $\beta_{LG\_HV}$ to be positive and larger than any other $\beta$ coefficient and, in particular, than $\beta_{LG\_LV}$.

## 4. Results

### 4.1 Dismissals and distance to headquarters

The impact of distance to headquarters on dismissals – see equation (3.1) – is first estimated by OLS, using a "selection on observables" approach, which tries to capture plant-specific effects with a vector of observables. Our baseline specification includes time and firm dummies and the following establishment characteristics: industry and employment-area dummies, establishment size and age dummies, gender and occupational structure of the workforce, firm size in the establishment's local labor market (i.e. the employment area where the establishment is located) and time-varying unemployment rates in the employment area. We control for employment-area dummies since, together with firm dummies, they capture the relative attractiveness of the establishment's location. Establishment size is important because large establishments may be located closer to headquarters and because it may be easier for them to reallocate workers internally and hence avoid dismissals. Moreover, transfers across plants within the same local labor market are probably not resisted by workers so that relocating unnecessary workers is easier for the firm if it is of large size in the area

where the establishment is located. This is why we also control for firm size in the establishment's employment area. Controlling for establishment age is motivated by the fact that, as shown by Neumark, Zhang and Ciccarella (2008) in the case of Wal-Mart, establishments located further away from headquarters are likely to be younger and have a more volatile activity,[34] which generates more dismissals. We control for workforce characteristics because the frequency of dismissals may differ across gender and/or occupation. Local unemployment rates capture the fact that, beyond fixed local labor market characteristics, establishments located further away from headquarters may be affected by negative temporary shocks and hence dismiss more workers.

The OLS estimates obtained with this specification are presented in Table 2 – col (1). In this table, as in all others, we cluster standard errors at the level of the *département* where the firm headquarters are located. We do so because our model suggests that social pressure matters and varies with the characteristics of the local communities. So, we need to take into account the fact that establishments from different firms with headquarters located in the same *département* (or employment areas) are affected in the same way by social pressure. We therefore cluster our standard errors at the most aggregate local level (i.e. that of the *département* of the headquarters).[35]

We find that distance to headquarters has a positive and significant effect on dismissals: when the former increases by 100 km, dismissals increase by 0.03 percentage points – that is, by 3.33% as measured at the sample average. Note that if we add headquarters to our sample and include a dummy variable for them in the baseline specification, our results are virtually unchanged – with a point estimate (resp. standard error) of 0.029 (resp. 0.012).

A problem with "selection on observables" – the approach taken in the first column of Table 2 – is that the omission of plant-specific effects that are correlated both with distance and with dismissals may produce biased estimates of the true correlation between distance and dismissals. We deal with this problem using the IV strategy described in section 3.1, where the *actual distance* to headquarters is instrumented by the *potential distance* at which the establishment would have been located had its location been chosen by the firm *only* to maximize its contribution to its market potential.

This instrument, however, is likely to be affected by substantial measurement error for

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[34] On the relationship between age and volatility, see also Haltiwanger et al. (2013).
[35] This is all the more meaningful that in France, the *département* is traditionally considered as the relevant geographical level for solidarity – see for example: Waintrop, Michel. 2008. Des départements protestent contre la réforme des plaques d'immatriculation. *La Croix*, January 28.

plants located in *départements* that are on the seaside or have borders with foreign countries. As discussed in Section 3.2, this is due to the fact that in these locations the contribution to the firm market potential (*CMPF*) is heavily underestimated, because local demand depends to a larger extent than in other locations on border and/or overseas countries for which we have no information.[36] When we regress actual on potential distance using the sub-sample of locations on the seaside or with borders with foreign countries, we find that the estimated relation is non-monotonic,[37] which violates the monotonicity assumption required by the LATE theorem – see e.g. Angrist and Pischke (2009a). In contrast, there is no evidence of any non-monotonicity in the sub-sample which excludes the plants in these locations.[38] Therefore, we restrict our IV estimation to this reduced sample.

We first check that this sample restriction does not modify our baseline OLS results. As shown in column (2) of Table 2, the impact of distance to headquarters on dismissals is still positive and significant at the 1% level. In the next column, we report the first-stage estimates when potential distance is used as an instrument for actual distance. We find that the effect of the former on the latter is positive and statistically significant at the 5% level of confidence. Although the F-test statistic on the instrument is somewhat low (4.76), we rely on two properties of 2SLS estimators in just identified models such as ours – see Angrist and Pischke (2009b): first, these estimators are median-unbiased; second, the estimated confidence intervals are reliable except when the F-test statistic is very close to 0. This suggests that we can confidently make inferences on the basis of second-stage estimates – see col (4). The estimated IV coefficient of distance is very close to the OLS coefficient (0.064 versus 0.062) and statistically significant at the 5% level. [39] The finding that the IV point

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[36] It is useful to illustrate this point further with an example. Assume that a firm has its headquarters in Paris and two plants, one in the very center of France – say, Clermont-Ferrand – and the other close to the Belgian border, – say, in Lille. If we were to correctly compute the potential location associated with the second plant, we should consider as relevant local markets not only the French but also the Belgian employment areas bordering the French territory. By omitting these densely-populated Belgian areas, for which we have no data, we may identify a location in the South of France as the potential location, whereas if we had been able to include these areas in our computation, the potential location would have been close to Lille. In the case of Clermont-Ferrand, instead, the choice of the potential location is much less likely to be affected by the omission of border Belgian areas.

[37] When regressing actual on potential distance and its square using the sample of plants located in border and sea *départements* and using the same controls as in Table 2, we find that the point estimates for potential distance and potential distance squared are -0.278 (with standard error 0.142) and 0.0009 (with standard error 0.0003) respectively, suggesting that the relationship between potential and actual distance changes sign at 157km.

[38] When regressing actual distance on any polynomial in potential distance up to the 5th order, none of the terms of order higher than 1 is ever significant at conventional levels.

[39] Given the key role of Paris in the French economy, we check that our results are robust to excluding the Paris area from our sample. It turns out that both OLS and IV estimates are very close to those obtained for the full sample – reported in cols (1) and (4): the coefficients estimated by OLS (resp. IV) are 0.036 (resp. 0.068) – with standard error 0.015 (resp. 0.026).

estimate is almost identical to the OLS estimate suggests that selection on observables as implemented in columns (1)-(2) of the table does a reasonably good job in capturing the causal effect of distance on dismissals. This is not surprising, because by including very detailed employment-area and firm dummies we can control for most sources of locational advantage.

Next, we present a number of robustness checks of the baseline specification.[40] To start with, one could worry that the positive impact of distance to headquarters on dismissals could be entirely driven by the effect at short distances and disappear at long distances. As can be seen in Appendix Table A5, however, this is not the case since the point estimate of distance to headquarters is almost unchanged when dropping establishments located at short distances, i.e. at less than 50 and 100km respectively – see cols (1) and (2).[41] To give a more precise picture of the impact of distance on dismissals we re-estimate our model using distance bins of 100 km. As shown in col (3) of the table, dismissal rates tend to be larger, the greater the distance to headquarters, even though there is much heterogeneity in the effect of the latter. Finally, we check that our results are robust to using the log – rather than linear – distance to headquarters. Given that 6% of our establishments are located in the same municipality as their headquarters – and hence have zero distance to headquarters; see section 2 – we consider a specification that uses log(1+distance). As shown in column (4) of the table, the impact of distance to headquarters on dismissals is positive and significant at the 5% level.[42]

A second concern is that our results could be driven by the large proportion of zero dismissal rates in our sample and the fact that equation (3.1) does not account for the censoring of the distribution of dismissal rates at 0. We address this problem by estimating a Tobit model, using the Mundlak transformation to control for firm fixed effects. Results, however, are qualitatively similar to the baseline – see col (5) in Table A5.

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[40] To take advantage of the larger sample, these robustness checks – as well as those in the following subsection – are performed using OLS estimates.

[41] The fact that the distance-dismissal relationship does not disappear at long distances is consistent with the pattern of social relations uncovered when using the *Contact entre les personnes* survey (see footnote 12): the intensity of social relations decreases with distance between individuals and the negative correlation does not become insignificant even when eliminating individuals located at less than 250km – which is the average distance between a plant and its headquarters in our sample. This suggests that individuals have fewer contacts with relatives and friends located further away and that this holds at long as well as at short distances.

[42] This specification is not the one we prefer because the log function is too flat to properly fit the distance-dismissal relationship at long distances: when dropping establishments at less than 50km from their headquarters and re-estimating the specification in column (4), we get a much larger coefficient: 9.130 with standard error 3.434. As we have seen in column (1) of Table A5, this is not the case with the linear distance since the point estimate obtained when dropping the closest distances is roughly equal to the one we get on the whole sample. Linear distance is thus our preferred specification.

Finally, we check that our results are homogenous across industries by interacting distance to headquarters with a dummy variable for the manufacturing and energy sectors. This interaction turns out to be insignificant at conventional levels – see Table A5 col (6) – thus suggesting that the distance-dismissal relationship is essentially homogenous across manufacturing & energy on the one hand and construction & services on the other hand.

The relatively low level of dismissals at short distances from headquarters could be compensated by other types of separations. We therefore examine the effects of distance on quits, retirement, trial-period and fixed-term-contract terminations – see Appendix Table A6. None of these separations appear to vary with the distance to the headquarters.

Our model predicts that the effect of social pressure on dismissals should also be reflected in the behavior of firms regarding hirings on permanent contracts. Unfortunately, the data we have at hand do not allow us to test this assumption properly. Our database contains two types of hiring data, one including only direct hires on permanent contracts and the other encompassing all hires, including those on fixed-term contracts, who represent more than 80% of all hires but are irrelevant for our purpose. Unfortunately, direct hires on permanent contracts are not a good measure of *total* hirings on this type of contracts either. In France, fixed-term contracts are indeed partly used as a way to circumvent legal limitations on the duration of the probationary period due to the fact that these contracts can be as long as 18 months, including renewals, while the probationary period of a permanent contract cannot be longer than 3-8 months, depending on the occupation. As a consequence, many workers are hired on fixed-term contracts and only subsequently their contract is converted into a permanent one. Information on conversions, however, is not available in our data.[43] In principle, our model should be tested on the sum of direct hires on permanent contracts *plus* conversions (i.e. all new permanent contracts). Using only direct hires on permanent contracts as a proxy for total hires would generate a measurement-error bias when estimating the relationship between distance to headquarters and hirings on permanent contracts and this bias is likely to vary with distance.[44] Given these problems, we refrain from estimating the

[43] Nonetheless, looking at statistics at the national level suggests that the number of conversions is significant: the number of hires on fixed-term contracts is much larger than that of ends of fixed-term contracts (the difference being as large as 35%-40% of dismissals in French plants with more than 10 employees). This difference is due to conversions that we cannot measure.

[44] For example, a sorting/selection argument suggests that direct hires on permanent contracts increase with distance more than all new permanent contracts do. The reason is that a job located far away from the firm headquarters is unlikely to be considered a "very good" job, because career opportunities are better close to the headquarters. Therefore firms are likely to offer permanent contracts more frequently in establishments located far from headquarters as a way to attract good workers. Symmetrically, firms are more likely to use conversions from fixed-term to permanent contracts in establishments close to headquarters. This implies that should we run

relationship between distance and hirings.

## 4.2 Social pressure and dismissals

We have established above that plants located further away from their headquarters have higher dismissal rates. In this sub-section we investigate the role of social pressure at headquarters in generating the observed geographical pattern of dismissals.

As shown by our model – at least conditional on a sufficient degree of selfishness – if the positive impact of distance on dismissal rates results from social pressure, it should be stronger wherever the firm represents a larger share of employment in the local labor market (i.e. the employment area) where its headquarters are located. In that case, the firm is indeed more visible in the community of its headquarters, which increases the CEO's incentive to avoid painful adjustments in closely-located establishments. We test this prediction by estimating equation (3.3) – see Table 3. As shown in col (1), the impact of distance to headquarters on dismissals is significantly larger for high-visibility than for low-visibility firms,[45] suggesting that whenever firms are more visible in the area where their headquarters are located, they are more reluctant to fire workers close to headquarters.

One source of concern, however, is that our results might be driven by the fact that firms which are highly visible at headquarters are simply large firms in the local area of their headquarters. If unions are more powerful where firms are larger, the stronger relationship between distance and dismissals for high-visibility firms could be due to the ability of unions to avoid local dismissals rather than to the visibility of the firm and local social pressure arising from outside the firm. We show that this alternative interpretation is not supported by our data, as the impact of distance on dismissals remains much larger for firms with high visibility at headquarters than for firms with low visibility even after controlling for the interaction between distance to headquarters and total (absolute) firm size in the employment area of the headquarters – see column (2) in Table 3.

Other confounding factors may be correlated both with dismissals and with the interaction between distance and firm visibility. First, highly visible firms may also be more concentrated at headquarters. If CEOs dispose of better-quality information wherever firms' activities are more concentrated, they may be more able to use internal reallocations rather

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our estimates on the direct-hiring-on-permanent-contract data that we have, the results would be affected by an error systematically related to our explanatory variable and possibly generating an upward bias.

[45] The number of observations is lower in Table 3 – cols (1) to (3) than in Table 2 because, for some firms, the information on their size at headquarters is missing for 2002.

than dismissals to adjust employment at short distances, which may induce a spurious correlation between dismissals and the interaction between distance and firm visibility. Second, firms which are mostly active in the manufacturing and energy sectors tend to be more visible at headquarters: their average share of employment in the area of their headquarters is 0.46% as compared to 0.16% in construction and services. If the former suffer more from monitoring problems in distant plants than firms in the service sector do, our results could capture composition effects across industries. As shown in Table 3 – col (3), these confounding factors do not account for our results, since the distance-dismissal relationship remains stronger when firms are highly visible at headquarters, even after controlling for the interaction between distance and manufacturing & energy on the one hand and distance and firm concentration[46] in the employment area of the headquarters on the other hand.

Equation (3.3) is then re-estimated by IV. All interactions between *actual* distance and other variables are instrumented by the interactions between *potential* distance and the same variables.[47] The results are of course less precise, but in the most complete specifications – cols (2) and (3) – the impact of distance to headquarters on dismissals remains significantly larger for high-visibility than for low-visibility firms, at the 10% level of confidence. [48]

Our hypothesis is that what matters for dismissal decisions is the social pressure borne by the CEO at headquarters, i.e. in her local environment. In our model, the CEO's utility is not affected by social pressure arising from local communities of secondary establishments. If this is true, only firm visibility *at headquarters* should matter, and dismissals should be essentially unaffected by firm visibility in the area where the plant is located. We test this assumption in two different ways. First, we re-estimate equation (3.3) including a dummy variable indicating high firm visibility in the employment area of the plant and an interaction between distance to headquarters and this dummy variable. If social pressure in the local community of the plant mattered, we would expect it to counterbalance the impact of social pressure at headquarters. In this case, the interaction between distance to headquarters and high visibility at the plant should have a negative and significant impact on dismissals. Yet,

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[46] Concentration is defined here as the ratio of firm employment in the local labor market of its headquarters to total firm employment in France.

[47] We do the same in all the IV models of this subsection.

[48] As suggested by Angrist and Pischke (2009a), we test for the weak identification of each endogenous variable using partial F-tests (reported in Table 3). Given that our models have as many instruments as endogenous variables, they are just identified. As mentioned in subsection 4.1 above, just-identified 2SLS estimators are median-unbiased and confidence intervals are reliable except when the Angrist-Pischke F-test statistics are very close to 0.

we find that the point estimate on the distance*high-visibility-at-plant interaction is almost 0 (-0.0003 with standard error 0.0150). Moreover, controlling for this interaction does not modify the estimated impact of visibility at headquarters on the distance-dismissal relationship.[49] This suggests that, when taking dismissal decisions, CEOs are influenced by social pressure, but only when exerted in their local environment and not when arising from more remote communities.

We provide additional evidence on this by implementing a placebo test. We define as placebo headquarters the largest establishment located in the employment area where the firm is the most visible (excluding that of the true headquarters).[50] We then estimate equation (3.3) using these placebo headquarters (and excluding the true ones). We find no significant impact on dismissals of either distance to the placebo headquarters – see Appendix Table A7, col (1) – or of distance interacted with firm visibility at the placebo headquarters – see col (2). Results do not vary if we define as placebo headquarters a secondary establishment randomly drawn from all the establishments of the firm located outside the employment area of the true headquarters – see Table A7, cols (3) and (4). These estimates suggest that firm visibility in the local labor market of secondary establishments does not affect dismissals whereas visibility at headquarters does.

These findings support the idea formalized in our stylized model that establishments located further away from headquarters experience higher dismissal rates because CEOs expect dismissals to be more costly at short distances from headquarters due to potential social sanctions in their local environment. One mechanism that accounts for this effect is that people living in the area of the headquarters put pressure on CEOs so as to avoid that they dismiss people living close to this area, considering that this would have negative social consequences in their neighborhood. In this framework, the relationship between distance and dismissals hinges on the fact that people living close to headquarters are selfish and value dismissals at short distance more negatively than dismissals far away, because the former are more likely to affect them. As a consequence, the greater the selfishness of a community, the greater is the steepness of the distance-dismissal relationship. To test this prediction, we estimate equation (3.4) using the 1887 ratio of *département*-level charity donations to GDP as

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[49] Point estimates comparable to those provided in Table 3 – col (3) are obtained by defining, in this specification, the interaction between distance to headquarters and high visibility at plant in deviation from sample mean. The point estimate on the interaction between distance to headquarters and high (resp. low) firm visibility at headquarters is then 0.090 (resp. 0.015) with standard errors 0.027 (resp. 0.015), hence very similar to those obtained in Table 3 – col (3).

[50] For 56% of our firms, the employment area where the firm is the most visible is not that of the headquarters.

an indicator of generosity.[51] When running OLS estimates, we find that the positive impact of distance on dismissals is statistically significant only for firms with headquarters located in low-generosity *départements,* and that the estimated effect of distance on dismissals is significantly larger for low-generosity than for high-generosity *départements* – see Table 4, col (1).

A source of concern is that generosity in a *département* might capture other local characteristics. This would be the case, for example, if religious people tended to make larger charitable donations than others. We control for this potential confounder by including in our specification the interaction between distance to headquarters and the proportion of churchgoing Catholics[52] in the population of the *département* where the headquarters are located, as measured in 2005-2009. Low generosity could also be a consequence of local deprivation. To account for this possibility, we proxy deprivation with local unemployment. Beyond deprivation, local generosity may also be affected by migrations and by changes in the local economic structure. We proxy the proportion of individuals with local origins with the share of people who were born in a *département* among those who died in that *département* in 2013. Changes in the local economic structure are measured by the change in the share of manufacturing & energy in total value-added between 1990 and 2000. All these variables[53] are measured in the *département* of the headquarters.[54] To control for these potential confounders, we re-estimate equation (3.4) including the interactions between distance to headquarters and all the above-mentioned controls. In addition, we also include an interaction between distance and a dummy variable for the manufacturing and energy sectors to account for the fact that the sensitivity of the distance-dismissal relationship to local generosity could vary with the type of economic activity. The results of this extended specification are presented in Table 4 – col (2). The positive impact of distance on dismissals turns out to be statistically significant for firms with headquarters located both in low and high-generosity *départements*, but the effect is larger for low-generosity than for high-

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[51] As discussed in Section 2, this specification includes distance to headquarters interacted with income per capita to control for the fact that richer areas are likely to be more generous. Taxable income per capita in 1998 is provided by DGFiP-French Ministry of Finance.

[52] Catholicism is by far the most important religion in France with 64% of French people reporting to be catholic in the second half of the 2000s.

[53] Data on religiosity have been provided by IFOP (*Le Catholicisme en France en 2010*). All other controls come from the French Statistical Institute (INSEE).

[54] Except for unemployment which is measured at the level of the employment area of the headquarters.

generosity *départements*. The estimated difference is statistically significant at the 10% level of confidence.[55]

When the baseline and extended specifications are re-estimated by IV, the results are very similar to those obtained by OLS: the distance to headquarters has a positive impact on dismissals both for firms with headquarters located in low and high-generosity *départements*, but the effect is larger when headquarters are located in low-generosity than in high-generosity *départements* – see Table (4) – cols (3) and (4).

Overall, our results are consistent with an interpretation of the effect of distance as reflecting local social pressure at headquarters: in areas where the local community is selfish, people care about dismissals to the extent that they take place close by and threaten them directly. As a consequence, they put pressure on CEOs to shift dismissals away from local areas near the headquarters. In more altruistic communities, this effect is significantly smaller. To make sure that what matters is generosity at *headquarters* rather than in the community where the plant is located, we run the same type of test as for visibility. We re-estimate equation (3.4) including an interaction between distance to headquarters and a dummy variable indicating low generosity in the *département* of the plant. If social pressure in the local community of the plant mattered, it should counterbalance the impact of social pressure at headquarters, so that the interaction between distance to headquarters and low generosity at plant should have a negative and significant impact on dismissals. Here again, the point estimate on the distance*low-generosity-at-plant interaction turns out to be almost 0 (0.006 with standard error 0.021). Moreover, controlling for this interaction does not modify the estimated impact of generosity at headquarters on the distance-dismissal relationship.[56] These results confirm that CEOs are influenced by social pressure in their local environment when deciding about dismissals, whereas they do not seem to be affected by social pressure arising from more remote local communities.

Such evidence is confirmed when running a placebo test similar to that used for visibility. We first define as placebo headquarters the largest establishments of the firm

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[55] Given that our generosity variable is not as skewed as visibility, it may be less legitimate to dichotomize it into high and low-generosity on the basis of a cut-off point at the third quartile of the distribution. When we re-estimate equation (3.4) using generosity as a continuous variable using our most complete specification, the results are qualitatively similar to those displayed in Table 4 – col (2). The point estimate on the interaction between distance to headquarters and generosity is -13.60 with standard errors 6.46, significant at the 5% level. This suggests that the distance-dismissal relationship gets stronger when generosity at headquarters is lower.

[56] Point estimates comparable to those provided in Table 4 – col (2) are obtained by defining the interaction between distance to headquarters and low generosity at plant in deviation from sample mean. The point estimate on the interaction between distance to headquarters and low (resp. high) generosity at headquarters is 0.088 (resp. 0.036) with standard errors 0.026 (resp. 0.013).

located in the least generous *département* where the firm is present (excluding the *département* of the true headquarters). When estimating equation (3.4) using these placebo headquarters, we find no significant impact on dismissals of either distance to the placebo headquarters – see Appendix Table A8, col (1) – or of distance interacted with generosity at the placebo headquarters – col (2) of the table. Results are similar if we choose as placebo headquarters a secondary establishment randomly drawn from all the establishments of the firm, excluding those located in the *département* of the true headquarters – see Table A8, cols (3) and (4). As in the case of visibility, these findings suggest that what matters for dismissals is indeed generosity at headquarters rather than in other *départements*.

One could worry that charity giving might capture not only generosity but also some dimension of social capital. To address this problem, we consider an alternative measure of generosity based on the differential turnout rates at the national versus local elections. More specifically, we proxy generosity with the difference between the *département*-level turnout rates (in % of registered voters) at the first round of the 2002 presidential election and the first round of the 2001 municipal elections – excluding towns with population below 9,000 inhabitants.[57] The idea underlying this measure is that less selfish (more generous) individuals will be relatively more concerned by national stakes as compared to only local ones, so that their relative participation to national elections (as compared to local ones) will be higher.

As above, we classify headquarters as located in high-generosity *départements* when the latter belong to the upper 25% of the distribution of differences in turnout rates at presidential and municipal elections. Symmetrically, headquarters are considered to be located in low-generosity *départements* when the latter belong to the bottom 75% of the distribution. Let us stress that this measure of generosity does not capture social capital since it is based on the difference between two indicators (namely, turnout rates) that are likely to be influenced in similar ways by individuals' involvement in collective issues. When regressing dismissal rates on distance to headquarters interacted with this new measure of high and low generosity at headquarters our findings are similar to those obtained with charity – see Appendix Table A9 – cols (1) and (2). The impact of distance on dismissals is positive and significant only for firms whose headquarters are located in a local labor market characterized by low generosity. For firms with headquarters located in areas with a high turnout rate at presidential (as compared to municipal) elections, the impact of distance on

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[57] The data on turnout rates are provided by the French Ministry of Interior, which does not publish, however, turnout rates for smaller municipalities.

dismissals is even negative, although statistically insignificant at conventional levels.[58] These results confirm that social pressure is indeed a key factor in accounting for the distance-dismissal relationship: wherever people are less generous, they put more pressure on CEOs to fire people far away rather than closer to headquarters, whereas when local communities are more altruistic this effect is much smaller.

Finally, we interact firm visibility close to headquarters with the generosity of the local community. If social pressure is an important determinant of dismissals, the positive impact of distance should be the highest for firms with a large share of employment in the local labor market of their headquarters *and* whose headquarters are located in a more selfish community – see equation (3.5). As shown in Table 5, this implication is borne out by our estimates. When our model is estimated by OLS – cols (1) and (2) – we find that, whenever high visibility combines with low generosity, the effect on dismissals of increasing distance by 100 km is largest (0.16 percentage points) and significantly higher than for any other combination of visibility and generosity. When using IV estimates, the differences in coefficients are less precisely estimated, but the point estimate on distance interacted with low generosity and high visibility is the largest and the only significant one. We interpret these results as indicating that social pressure arising from the local community is a key factor explaining why dismissals are fewer at shorter distance from a firm's headquarters.

## 5. Discussion of alternative explanations

Aside from local social pressure at headquarters, there are other candidate explanations of the positive relationship between distance and dismissals. We discuss them in turn and show that none of them can account for all our findings.

### 5.1 Public subsidies

One reason for lower dismissal rates in establishments located closer to headquarters could be the availability of public subsidies. In France, most local subsidies to economic activity are granted by regional authorities to firms rather than establishments – which are not profit centers. Subsidies may be granted under local social pressure which would be consistent with our explanation. However, they can also be induced by some form of

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[58] These results are virtually unchanged if generosity is defined as a continuous variable, i.e. as the raw difference between turnout rates at the presidential and municipal elections. When re-estimating the specification of Table A9 – col (2), we find that the point estimate on the interaction between distance to headquarters and generosity at headquarters is -0.0091 with standard error 0.0056.

corruption if politicians exchange these subsidies for financial support from firms for their electoral campaigns. If subsidies reduce the probability of firm downsizing, this could account for our findings. To disentangle local social pressure from the effect of public subsidies, we re-estimate our empirical models using only the sub-sample of establishments located outside the region of the headquarters.[59] By so doing, we exclude the main catchment areas of local politicians. We confirm on this subsample that the effect of distance on dismissals is larger for firms with high visibility and headquarters located in low-generosity areas than for any other type of firms and local communities.[60] Since our key effects do not disappear outside the region of the headquarters, we conclude that the political use of public subsidies cannot be the only mechanism at play.

*5.2 Monitoring costs and asymmetric information*

If establishments located far away from headquarters have higher monitoring costs or suffer from asymmetric information, this may negatively affect their performance and therefore increase dismissals. Yet, none of these distance-related costs can explain why the impact of distance to headquarters on dismissals is found to increase with the visibility of the firm in the local community of its headquarters, except if highly visible firms are more concentrated close to headquarters and monitoring costs decrease with concentration or if manufacturing firms are more visible and have higher monitoring costs. However, the impact of distance on dismissals increases with visibility even after controlling both for the interaction between distance and firm concentration in the employment area of the headquarters and for the interaction between distance and a dummy for the manufacturing & energy sector. In addition, asymmetric information and monitoring costs cannot explain why the distance-dismissal relationship is steeper whenever the local community at headquarters is more selfish. We therefore rule out that monitoring costs and/or asymmetric information are the only driving factor behind the relationship we have uncovered between distance and dismissals.

*5.3 Managerial entrenchment*

Fewer dismissals at short distances could also be due to within-firm social pressure if entrenched managers refrain from firing employees with whom they interact on a regular

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[59] Each French region encompasses several *départements* and employment areas – see Section 3.
[60] The point estimate on Distance*Low generosity*High visibility is 0.194 (with standard error 0.076). It is larger than any point estimate on any other interaction and the difference with the latter is always significant at least at the 6% level.

basis and if interactions are more frequent at short distances. In this case, however, the distance effect should not vary with the firm's visibility at headquarters, except if entrenchment increases with firm size, given that the latter is likely correlated with visibility. However, the finding that the impact of distance on dismissals is stronger when firms are highly visible at headquarters is robust to controlling for the interaction between distance to headquarters and overall firm size in France.[61]

*5.4 Sorting of workers and/or managers*

Good workers may self-select into establishments close to headquarters because career prospects are better. For the same reason, good managers may wish to locate close to headquarters while bad ones may be forced to stay further away. If good workers are less likely to be dismissed and/or good managers are better at making their establishments successful – thereby making dismissals unnecessary –, this could account for the distance-dismissal relationship. In addition, this effect is likely to vary with firm visibility at headquarters if within-firm career prospects are better when firms are larger. However, this cannot be the only determinant since we show that our results are robust to conditioning on firm size in the employment area of the headquarters interacted with distance.

Good workers and managers may also self-select where the firm is more visible if they expect to have better external job opportunities when coming from a firm that is one of the main actors in its local environment. If this were a key explanation, however, workers should self-select not only in establishments close to headquarters, but also in all establishments located in any other area where the firm is highly visible. This would, in turn, generate a positive relationship between dismissals and the distance to any location where the firm is highly visible. The results of our placebo tests indicate that this is not the case: what matters for dismissals is visibility at headquarters, while visibility in other employment areas turns out to have no significant effect. Moreover, none of these sorting mechanisms can explain why the effect of distance varies with the degree of generosity of the local community where the headquarters are located.

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[61] Re-estimating the specification in Table 3 – col (1) and controlling, in addition, for distance to headquarters interacted with overall firm size in France leaves our results essentially unchanged: the point estimates on Distance*Low visibility (resp. Distance*High visibility) are 0.035 (resp. 0.096) with standard error 0.012 (resp. 0.025).

*5.5 Place attachment*

The literature in environmental psychology suggests that individuals are attached to their place of origin. Building on this argument, Yonker (2013) suggests that dismissals may be less numerous close to the CEO's place of origin. Moreover, Yonker (2016) provides evidence that, even in the USA, CEOs tend to be hired locally. If this is the case, dismissals should be less frequent close to headquarters where CEOs live and may come from. However, this effect should not vary with firm visibility. If anything, it should go in the opposite direction: smaller firms are indeed more likely to have CEOs with local origin so that the relationship between distance and dismissals should be stronger where firms are less visible.

*5.6 Altruistic attitudes of CEOs independent of social pressure*

Socially-concerned CEOs are aware that the negative social consequences of high dismissal rates are likely to be stronger wherever their firm represents a larger share of local employment. This concern may explain why they refrain from firing workers in the employment area of the headquarters when their company is highly visible. CEOs' attitudes and concerns do not explain, however, why the relationship between distance and dismissals varies with the generosity of the local community of the headquarters. Moreover, dismissals should be lower wherever the firm accounts for a large proportion of local employment, not just at headquarters, which is not supported by the results of our placebo test.

*5.7 All the above explanations taken together*

We have shown that, taken separately, the alternative mechanisms considered in this section cannot account for the different facets of the relationship between distance and dismissals uncovered by our empirical analysis. Can they do so jointly? The answer to this question turns out to be negative since none of these explanations can account for the fact that, even outside the region of the headquarters, the relationship between distance and dismissals is stronger for high-visibility firms whose headquarters are located in areas with more selfish local communities.


**6. Conclusion**

In this paper, we have shown that firms are sensitive to social pressure in the local environment where their headquarters are located, which induces them to refrain from dismissing at short distance from headquarters.

Using French linked employer-employee data, we have shown that dismissal rates increase with the distance of secondary establishments to headquarters. This result holds even after controlling for the endogeneity of the distance to headquarters. We have also found that the positive effect of distance on dismissals increases with the firm's share of total employment in the local labor market of its headquarters. The estimated effect of distance on dismissals is also stronger the greater the degree of selfishness of the local community at headquarters. This suggests that wherever firms are more visible at headquarters or the community of the headquarters is more selfish, firms are more reluctant to fire closely-located workers. This is consistent with the idea that CEOs are under local social pressure in their community to reduce as much as possible dismissals in their area. We have shown that these results are explained by an adjustment-cost model of employment decisions made by CEOs under the threat of local social sanctions. By contrast, they cannot be entirely accounted for by alternative explanations of the positive relationship between distance and dismissals proposed in the literature.

Our findings suggest that social pressure exerted by the community of their headquarters has an important impact on the way firms accommodate negative shocks, and in particular on their dismissal policy. The natural question to ask is then: who exactly is affected by social pressure? Is it the owner of the firm or the CEO? If it is the CEO, and the CEO is not one of the main shareholders of the firm, her decisions may not be profit maximizing. In this case, the relationship between distance and dismissals is likely to be stronger the weaker the firm's governance. Whilst our data do not contain information on firm governance, we believe that understanding how governance affects employment decisions when the CEO is exposed to local social pressure is a challenging avenue for further research.

By focusing on firms registered in France, our paper has nothing to say on the effects of social pressure on the employment adjustment of multinational companies. Do multinational firms also react to local social pressure in their home country? Do they tend to shift the burden of painful employment adjustments onto subsidiaries located in foreign countries? This question is of particular relevance given the increasing level of globalization of advanced economies. Investigating these effects on an international scale would require getting access to appropriate plant-level data for several countries. While we are unaware of the existence of such data, we believe that investigating this issue would be of major importance to understand how the presence of multinational companies may affect the resilience of countries to negative economic shocks.

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**Figure 1**
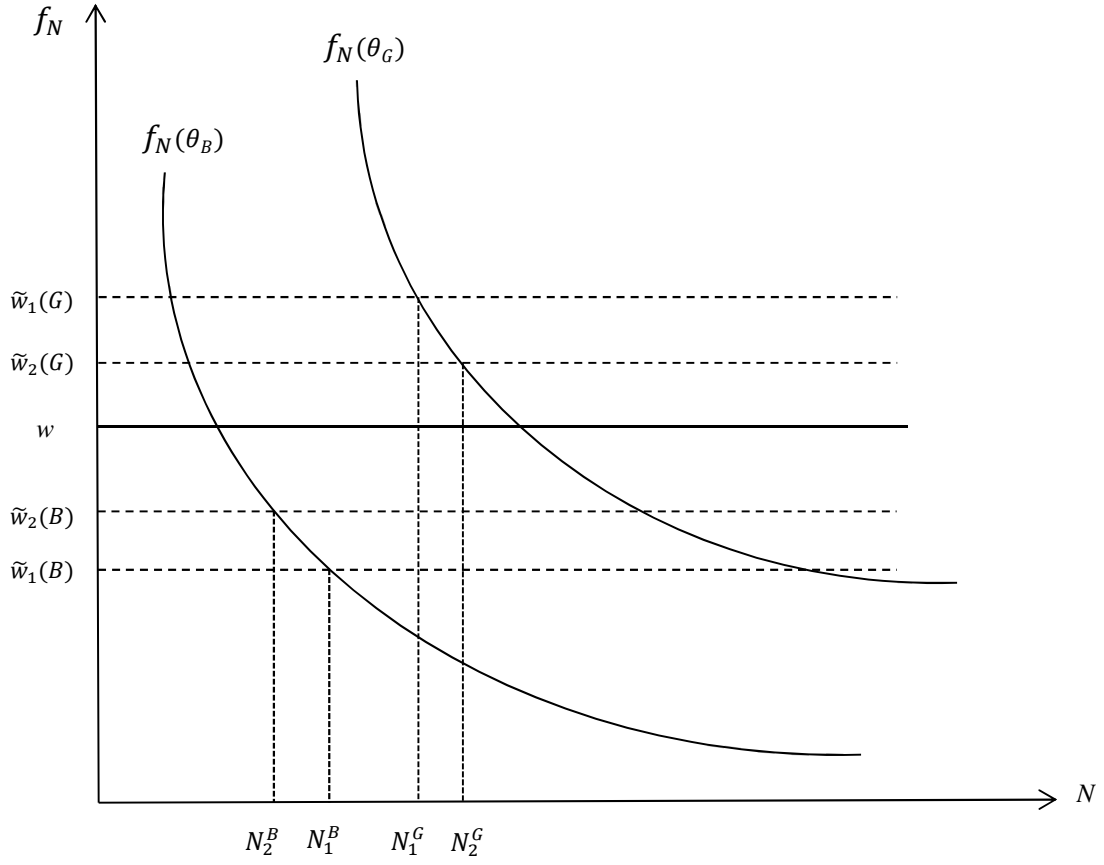


where:

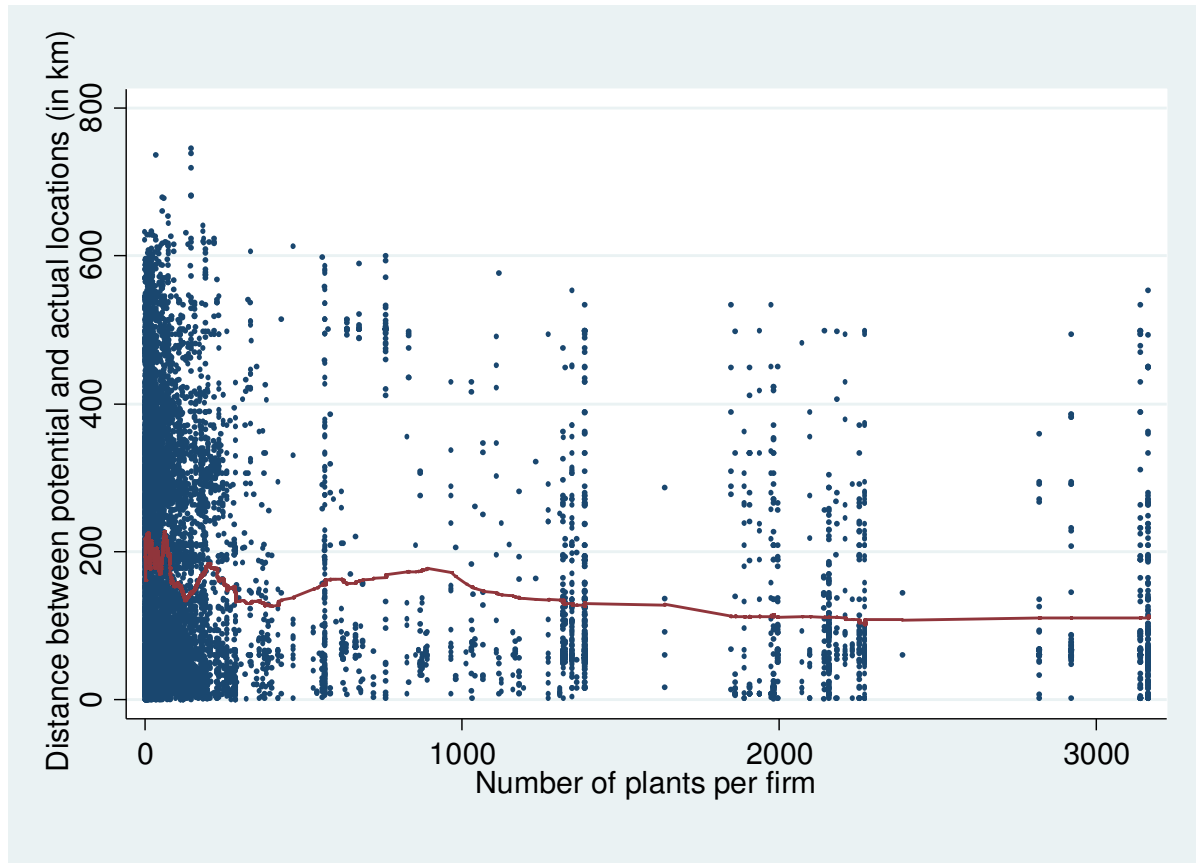$$\widetilde{w}_i(G) = w + \lambda_G b_i + (r + \lambda_G)c_h$$

$$\widetilde{w}_i(B) = w - \lambda_B c_h - (r + \lambda_B)b_i$$

**Figure 2**
**Distance between Actual and Potential Locations as a Function of**
**the Number of Plants per Firm**



Note. – The solid line represents a local mean smoothing obtained with a 5% bandwith and Cleveland's tricube weighting function.

# Tables

## Table 1 - Correlation between Potential Distance to Headquarters and Contribution to Market Potential *CMPF*.

| | (1)<br>Population<br>1999 | (2)<br>Population<br>2009 |
|---|---|---|
| Full sample | - 0.010 (0.927) | - 0.006 (0.957) |
| Excluding sea & border *départements* | 0.014 (0.916) | 0.018 (0.893) |

Note. – CMPF is based on 1999 and 2009 population data in columns (1) and (2), respectively. Variables in deviation from the firm average. p-values in parentheses. Significance obtained adjusting for clustering at the level of the *département* of the headquarters.

## Table 2 Distance to Headquarters (HQ) and Dismissals in Secondary Establishments 2003-2007

| | (1)<br>OLS | (2)<br>OLS | (3)<br>IV-1$^{st}$ stage | (4)<br>IV-2$^{nd}$ stage |
|---|---|---|---|---|
| Method | OLS | OLS | IV-1$^{st}$ stage | IV-2$^{nd}$ stage |
| Sample | Full | No sea & border | No sea & border | No sea & border |
| Dependent variable | Dismissal rate | Dismissal rate | Distance to HQ | Dismissal rate |
| Distance to headquarters | 0.033**<br>(0.015) | 0.062***<br>(0.018) | | 0.064**<br>(0.025) |
| Potential distance to HQ | | | 0.522**<br>(0.239) | |
| Angrist-Pischke F-test for Distance to headquarters | - | - | 4.76 | - |
| Observations | 272,021 | 145,306 | 145,306 | 145,306 |
| R-squared | 0.114 | 0.186 | 0.811 | 0.002 |
| Control variables | yes | yes | yes | yes |

Note. – In all columns except col. 3, the dependent variable is the quarterly dismissal rate in percentage multiplied by 100. Control variables include: firm, industry, time and employment-area dummies; the unemployment rate in the employment area of the establishment; the occupational and gender structure of the workforce; establishment age and size dummies, and dummies for firm size in the employment area of the establishment. 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: Interactions between Distance to Headquarters and Firm Visibility in the Employment Area of the Headquarters 2003-2007**

| Specification | (1)<br>Baseline | (2)<br>(1) +<br>Distance * total<br>firm size in<br>HQ's area | (3)<br>(2) +<br>Distance*firm<br>concentration<br>and Distance<br>*manufacturing<br>&energy | (4)<br>Baseline | (5)<br>(4) +<br>Distance *<br>total<br>firm size in<br>HQ's area | (6)<br>(5) +<br>Distance*firm<br>concentration<br>and Distance<br>*manufacturing<br>&energy |
|---|---|---|---|---|---|---|
| | OLS | OLS | OLS | IV | IV | IV |
| Dependent variable | Dismissal<br>rate | Dismissal<br>rate | Dismissal<br>rate | Dismissal<br>rate | Dismissal<br>rate | Dismissal<br>rate |
| Distance*Low visibility | 0.029*** | 0.021* | 0.025** | 0.025 | -0.000 | 0.015 |
| | (0.011) | (0.012) | (0.012) | (0.029) | (0.038) | (0.067) |
| Distance*High visibility | 0.073*** | 0.100*** | 0.101*** | 0.086*** | 0.142*** | 0.158 |
| | (0.013) | (0.022) | (0.023) | (0.033) | (0.054) | (0.110) |
| Control variables | yes | yes | yes | yes | yes | yes |
| p-value (High Visibility - Low Visibility) | 0.003 | 0.004 | 0.003 | 0.254 | 0.066 | 0.070 |
| Angrist-Pischke F-test for Distance*LowVisib | - | - | - | 7.53 | 7.38 | 7.45 |
| Angrist-Pischke F-test for Distance*HighVisib | - | - | - | 266.2 | 169.62 | 163.48 |
| Observations | 238,605 | 238,605 | 238,605 | 127,414 | 127,414 | 127,414 |
| R-squared | 0.110 | 0.111 | 0.111 | 0.001 | 0.001 | 0.001 |

Note. – Dismissal rates are expressed in percentage multiplied by 100. Visibility is measured as the share of the firm's employment in total employment of the local labor market where its headquarters are located. High visibility is captured by a dummy variable equal to 1 when the firm's share of local employment belongs to the upper 25% of the visibility distribution and 0 otherwise. Low visibility is equal to 1 if the firm belongs to the lower 75% of the distribution and 0 otherwise. Total firm size in the employment area of the headquarters is divided in 6 classes, each of them corresponding to a dummy variable. Firm concentration is defined as the ratio of firm employment in the local labor market of its headquarter to total firm employment in France. Manufacturing is a dummy variable for the manufacturing and energy sectors. Control variables include: industry, time, firm and employment-area dummies; the unemployment rate in the employment area of the establishment; the occupational and gender structure of the workforce; establishment age and size dummies and dummies for firm size in the employment area of the establishment. All interactions between actual distance and other variables are instrumented by the interactions between potential distance and the same variables. IV models are estimated with 2SLS estimators. Robust standard errors clustered at the level of the *département* of the headquarters in parentheses. *** p<0.01, ** p<0.05, * p<0.1

**Table 4: Interactions between Distance to Headquarters and the Level of Generosity in the *Département* of the Headquarters 2003-2007**

| Specification | (1) Baseline | (2) Baseline + Distance * Extended Controls | (3) Baseline | (4) Baseline + Distance *Extended Controls |
|---|---|---|---|---|
| | OLS | OLS | IV | IV |
| Dependent variable | Dismissal rate | Dismissal rate | Dismissal rate | Dismissal rate |
| | | | | |
| Distance*Low generosity | 0.088** | 0.089** | 0.145*** | 0.145*** |
| | (0.037) | (0.036) | (0.050) | (0.051) |
| Distance*High generosity | 0.022 | 0.025* | 0.046* | 0.050** |
| | (0.015) | (0.014) | (0.025) | (0.024) |
| | | | | |
| Baseline control variables | yes | yes | yes | yes |
| Extended control variables | no | yes | no | yes |
| | | | | |
| p-value (High generosity - Low generosity) | 0.097 | 0.100 | 0.083 | 0.098 |
| | | | | |
| Angrist-Pischke F-test for Distance*LowGen | - | - | 89.59 | 93.93 |
| Angrist-Pischke F-test for Distance*HighGen | - | - | 3.70 | 3.77 |
| | | | | |
| Observations | 264,165 | 264,165 | 142,569 | 142,569 |
| R-squared | 0.114 | 0.114 | 0.002 | 0.002 |

Note. – Dismissal rates are expressed in percentage multiplied by 100. Generosity is measured as the ratio of total charity donations in 1887 to *département*-level GDP. In our regressions, high generosity is captured by a dummy variable equal to 1 if the *département* of the headquarters belongs to the upper 25% of the charity distribution and 0 otherwise. Symmetrically, headquarters are considered to be located in low-generosity *départements* if the latter belong to the bottom 75% of the distribution. Baseline control variables include: industry, time, firm and employment-area dummies; the unemployment rate in the employment area of the establishment; the occupational and gender structure of the workforce; establishment age and size dummies; dummies for firm size in the employment area of the establishment and distance to headquarters interacted with taxable income per capita in the *département*. Extended controls include distance to headquarters interacted with each of the following variables: the unemployment rate in the employment area of the headquarters (HQ), the proportion of Catholic people with religious practice in the *département* population at HQ, the share of people who were born in a *département* among those who died in that *département* as measured at HQ, the 1990-2000 change in the share of manufacturing & energy in the total value-added of the *département* of the HQ and a dummy for the manufacturing and energy sectors. All interactions between actual distance and other variables are instrumented by the interactions between potential distance and the same variables. IV models are estimated with 2SLS estimators. Robust standard errors clustered at the level of the *département* of the headquarters in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

**Table 5: Interactions between Distance to Headquarters, Firm Visibility in the Employment Area of the Headquarters and the Level of Generosity in the *Département* of the Headquarters 2003-2007**

| Specification | (1) Baseline | (2) Baseline + Distance * Extended Controls | (3) Baseline | (4) Baseline + Distance *Extended Controls |
|---|---|---|---|---|
| | OLS | OLS | IV | IV |
| Dependent variable | Dismissal rate | Dismissal rate | Dismissal rate | Dismissal rate |
| | | | | |
| Distance*Low generosity*High visibility | 0.159*** | 0.159*** | 0.183* | 0.191* |
| | (0.052) | (0.052) | (0.101) | (0.112) |
| Distance*Low generosity*Low visibility | 0.043 | 0.047 | -0.104 | -0.104 |
| | (0.037) | (0.039) | (0.080) | (0.085) |
| Distance*High generosity*High visibility | 0.056*** | 0.059*** | 0.054 | 0.057 |
| | (0.010) | (0.012) | (0.041) | (0.045) |
| Distance*High generosity*Low visibility | 0.026*** | 0.025** | 0.031 | 0.041 |
| | (0.008) | (0.010) | (0.028) | (0.030) |
| | | | | |
| p-value (LowGen*HighVis - LowGen*LowVis) | 0.047 | 0.062 | 0.060 | 0.087 |
| p-value (LowGen*HighVis - HighGen*HighVis) | 0.064 | 0.080 | 0.278 | 0.280 |
| p-value (LowGen*HighVis - HighGen*LowVis) | 0.016 | 0.022 | 0.183 | 0.200 |
| | | | | |
| A-P F-test for Distance*LowGen*HighVis | - | - | 66.29 | 64.09 |
| A-P F-test for Distance*LowGen*LowVis | - | - | 33.05 | 40.01 |
| A-P F-test for Distance*HighGen*HighVis | - | - | 124.89 | 162.08 |
| A-P F-test for Distance*HighGen*LowVis | - | - | 5.86 | 5.21 |
| | | | | |
| Observations | 231,310 | 231,310 | 124,980 | 124,980 |
| R-squared | 0.111 | 0.111 | 0.001 | 0.001 |

Note. – Dismissal rates are expressed in percentage multiplied by 100. Generosity is measured as the ratio of total charity donations in 1887 to *département*-level GDP. In our regressions, high generosity is captured by a dummy variable equal to 1 if the *département* of the headquarters belongs to the upper 25% of the charity distribution and 0 otherwise. Symmetrically, headquarters are considered to be located in low-generosity *départements* if the latter belong to the bottom 75% of the distribution. Visibility is measured as the share of the firm's employment in total employment of the local labor market where its headquarters are located. High visibility is captured by a dummy variable equal to 1 when the firm's share of local employment belongs to the upper 25% of the visibility distribution and 0 otherwise. Low visibility is equal to 1 if the firm belongs to the lower 75% of the distribution and 0 otherwise. Baseline control variables include: industry, time, firm and employment-area dummies; the unemployment rate in the employment area of the establishment; the occupational and gender structure of the workforce; establishment age and size dummies; dummies for firm size in the employment area of the establishment; and distance to headquarters interacted with taxable income per capita in the *département*. Extended controls include distance to headquarters interacted with each of the following variables: the unemployment rate in the employment area of the headquarters (HQ), the proportion of Catholic people with religious practice in the *département* population at HQ, the share of people who were born in a *département* among those who died in that *département*, as measured at HQ, the 1990-2000 change in the share of manufacturing & energy in the total value-added of the *département* of the HQ and a dummy variable for the manufacturing and energy sectors. A-P F-tests refer to the Angrist-Pischke F-test. All interactions between actual distance and other variables are instrumented by the interactions between potential distance and the same variables. IV models are estimated with 2SLS estimators. Robust standard errors clustered at the level of the *département* of the headquarters in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

# Appendix

## A1. Derivation of the impact of visibility on the effect of distance to headquarters on dismissals

The derivative of $D_i^*$ with respect to $\alpha$ yields:

$$\frac{\partial D_i^*}{\partial \alpha} = \left( \frac{\lambda_G}{f_{NN}(\theta_G, N_i^G)} + \frac{r + \lambda_B}{f_{NN}(\theta_B, N_i^B)} \right) \gamma_i \tag{A1}$$

The effect of visibility on the relationship between distance and dismissals is given by the sign of the following expression:

$$\frac{\partial (D_2^* - D_1^*)}{\partial \alpha} = \left( \frac{\lambda_G}{f_{NN}(\theta_G, N_2^G)} + \frac{r + \lambda_B}{f_{NN}(\theta_B, N_2^B)} \right) \gamma_2 - \left( \frac{\lambda_G}{f_{NN}(\theta_G, N_1^G)} + \frac{r + \lambda_B}{f_{NN}(\theta_B, N_1^B)} \right) \gamma_1 \tag{A2}$$

Taking into account that $f_{NN} < 0$, the right-hand side of (A2) is positive, if and only if

$$\beta > \frac{\frac{\lambda_G}{\left| f_{NN}(\theta_G, N_2^G) \right|} + \frac{r + \lambda_B}{\left| f_{NN}(\theta_B, N_2^B) \right|}}{\frac{\lambda_G}{\left| f_{NN}(\theta_G, N_1^G) \right|} + \frac{r + \lambda_B}{\left| f_{NN}(\theta_B, N_1^B) \right|}} \tag{A3}$$

where $\beta = \gamma_1 / \gamma_2$ is the degree of selfishness and $|x|$ denotes the absolute value of $x$. Since $N_2^B < N_1^B$ and $f_{NNN} \geq 0$, $|f_{NN}(\theta_B, N_2^B)| \geq |f_{NN}(\theta_B, N_1^B)|$, the above inequality holds if:

$$\beta > \frac{\frac{\lambda_G}{\left| f_{NN}(\theta_G, N_2^G) \right|} + \frac{r + \lambda_B}{\left| f_{NN}(\theta_B, N_2^B) \right|}}{\frac{r + \lambda_B}{\left| f_{NN}(\theta_B, N_2^B) \right|}} = 1 + \frac{\frac{\lambda_G}{\left| f_{NN}(\theta_G, N_2^G) \right|}}{\frac{r + \lambda_B}{\left| f_{NN}(\theta_B, N_2^B) \right|}} \tag{A4}$$

The fact that $f_{NNN} \geq 0$ implies that $|f_{NN}(\theta_B, N_2^B)| \leq |f_{NN}(\theta_B, N_0^B)|$, where $N_0^B$ is the value obtained by solving equation (1.3) for $b_i = 0$. Similarly, $|f_{NN}(\theta_G, N_2^G)| \geq |f_{NN}(\theta_G, N_0^G)|$, where $N_0^G$ is the value obtained by solving equation (1.2) for $b_i = 0$. Therefore a sufficient condition for (A4) to hold is that:

$$\beta > 1 + \frac{\frac{\lambda_G}{f_{NN}(\theta_G, N_0^G)}}{\frac{r + \lambda_B}{f_{NN}(\theta_B, N_0^B)}} \tag{A5}$$

This implies that a sufficient condition for (A2) to be positive is that the degree of selfishness $\beta = \gamma_1 / \gamma_2$ be large enough.

## A2. Derivation of the effect of selfishness on the impact of visibility on the distance-dismissal relationship

Since, conditional on $\gamma_1$, $\beta$ does not affect $D_1^*$, it is straightforward that:

$$\frac{\partial(D_2^* - D_1^*)}{\partial \beta} = \frac{\partial D_2^*}{\partial \beta}$$

This implies that $\partial^2(D_2^* - D_1^*)/\partial\alpha\partial\beta = \partial^2 D_2^*/\partial\alpha\partial\beta$. Taking the first derivative of the right-hand side of equation (A1) with respect to $\beta$ for $i = 2$ and taking into account that $\gamma_2 = \gamma_1/\beta$ yields:

$$\frac{\partial^2 D_2^*}{\partial\beta\partial\alpha} = -\frac{\gamma_1}{\beta^2}\left(\frac{\lambda_G}{f_{NN}(\theta_G, N_2^G)} + \frac{r+\lambda_B}{f_{NN}(\theta_B, N_2^B)}\right) + \frac{\gamma_1}{\beta}\left(\frac{\lambda_G f_{NNN}(\theta_G, N_2^G)}{[f_{NN}(\theta_G, N_2^G)]^2}\frac{\partial N_2^G}{\partial\beta} + \frac{(r+\lambda_B)f_{NNN}(\theta_B, N_2^B)}{[f_{NN}(\theta_B, N_2^B)]^2}\frac{\partial N_2^B}{\partial\beta}\right)$$

Using $\frac{\partial N_2^G}{\partial\beta} = -\frac{\lambda_G \alpha \gamma_1}{\beta^2}$ and $\frac{\partial N_2^B}{\partial\beta} = \frac{(r+\lambda_B)\alpha\gamma_1}{\beta^2}$ we have

$$\frac{\partial^2 D_2^*}{\partial\beta\partial\alpha} = -\frac{\gamma_1\lambda_G}{\beta^2 f_{NN}(\theta_G, N_2^G)}\left(1 - \frac{\lambda_G \alpha\gamma_1 f_{NNN}(\theta_G, N_2^G)}{\beta[f_{NN}(\theta_G, N_2^G)]^2}\right) - \frac{\gamma_1(r+\lambda_B)}{\beta^2 f_{NN}(\theta_B, N_2^B)}\left(1 + \frac{(r+\lambda_B)\alpha\gamma_1 f_{NNN}(\theta_B, N_2^B)}{\beta[f_{NN}(\theta_B, N_2^B)]^2}\right)$$

Given that $f_{NN} < 0$, $f_{NNN} \geq 0$, and the last term in parentheses is positive, this expression is positive if $\beta$ is sufficiently large so that $\lambda_G \alpha\gamma_1 f_{NNN}(\theta_G, N_2^G)/\beta[f_{NN}(\theta_G, N_2^G)]^2 \leq 1$. Obviously, this represents only a sufficient condition.

## A3. Appendix Figures and Tables

**Figure A1. Distribution of Dismissal Rates in French Employment Areas, by Quintile of the Distribution. Main Sample.**
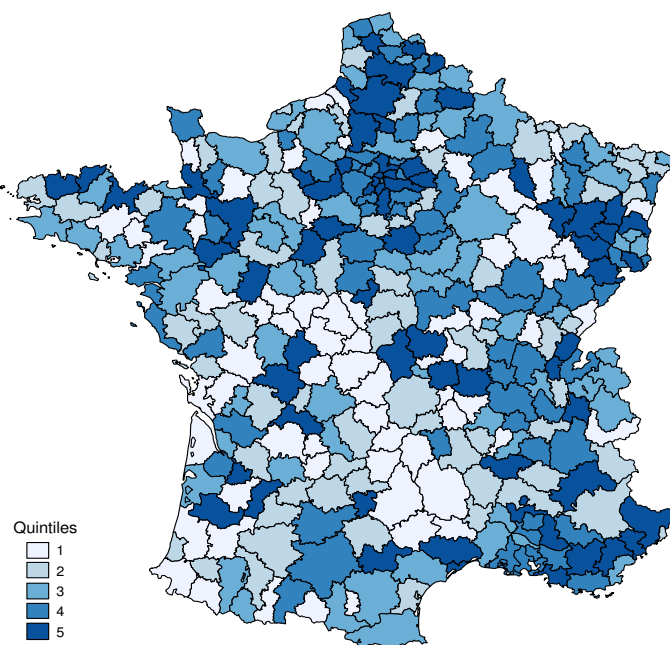


Note. – Quintiles are ordered from the lowest to the highest.

**Figure A2. Number of Headquarters in French Employment Areas, by Quintile of the Distribution. Main Sample.**
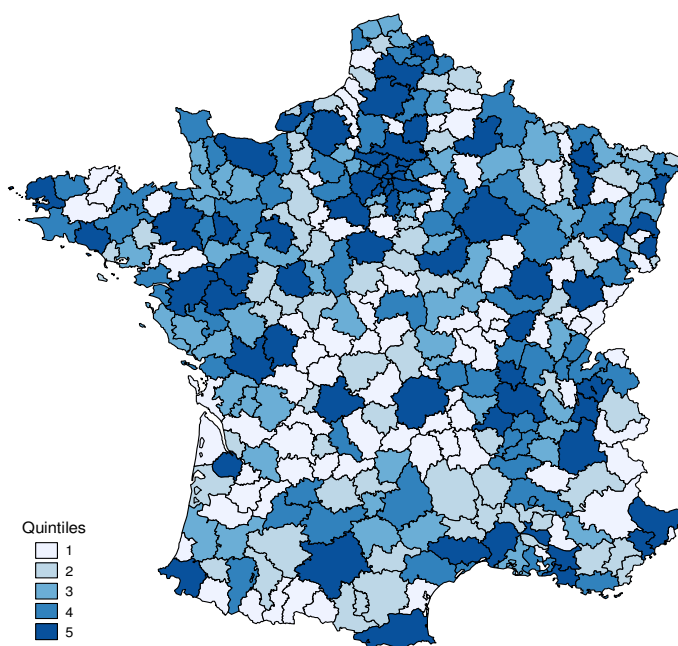


Note. – Quintiles are ordered from the lowest to the highest.

**Figure A3. Number of Secondary Establishments in French Employment Areas, by Quintile of the Distribution. Main Sample.**
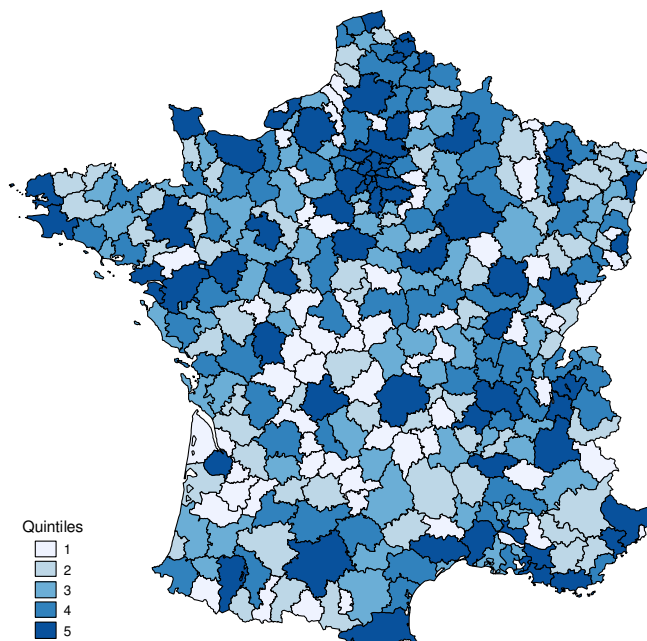


Note. – Quintiles are ordered from the lowest to the highest.

**Figure A4. Ratio of Charity Giving to GDP in French *Départements*, by Quartile of the Distribution.**
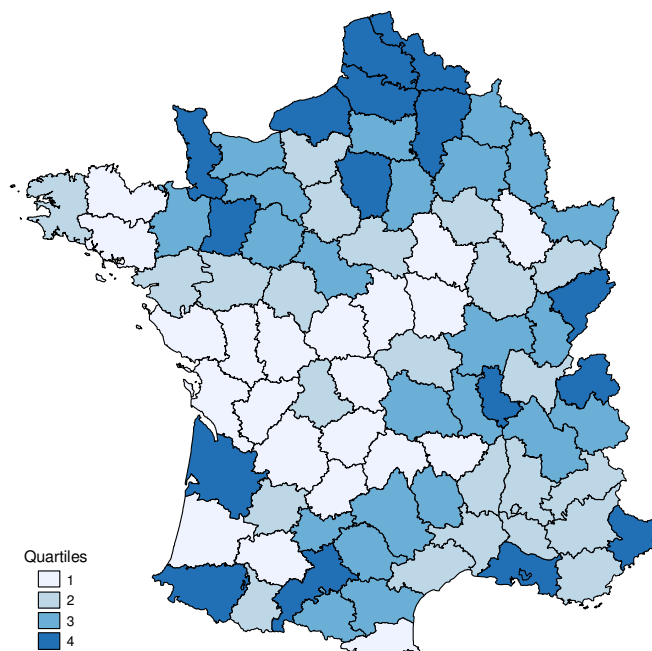


Note. – *Département*-level charity giving is measured in 1887; *département*-level GDP is measured in 1864. Quartiles are ordered from the lowest to the highest. *Départements* with missing data are not shown on the map.

**Table A1 Descriptive Statistics (Main Sample).**

| Variables | Mean | S.D. | Variables | Mean | S.D. |
|---|---|---|---|---|---|
| Quarterly worker flow rates (% of plant employment) | | | | | |
| Dismissals | .97 | 4.59 | Manufacturing and Energy (%) | 26.19 | 43.97 |
| * manufacturing and energy | .86 | 6.14 | Construction and Services (%) | 73.81 | 43.97 |
| * construction and services | 1.02 | 3.90 | | | |
| End of fixed-term contract | 5.73 | 52.55 | Local unemployment rate (%) | 8.41 | 1.96 |
| End-of-trial period | .55 | 2.55 | | | |
| Retirement | .33 | 1.41 | Establishment size | 136.43 | 299.13 |
| Quits | 1.78 | 4.19 | | | |
| Total separations | 11.54 | 55.12 | Establishment age (by class) | | |
| | | | 2 years | .10 | .30 |
| Structure of the workforce (% of plant employment) | | | 3 years | .10 | .30 |
| Managers | 14.78 | 20.27 | 4 years | .10 | .30 |
| Technicians and supervisors | 24.81 | 21.41 | 5 years or more | .63 | .48 |
| Clerks | 27.09 | 31.15 | | | |
| Blue collars | 33.16 | 32.72 | *Firm-level variables* | | |
| Board members | 0.15 | 1.14 | Firm size | 906.8 | 4288.12 |
| Women | 37.48 | 25.73 | Firm age (years) | 23.39 | 14.89 |

**Table A2 Number of Secondary Establishments per Firm.**
**Firms in the Main Sample.**

| | (1)<br>Establishments in the<br>Main Sample | (2)<br>Establishments in<br>Mainland France |
|---|---|---|
| 1st quartile | 2 | 3 |
| Median | 2 | 6 |
| Mean | 5.88 | 23.89 |
| 3rd quartile | 5 | 14 |
| Maximum | 863 | 3,163 |

Note. – Column (1) only includes establishments belonging to the regression sample. Column (2) includes all establishments of the firms in the regression sample, whether or not these establishments belong to that sample.

**Table A3 Distance to Headquarters. Main Sample.**

| Variables | Mean | S.D. | Median |
|---|---|---|---|
| Distance to HQ (km) | 247.98 | 216.31 | 216.31 |
| Distance to closest establishment (km) | 43.58 | 97.64 | 5.24 |
| Distance to second closest establishment (km) | 72.69 | 129.00 | 12.83 |
| Distance to farthest establishment (km) | 510.76 | 261.60 | 631.62 |

**Table A4 Visibility and Generosity at Headquarters**

| *Variables* | |
| --- | --- |

Firm share of total employment in HQ's employment area (%)
| | |
| --- | --- |
| 1$^{st}$ quartile | 0.026 |
| Median | 0.090 |
| Mean | 0.330 |
| 3$^{rd}$ quartile | 0.299 |
| Maximum | 27.288 |

Ratio of total charity donations to GDP (%) in HQ's *département*
| | |
| --- | --- |
| Minimum | 0.012 |
| 1$^{st}$ quartile | 0.093 |
| Median | 0.129 |
| Mean | 0.152 |
| 3$^{rd}$ quartile | 0.184 |
| Maximum | 0.658 |

**Table A5 Distance to Headquarters and Dismissals 2003-2007 – Robustness Checks**

| | (1) OLS - Excluding close distances (<50 km) | (2) OLS - Excluding close distances (<100 km) | (3) OLS - With distance bins | (4) OLS – Log specification | (5) Tobit | (6) OLS – Interacted with a dummy for manufacturing &energy |
|---|---|---|---|---|---|---|
| Distance to HQ | 0.034** | 0.031* | | | 0.080*** | 0.026* |
| | (0.015) | (0.016) | | | (0.031) | (0.014) |
| Distance to HQ * Dummy for manufacturing&energy | | | | | | 0.026 |
| | | | | | | (0.020) |
| Log(1+distance to HQ) | | | | 3.525** | | |
| | | | | (1.536) | | |
| 100-200 km | | | 10.741 | | | |
| | | | (6.545) | | | |
| 200-300 km | | | 8.418 | | | |
| | | | (5.942) | | | |
| 300-400 km | | | 11.601** | | | |
| | | | (5.313) | | | |
| 400-500 km | | | 17.020*** | | | |
| | | | (6.184) | | | |
| 500-600 km | | | 20.689** | | | |
| | | | (10.431) | | | |
| 600-700 km | | | 10.978 | | | |
| | | | (11.113) | | | |
| > 700 km | | | 36.894** | | | |
| | | | (15.787) | | | |
| Observations | 199,860 | 178,935 | 272,021 | 272,021 | 272,021 | 272,021 |
| R-squared | 0.135 | 0.137 | 0.114 | 0.114 | 0.020 | 0.114 |
| Control variables | yes | yes | yes | yes | yes | yes |

Note. – The dependent variable is the quarterly dismissal rate in percentage multiplied by 100. Control variables include: industry, time and employment-area dummies; the unemployment rate in the employment area of the establishment; the occupational and gender structure of the workforce; establishment age and size dummies and dummies for firm size in the employment area of the establishment. Firm dummies are included everywhere except in column (5), where they are replaced by firm averages of all covariates. Robust standard errors clustered at the level of the *département* of the headquarters in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

**Table A6: Distance to Headquarters (HQ) and Other Types of Worker Separations 2003-2007.**

| Dependent variable | (1) Quits | (2) End of trial period | (3) Retirement | (4) End of fixed-term contracts |
|---|---|---|---|---|
| Distance to HQ | 0.014 | 0.010 | 0.002 | -0.047 |
| | (0.014) | (0.009) | (0.004) | (0.096) |
| | | | | |
| Observations | 272,020 | 272,024 | 272,024 | 271,802 |
| R-squared | 0.308 | 0.341 | 0.076 | 0.467 |
| Control variables | yes | yes | yes | yes |

Note. – Rates are expressed in percentage multiplied by 100. Control variables include: industry, time, firm and employment-area dummies; the unemployment rate in the employment area of the establishment; the occupational and gender structure of the workforce; establishment age and size dummies and dummies for firm size in the employment area of the establishment. Robust standard errors clustered at the level of the *département* of the headquarters in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

**Table A7: Placebo Tests - Visibility**

| Dependent variable | (1) Placebo HQ = Largest plant in the area where the firm is most visible — Dismissal rate | (2) Placebo HQ = Largest plant in the area where the firm is most visible — Dismissal rate | (3) Placebo HQ = randomly drawn — Dismissal rate | (4) Placebo HQ = randomly drawn — Dismissal rate |
|---|---|---|---|---|
| Distance to placebo headquarters | 0.009 | | -0.011 | |
| | (0.009) | | (0.008) | |
| Distance*Low visibility | | 0.004 | | -0.007 |
| | | (0.013) | | (0.009) |
| Distance*High visibility | | 0.013 | | -0.025 |
| | | (0.011) | | (0.020) |
| | | | | |
| Observations | 228,405 | 228,405 | 228,405 | 228,405 |
| R-squared | 0.106 | 0.106 | 0.106 | 0.106 |
| | | | | |
| Control variables | yes | yes | yes | yes |

Note. – Plants in the same employment area as the headquarters (HQ) are excluded from the set where placebo HQ are drawn from. Dismissal rates are expressed in percentage multiplied by 100. Visibility is measured as the share of the firm's employment in total employment of the local labor market where its placebo HQ are located. High visibility is captured by a dummy variable equal to 1 when the firm's share of local employment belongs to the upper 25% of the visibility distribution and 0 otherwise. Low visibility is equal to 1 if the firm belongs to the lower 75% of the distribution and 0 otherwise. Control variables include: industry, time, firm and employment-area dummies; the unemployment rate in the employment area of the establishment; the occupational and gender structure of the workforce; establishment age and size dummies and dummies for firm size in the employment area of the establishment. Robust standard errors clustered at the level of the *département* of the placebo HQ in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

**Table A8: Placebo Tests - Generosity**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Placebo HQ = Largest plant in the least generous *département* | | Placebo HQ = randomly drawn | |
| Dependent variable | Dismissal rate | Dismissal rate | Dismissal rate | Dismissal rate |
| Distance to placebo headquarters | 0.009 (0.012) | | 0.001 (0.007) | |
| Distance*Low generosity | | 0.009 (0.012) | | 0.000 (0.012) |
| Distance*High generosity | | 0.021 (0.025) | | 0.001 (0.009) |
| Observations | 248,645 | 248,645 | 248,645 | 248,645 |
| R-squared | 0.105 | 0.105 | 0.105 | 0.105 |
| Control variables | yes | yes | yes | yes |

Note. – Plants in the same *département* as the headquarters (HQ) are excluded from the set where placebo HQ are drawn from. Dismissal rates are expressed in percentage multiplied by 100. Generosity is measured as the ratio of total charity donations in 1887 to *département*-level GDP. In our regressions, high generosity is captured by a dummy variable equal to 1 if the *département* of the placebo HQ belongs to the upper 25% of the charity distribution and 0 otherwise. Symmetrically, placebo HQ are considered to be located in low-generosity *départements* if the latter belong to the bottom 75% of the distribution. Control variables include: industry, time, firm and employment-area dummies; the unemployment rate in the employment area of the establishment; the occupational and gender structure of the workforce; establishment age and size dummies, dummies for firm size in the employment area of the establishment and, in columns 2 and 4, distance to placebo HQ interacted with taxable income per capita in the *département*. Robust standard errors clustered at the level of the *département* of the placebo HQ in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

**Table A9: Interactions between Distance to Headquarters and the Level of Generosity (based on Turnout Rates at National vs Local Elections) in the *Département* of the Headquarters 2003-2007**

| Dependent variable | (1)<br>Dismissal rate | (2)<br>Dismissal rate | (3)<br>Dismissal rate | (4)<br>Dismissal rate |
|---|---|---|---|---|
| Specification | Baseline | Baseline + Distance * Extended Controls | Baseline | Baseline + Distance * Extended Controls |
| Distance*Low generosity | 0.059*** | 0.061*** | | |
| | (0.016) | (0.016) | | |
| Distance*High generosity | -0.021 | -0.039 | | |
| | (0.025) | (0.029) | | |
| Distance*Low generosity*High visibility | | | 0.093*** | 0.098*** |
| | | | (0.016) | (0.016) |
| Distance*Low generosity*Low visibility | | | 0.054*** | 0.055*** |
| | | | (0.012) | (0.012) |
| Distance*High generosity*High visibility | | | 0.025 | 0.013 |
| | | | (0.028) | (0.029) |
| Distance*High generosity*Low visibility | | | -0.018 | -0.035 |
| | | | (0.025) | (0.032) |
| p-value (High generosity - Low generosity) | 0.015 | 0.009 | | |
| p-value (LowGen*HighVis - LowGen*LowVis) | | | 0.003 | 0.001 |
| p-value (LowGen *HighVis - HighGen*HighVis) | | | 0.054 | 0.022 |
| p-value (LowGen *HighVis - HighGen*LowVis) | | | 0.020 | 0.002 |
| Observations | 271,614 | 271,614 | 238,243 | 238,243 |
| R-squared | 0.114 | 0.114 | 0.111 | 0.111 |

Note. – Dismissal rates are expressed in percentage multiplied by 100. Generosity is measured as the difference between the *département*-level turnout rates (in % of registered voters) at the first round of the 2002 presidential election and the first round of the 2001 municipal elections – excluding towns with population below 9,000 inhabitants. In our regressions, high generosity is captured by a dummy variable equal to 1 if the *département* of the headquarters belongs to the upper 25% of this generosity distribution and 0 otherwise. Symmetrically, headquarters are considered to be located in low-generosity *départements* if the latter belong to the bottom 75% of the distribution. Visibility is measured as the share of the firm's employment in total employment in the employment area where its headquarters are located. High visibility is captured by a dummy variable equal to 1 when the firm's share of local employment belongs to the upper 25% of the visibility distribution and 0 otherwise. Low visibility is equal to 1 if the firm belongs to the lower 75% of the distribution and 0 otherwise. Baseline control variables include: industry, time, firm and employment-area dummies; the unemployment rate in the employment area of the establishment; the occupational and gender structure of the workforce; establishment age and size dummies; dummies for firm size in the employment area of the establishment. Extended controls include distance to headquarters interacted with each of the following variables: taxable income per capita in the *département* of the headquarters (HQ), the unemployment rate in the employment area of the HQ, the proportion of Catholic people with religious practice in the *département* population at HQ, the share of people who were born in a department among those who died in that department as measured at HQ, the 1990-2000 change in the share of manufacturing & energy in the total value-added of the *département* of the HQ and a dummy variable for the manufacturing and energy sectors. Robust standard errors clustered at the level of the *département* of the headquarters in parentheses. *** p<0.01, ** p<0.05, * p<0.1.