Moving away for Growth or from Uncertainty?*

Mircea Epure Feng Zhou

May 16, 2024

Abstract

We analyze the antecedents and effects on corporate outcomes and regional business dynamics of corporate headquarters' relocation due to political uncertainty. We exploit the October 2017 referendum for Catalan independence which, unlike other referendums, stemmed from a regional initiative lacking legal support from the state. Thus, its effects may have been either symbolic or real for firms and the regional economy. Using Bank of Spain data, we show that movers accounted for a quarter of the total assets in the region and were larger, younger, less capital intensive, and held more debt and cash. These firms exhibited more variation in total assets and liquidity prior to the event, and had less international (and more local) ownership. Catalan movers displayed a market-like adaptation during the Covid-19 crisis. They relied less on public funding, had lower insolvency rates, and lower decreases in employment, sales, and sales to assets. Importantly, we reveal the real effects of political uncertainty and headquarters' relocations. Incorporation rates decrease in the region and new firms exhibit lower growth in assets and sales. In the areas from which large firms relocate, we find lower decreases in new firms' incorporations potentially revealing fewer labor opportunities; these new businesses grow even less than their counterparts.

Keywords: corporate headquarters, political uncertainty, regional growth, performance, entrepreneurship

JEL codes: G32, G34, M1, M13

*Affiliations: Mircea Epure: Universitat Pompeu Fabra, Barcelona School of Economics and UPF-Barcelona School of Management, mircea.epure@upf.edu; Feng Zhou: Toulouse Business School, f.zhou@tbs-education.fr. We are grateful for comments and suggestions from Ruben Enikolopov, Theodor Vladasel, Xiaoyun Yu, and seminar participants at Toulouse School of Economics, IE Business School / University, University of Southern Denmark, ISEG Lisbon, University of Zaragoza, and Aston University. Epure acknowledges support from the Spanish Government through grant PID2020-115660GB-I00/MICIN/AEI/10.13039/501100011033, and the Serra Húnter program. Usual disclaimers apply.

1 Introduction

The location of corporate headquarters is a key attribute for organizational decision making (Bloom *et al.*, 2012) and firm value (Pirinski and Wang, 2006). Most existing literature has focused on international relocations driven by global financial markets and external stakeholders' demands (Birkinshaw *et al.*, 2006), or the pursuit of international strategic resources (Baaij *et al.*, 2015) and fiscal advantages (Voget, 2011; Barrios *et al.*, 2012). Fewer studies have examined headquarters' relocation in response to political uncertainty triggered by independence referendums. For example, Tirtiroglu *et al.* (2004) document positive market reactions for firm relocations from Quebec to Toronto due to political risk.

In this paper, we examine the antecedents, corporate outcomes and regional business dyanamics of headquarters' relocations triggered by the political uncertainty around the Catalan referendum for independence. This event provides us with a unique "laboratory" for the analysis of political uncertainty stemming from an independence movement with regional support but lacking state legal recognition. Therefore, open questions remain with respect to its symbolic versus real corporate and economic effects. Galasso (2022) illustrates a short-term negative market reaction to the referendum, focusing only on listed firms and without identifying relocation effects. The largely unanticipated shock until September 2017 changed the entry-exit rate of firms in Catalonia from -95 (in the first half of 2017) to -1,252 (in the second half of 2017) and -2,072 (in the first half of 2018). The firms relocating their headquarters from Catalonia to other Spanish regions around the event totalled revenues of €45 billion and held over a quarter of the total assets of the active firms in the region. The political debate on corporate relocations is long lasting, and a hypothesis of real effects is sustained by recent Catalan proposals to sanction firms that relocated headquarters.[1]

We start by exploring the distinct characteristics of firms relocating their headquarters' and whether such firms maintained a distinct behavior and performance following the peak

[1] See "Junts propone sancionar a las empresas con sede diferente a su centro operativo," *La Vanguardia*, November 12, 2023.

in political uncertainty. Whereas the political uncertainty episode allows us to identify the antecedents of movers, their subsequent behavior and performance in "normal" economic times may reflect the same features. To gauge the effects otherwise unobservable strategic attributes of movers with respect to non-moving firms, we track them over time and exploit the Covid-19 crisis. This unexpected shock allows us to uncover whether firms that relocated their headquarters were only responding to political risk or they are fundamentally different firms, better able to adapt to market conditions also in a systemic crisis affecting all regions.

For corporate outcomes, our strategy is similar to Ding *et al.* (2021) who show that pre-crisis strategic choices, exogenous to the shock, serve to explain differential outcomes in a crisis. We conjecture that movers were distinct ex ante the pandemic from other firms because of their strategic behavior, which could have included both market and non-market components (e.g. Birkinshaw *et al.*, 2006; Jia *et al.*, 2022). Our context allows for attempting to disentangle the two components given that the Covid-19 crisis hit Southern Europe especially hard, and governments responded quickly with generous public funding to curtail firm losses (e.g. Kalemli-Ozcan *et al.*, 2020). Overall, we expect firms relocating their headquarters' to display market strategies also during the crisis, by accessing less public aid, being more solvent, and performing better.

Next, we study whether the referendum and relocations generated real economic changes in local business dynamics in terms of firm creation and growth. In line with our arguments and the descriptive evidence above, we expect larger firms to move more. A literature exists on the agglomeration benefits and costs for entrepreneurial and labor markets around larger firms. To the extent to which moves are not simply symbolic, they will generate external effects in the local geography. There are two economic mechanisms at play. On the one hand, political uncertainty may slow down entrepreneurial activity, and relocations may hinder spin-offs from existing businesses. On the other hand, fewer employment opportunities due to large incumbents' relocations may spur start-ups (see, e.g., Burton *et al.* 2016; Kacperczyk and Marx 2016). Therefore, while the political uncertainty may slow down firm creation and

new venture growth, such decrease in entrepreneurial activity may occur less in the areas from where large firms relocated their headquarters. However, these new businesses created due to fewer opportunities may exhibit lower growth rates (Conti and Roche, 2021).

We conduct our empirical analysis on granular data from Bank of Spain's Central Balance Sheet Data Office Microdata (CBI), which covers the entire population of non-financial firms. In contrast to most commercial databases, the CBI provides time-varying (as opposed to static) information on firm headquarter location, industry, and employees, among other. For the Catalan uncertainty episode, we use month-level data on movers obtained from Informa (the Spanish data manager for Bureau van Dijk). Last, we add information on public subsidies and guaranteed funding the firms have received both in pre- and during the Covid-19 crisis from *Sistema de Análisis de Balances Ibéricos* (SABI).

Our results show that Catalan firms relocating their headquarters tend to be younger and larger, with higher leverage and liquidity, but lower capital intensity and return on sales. These firms also exhibited higher variations in total assets and liquidity in the years previous to the referendum, and were more often internationally owned and less frequently family owned. Our market adaptation hypothesis is supported by these firms' behavior and outcomes during the pandemic. Compared to their counterparts, Catalan firms relocating their headquarters due to political uncertainty relied less on public funding, by as much as 4.4 percentage points (compared to the baseline of 33% more public funding to all firms during the pandemic). This estimate increases to 12 percentage points less public funding, from a baseline of 42% more public funding for firms with more than ten employees. Catalan movers also displayed lower insolvency rates, and lower decreases in employment and sales. These corporations were better able to adapt sales (flows) to assets (stock). While Catalan non-movers experienced a decrease of about 35% in their sales to assets during the crisis, the decrease for Catalan movers was lower by almost 10 percentage points.

Finally, we are able to document that the political uncertainty event had real economic effects. Incorporation rates decrease in Catalonia after the referendum, and new firms exhibit

lower growth in total assets, sales, and employment compared to their counterparts in the rest of Spain. Interestingly, while new firm incorporations decrease by 2.7% post-referendum, this decrease is lower by 2 percentage points in the areas from which large firms relocate their headquarters. This may reveal fewer employment opportunities and entrepreneurship as an alternative choice. Along these lines, we find that new firms in the geographies from where large firms relocate have even lower growth rates in sales (5.8 percentage points lower from a baseline decrease of 11.4% for all new firms in Catalonia) and employment (3.8 percentage points lower from a baseline decrease of 6.2%).

Contributions to the Literature Our paper contributes to three streams of literature. First, it contributes to the literature on corporate headquarters' (re)location. This literature has mostly focused on multinational firms choosing their location considering geographical distance, and shareholder and stakeholder demands (Birkinshaw *et al.*, 2006; Benito *et al.*, 2011; Belderbos *et al.*, 2017), and resource availability (Baaij *et al.*, 2015). Tax advantages can drive international relocations (Voget, 2011; Barrios *et al.*, 2012), but in our within-country context they arguably play a more muted role. Within-country evidence on relocations has documented mostly the role of to political connections (Jia *et al.*, 2022). Those more related to ours show results confined to listed firms and take a political economy rather than corporate and regional growth approach such as ours (e.g. Tirtiroglu *et al.*, 2004; Galasso, 2022).[2] We contribute to this literature through a comprehensive analysis of movers' characteristics, and by highlighting that relevant firms in the economy relocate their headquarters due to political uncertainty. These firms maintain a distinct behavior in good and bad economic times.

Second, we add an element of strategic decision making to a literature that has studied how pre-crisis firm characteristics help to explain how firms fared during times of distress (e.g. Ding *et al.*, 2021). We show that the intrinsic characteristics revealed by the decision to move

[2] A literature also exists on firm divestment, rather than relocation, in the wake of policy risk in the firm's environment (e.g. Blake and Moschieri, 2017).

headquarters incrementally help to explain how firms behave and perform during a crisis. This also enables us to connect to a literature focusing on market performance of movers (e.g. Chen *et al.*, 2020; Pirinski and Wang, 2006), and their capital structure (e.g. Gao *et al.*, 2011). Our most important result here is that movers due to political uncertainty have a more market-type behavior during the crisis, relying less on public funding and performing better than their counterparts.

Third, and perhaps most importantly, we contribute to the study of the economics of independence movements, which have emerged in various European territories. Our study's context relates to works that have analyzed the quality of governance in countries that feature cultural segregation (Alesina and Zhuravskaya, 2011; Casas *et al.*, 2022). Such territories can exhibit increasing threats of polarization (Haimanko *et al.*, 2005), and the optimal balance of centralization of political decisions and accountability may be hard to find (Boffa *et al.*, 2016). Our results bring a corporate dimension and its economic effects to this literature. Post-referendum, incorporation rates decrease and new firms grow less. Importantly, by showing that such decreases are lower in the areas from which large firms relocate, we document regional business effects of headquarters' relocations and connect to a literature on occupational choices and entrepreneurship (Burton *et al.*, 2016; Kacperczyk and Marx, 2016). When uncertainty rises and employment opportunities may worsen in areas of large firms' relocations, incorporation rates decrease less but new firms exhibit lower growth rates (cf. Conti and Roche, 2021). Taken together, our findings suggest that the political uncertainty around the Catalan referendum for independence had real (substantially beyond symbolic) economic effects.

2 Institutional Context and Predictions

The Catalan Referendum for Independence We exploit the political uncertainty generated by the referendum for independence held in the Spanish autonomous community of

Catalonia on October 1, 2017. The differentiating aspect of this uncertainty episode is that the referendum lacked legality at the state level (in contrast to the ones in Quebec or Scotland), and was entirely organized unilaterally by the region. This prompts an analysis of symbolic versus real effects. The referendum was called by the Government of Catalonia after the region's parliament passed the Law on the Referendum on Self-determination of Catalonia on September 6, 2017. Figure 1 illustrates the pre- and post-referendum political events. While pre-referendum discussions occurred over a substantial period before its date, the actual realization of the event was largely unanticipated by firms until the law's passing date (with related relocations being officially registered no earlier than September 2017). This is corroborated by an analysis of Google Trends using the terms *"Independencia Catalunya"* and *"Referendum Catalunya"*. In Figure A1, the spikes in interest correspond to the political episodes illustrated in Figure 1, with the referendum event showing a substantially higher interest and no growing interest trend for a substantial period before the political uncertainty trigger. Furthermore, after uncertainty peaks, a new "equilibrium" period (with no uncertainty spikes) emerges in the region. The ballot question of the referendum, which voters answered with "Yes" or "No", was "Do you want Catalonia to become an independent state in the form of a republic?". According to the Government of Catalonia, the referendum had a registered turnout rate of 43%, with 90.2% of the voters in favor of independence.[3] The referendum was non-binding by design and considered illegal by the Spanish state. Given the controversies around electoral warranties and police intervention during ensuing civil unrest, the referendum had important political and business context implications.

One significant consequence was that some Catalan companies started to relocate their headquarters outside of Catalonia. According to Informa (the data manager for Bureau van Dijk, now Moody's, in Spain), over 3,500 firms left Catalonia for other regions in 2017

[3]See the Catalan referendum results at "El Govern trasllada els resultats definitius del referèndum de l'1 d'octubre al Parlament de Catalunya" published by the Government of Catalonia on October 2, 2017 (accessed May 10, 2024).

and 2018 (most during September 2017 - February 20218), a figure more than ten times larger than yearly exits between 2013 and 2016. Figure 2 provides more details highlighting the months of interest for both Catalonia and the entire Spanish territory, while Figure A2 plots pre- and diverging trends before and after the Catalan referendum.[4] Overall, after the peak of the moving episode, the region of Madrid showed positive rates receiving most of the Catalan exists, the rest being divided among regions such as Valencia and Aragon. The total revenues of the companies that left Catalonia during 2017-2018 amounted to more than 45 billion euros. Looking at firms relocating one month before and five months after the referendum (the peak in relocations), the ratios of total sales and total assets of relocating firms (to the total for Catalan firms) were of 13% and 25%, respectively; these ratios were as high as 19% and 37% when considering only large firms. Most firms relocated to the regions of Madrid (84.3%) and Valencia (4.6%).

Corporate Antecedents and Effects Our predictions at the corporate level are twofold. First, we posit that the firms choosing to move are not only larger, but also exhibit traits that are indicative of willingness and ability to quickly adapt to potentially new market conditions. Second, we expect movers to maintain a distinct market-type behavior and performance subsequent to the headquarters' relocation with respect to their counterparts. To test this conjecture, we rely on the unexpected Covid-19 crisis which can help to uncover characteristics otherwise confounded with moving antecedents. Whereas we expect all firms to be affected by the crisis, we expect the decision to move or not (exogenous to the unexpected crisis) to help identifing differential outcomes during times of distress (see Ding *et al.* (2021) for a similar empirical strategy).

The Covid-19 crisis is particularly suitable to disentangle the potential market and non-market behavioral characteristics of movers (e.g. Birkinshaw *et al.*, 2006; Jia *et al.*, 2022).

[4]The sharp increase in relocations was also administratively facilitated by a Royal Decree signed by the *Partido Popular* on October 6, 2017, allowing firms to approve moving headquarters through the board of directors, rather than requiring a shareholders' meeting. Note that the figures present unconditional levels of the number of movers, which if scaled by the total population of firms in Catalonia or in the rest of Spain would result in even more stringent differences.

Since the pandemic was exogenous to macro and firm fundamentals, and was not driven by financial misbehavior or lack of regulatory effectiveness, governments reacted with time-indistinguishable non-market support to firms. Spain was one of the first EU countries to react with lockdown measures and extensive liquidity to firms; it announced lockdown measures on March 13, 2020, and before month-end provided abundant non-market funding to firms.[5]. By February 2021, guaranteed funding to firms was approved for almost 980,000 operations with an amount of about 90,000 million euros (out of a total authorized endowment of 140,000 million). The main purpose of such funding was to safeguard bankruptcy rates which in Spain were estimated to grow from a baseline of 9% to more than 15% (Kalemli-Ozcan *et al.*, 2020). Our prediction is that since Catalan firms' relocation was in essence a response to an episode of political uncertainty, these firms will exhibit a market-like adaptation to the crisis. Specifically, we expect them to access less public aid, have lower insolvency rates, and perform better during the crisis.

Business Dynamics Finally, taking all the elements above together, we expect the Catalan referendum and headquarters' relocations to have a regional impact beyond symbolic, with external effects on regional business dynamics. Common to a literature on the effects of policy risk and institutional uncertainty (e.g. Bylund and McCaffrey, 2017), we predict negative changes in terms of firm incorporation rates and new venture growth after the referendum. Furthermore, we expect these effects to exhibit heterogeneity in the areas from where large firms relocate headquarters. If moves were beyond symbolic, relocations of large firms would lower labor market opportunities in the local geography, shifting occupational choices from employment towards entrepreneurship (Burton *et al.*, 2016; Kacperczyk and Marx, 2016). Accordingly, the slowdown in new firms' incorporation rates post-referendum may be lower around large incumbents that have relocated. Yet, if such new businesses were created due to fewer employment opportunities, they may exhibit low growth rates (Conti

[5]See Bruegel's "The fiscal response to the economic fallout from the coronavirus", accessed May, 10, 2024.

and Roche, 2021).

3 Data

We build a panel by merging three datasets at the firm level. First, we use firm-level information on the universe of public and private Spanish non-financial companies from the Central Balance Sheet Data Office Microdata (CBI), maintained by the Bank of Spain. The CBI database includes detailed information on balance sheets and income statements, as well as non-financial information such as annual headquarter locations, industry classifications, and number of employees, among other data. Second, we retrieve public funding to all firms for pre- and Covid-19 periods from *Sistema de Análisis de Balances Ibéricos* (SABI).[6] This includes the universe of public sources of funding from national and regional governments, by industry and firm types, and it is especially detailed for the Covid-19 period. We aggregate funding-level information at firm-level as a total amount or across different funding types. Third, we obtain granular data on headquarters' relocations from Informa, the data manager for Bureau van Dijk (now Moody's) in Spain. For the headquarter movers during the Catalan Referendum, we focus the monthly headquarters' relocations between September 2017 and February 2018. The monthly relocation data are the key for a cleaner identification of the referendum shock and complement the annual headquarters locations in the CBI. The latter enables us to observe whether firms return to Catalonia, as well as all other headquarters' relocations between Spanish regions. For all firms we create a firm-year level indicator variable indicating whether a firm relocates during a certain period.

We rely on information from years 2014 to 2016 to characterize antecedents of firms and business dynamics in Catalonia previous to the referendum shock, and from 2017 to 2021 for the main analysis of outcomes. We merge all the datasets by year and the unique firm tax ID number ("*Certificado de Identificación Fiscal*," CIF). We restrict our analysis to

[6] This information is similar to the one contained in the "Sistema Nacional de Publicidad de Subvenciones y Ayudas Públicas, accessed on May 10, 2024.

corporations and limited liability companies (CIF starting with A and B).[7] We keep firms with non-missing information for total assets, employment and headquarters' location. All continuous variables are winsorized at 1% and 99% levels, and we restrict variables such as leverage to range between zero and one, as per accounting rules.

Tables 1 illustrates that the final sample includes 1,916 unique Catalan firms whose headquarters' relocation can be attributed to the referendum shock. Whereas 124,069 unique Catalan non-moving firms were active at the same time, the moving firms held disproportionately higher shares of sales (13.14%), total assets (25.49%), and employees (9.14%) in the total of firms. Interestingly the same figures were substantially higher when looking within the population of large firms, amounting to 19.14% (for sales), 35.55% (for total assets), and 27.68% (for employees). These differences are key for our analysis on the potential regional effects of headquarters' relocation on new business dynamics.

Over the period 2017-2021 the full Catalan sample includes 555,740 firm-year observations, out of which 7,148 observations for firms that changed headquarters' location. By comparison, the complete Spanish sample comprises 2,953,535 firm-year observations, out of which 43,955 observations for firms that changed headquarters' location. See Tables 2 and A2 for summary statistics and Table A1 for variable definitions.

4 Empirical Analysis

4.1 Antecedents of Headquarters' Relocations

We start our analysis by exploring the characteristics of the firms relocating their headquarters. In particular, we ask whether movers and non-movers are different in terms of their observable firm characteristics. Candidate motives for headquarters' relocations may well relate to the firms' embeddedness in a region, which can be captured by firm age, holding more assets, or having high labor expenditures. Firms may also move due to lingering per-

[7] The CBI also includes partnerships, public institutions and other non-corporation type entities.

formance in sales (e.g. a low return on sales) or liquidity constraints, especially if highly leveraged. We run the following linear probability model:[8]

$$HQMover_{i,t} = \boldsymbol{\beta X_{i,t-1}} + \gamma + \eta + \epsilon_{i,t}, \tag{1}$$

where $HQMover_{i,t}$ is a dummy variable indicating whether firm i moves its headquarter to a different region in period t. For firms relocating their headquarters due to the Catalan referendum we focus on moves between September 2017 and February 2018. For comparison, we also estimate the same model for firms relocating between other Spanish regions during 2017-2019, for which we use yearly data. We lag the explanatory variables by one year, while for robustness we also compare our results to using averages over the previous three years. We include the following firm financial characteristics: log of firm age, log of total assets, return on sales (ROS), liquidity, leverage, and capital intensity. We also include the standard deviations over the previous three years in ROS, log of total assets, and liquidity, and indicator variables for foreign ultimate ownership or being a family owned/micro firm. For the latter our data allows identifying family ownership for the larger firms, while we assume that micro firms are most often in hands of families. We include industry and region (or province) fixed effects to control for unobservable time-invariant characteristics or shocks, and cluster standard errors at the firm level.[9]

Catalan Movers' Characteristics Table 3 reports the estimation results. Columns (1)-(2) and (5)-(6) lag the explanatory variables by one year, while columns (3)-(4) introduce time-varying firm characteristics as averages over the previous three years. We find that Catalan firms that relocated their headquarters due to the referendum were younger and larger, with higher leverage and liquidity (although the latter result is less robust to different specifications). In contrast, these firms had lower ROS and capital intensity, and exhibited

[8]We are reporting OLS resutls for ease of interpretatoin, while our results are robust to running probit models.

[9]For robustness, we cluster standard errors at the region (or province) and firm-industry level.

higher variation in total assets and liquidity over the previous three years. As expected, relocating firms were less often locally owned by families or individuals, and more often by foreign owners.[10]

Taking these results together with the descriptive evidence in Figures 2 and A2, one could interpret that large and leveraged firms tend to move more, with political uncertainty substantially increasing the probability of headquarters' relocations especially for firms that are younger and experience more recent fluctuations in size and liquidity; these results can be either a signal of dynamism or of downside risk, which we will explore in the analysis of corporate outcomes.

Other Movers' Characteristics For comparison, in Table A3, we explore whether non-Catalan firms relocating their headquarters during 2017-2019. The robust similarities are that moving firms were usually larger, less capital intensive, displaying more variation in total assets, and more often foreign owned. Given this category of movers' heterogeneous nature (moving between all other Spanish regions at different times for different reasons), the overall results are harder to intepret in this case. We thus take this set of findings with a pinch of salt due to the endogenous nature of the moving strategy compared to the Catalan referendum relocations.

Robustness and destination heterogeneity We start by ensuring that our results are robust to dropping micro firms (those with fewer than ten employees) from the sample. We then check the robustness of our results when changing from to 2-digit (as reported) to 3-digit industry codes as per *Clasificación Nacional de Actividades Económicas* (CNAE) in Spain, and when clustering standard errors at province and firm-industry level (untabulated). When analyzing non-Catalan movers, we also include year or industry×year and region×year fixed effects. Our results are corroborated in each one of these checks.

We also examine whether Catalan movers differ by destination region, in Table A4 we

[10]Fewer than 3% of firms have a foreign ultimate owner.

estimate a multinomial logit using as an dependent variable a categorical outcome that takes the values: Madrid, Valencia or other regions; the baseline outcome is Catalan non-movers during the referendum. Our rationale for this analysis is that relocating to Madrid may be a stronger market signal of breaking familiarity with stakeholders, compared to moving to Valencia (a region sharing linguistic traits and thus of more cultural proximity). However, the statistical power of these results is diluted by the fact that over 80% of the firms relocate to Madrid, and roughly 5% to Valencia. A qualitative suggests that the results above are mostly driven by the firms selecting the more market-oriented destination.

4.2 Firm Outcomes during Covid-19

Next, we analyze the differential firm outcomes during the Covid-19 crisis of movers vs. non-movers. The main assumption is that the strategic decision to move is exogenous to the crisis, which provides meaningful variation to uncover firm fundamentals. The main specification is:

$$Y_{i,t} = \beta_1 C19 + \beta_2 HQMover_i \times C19 + \boldsymbol{\beta_4 X_{i,t-1}} + \eta + \epsilon_{i,t}, \tag{2}$$

where $Y_{i,t}$ is a firm-level outcome comprised in battery of measures related to behavior and performance during the crisis. We include indicators for firm reliance on public subsidies, firm exit, and insolvency; the log values of sales and employment; ratios of return on assets (ROA) and sales to assets; and the interest on borrowed funds.

$HQMover_i$ is an indicator variable capturing whether firm i relocates its headquarters. As in the previous case, for Catalan refrendum movers, we use a granular identification of relocations between the months between September 2017 and February 2018. When estimating for comparison relocations of other Spanish firms, we identify yearly moves between 2017 and 2019. $C19$ is a dummy variable equal to one for the period 2020-21, and zero otherwise. In all regressions we include firm fixed effects to control for unobserved firm-level

time-constant heterogeneity; for robustness we use region and industry fixed effects. Given the endogenous nature of time-varying firm-level controls we first estimate our models in their absence, and then corroborate our results by controling for firm age (log), total assets (log), liquidity, and leverage. We cluster standard errors at firm level.[11]

Catalan Movers and Non-movers Table 4 reports the estimation results for all considered firm outcomes. The baseline crisis estimate confirms the general prior that during the economic downturn compared to the pre-crisis period, all firms received more public funding, had a higher probability to exit or of being insolvent, and exhibited substantial decreases in sales, employment, ROA, and sales to total assets. Firms also paid a lower interest on borrowed funds, a result driven by the fact that the Spanish government provided public guaranteed funding at lower rates.

Interestingly, Catalan referendum movers, compared to non-movers, relied 4.4 percentage points less on public funding (column 1), from the baseline of about 33% more subsidies for all firms. This suggest an ability of firms that relocated their headquarters to withstand negative market dynamics, which is confirmed by their lower probability of being insolent. Taking the baseline and interaction terms in column 3 together, movers did not have a higher probability of being insolvent during the pandemic. With respect to growth measures, Catalan movers display significantly lower decreases compared to non-movers in sales (column 4), and employment (column 5). We do not find differential effects on ROA (column 6). However, we find strong results showing that Catalan firms relocating their headquarters due to political uncertainty were more able to adapt their sales to assets during the crisis. Column 7 shows that, while Catalan non-movers experienced a decrease of about 35% in their sales to assets during the Covid-19 shock, the decrease for Catalan movers was lower by almost 10 percentage points. On average, moving firms do not pay a different interest rate on borrowed funds with respect to non-moving firms (column 8). Taken together, these results indicate that Catalan firms not only relocated headquarters due to arguably market-driven reasons,

[11]For robustness, we cluster standard errors at the province and firm-industry level.

but also that these firms exhibited a more dynamic market adaptation to crisis conditions.

Catalan movers vs. Catalan non-movers and Spanish Firms Table 5 replicates the analysis including all firms in Spain and identifying the differential effects of Catalan movers and non-movers with respect to all other firms in Spain (the baseline). Whereas we contend that the suitable control group for Catalan firms that decided to relocate their headquarters is given by Catalan firms that did not relocate, this analysis can be useful to illustrate how Catalan firms differ from the rest of Spanish firms. Overall, the baseline crisis estimates are similar as for the Catalan sample. One salient result is that Catalan non-movers struggled more to adapt to crisis conditions with respect to firms in the rest of Spain. They relied more on public funding (column 1), and had higher decreases in sales, employees, and sales to assets ratios (columns 4, 5, and 6, respectively). In contrast, Catalan non-movers exited less than firms in other Spanish regions (column 2); this can be related to the higher probability of using public funding safeguards (column 1), for which firms pay a lower interest rate (column 8). When compared to Spanish firms from other regions, the Catalan firms that relocated their headquarters had lower probabilities of exiting or being insolvent, and exhibited lower decreases in employees or sales to assets ratios. Qualitatively, they also performed better with respect to all other strategic and financial aspects. We interpret these results with caution, given the increased heterogeneity in the control group of all other Spanish firms.

Other Movers In Table A5 we run the same analysis for all non-Catalan firms that moved among Spanish regions during 2017-2019. We observe both similarities and differences with respect to Catalan referendum movers. In a similar vein, these movers also rely less on public funding (column 1), and are better at adapting their sales to assets ratios (column 7). Differently, the non-Catalan movers exit more (column 2) and exhibit higher decreases in sales (column 4). As we have discussed when documenting moving antecedents we attribute these mixed results to combined market and non-market reasons for "general" movers to

relocate, while the Catalan revocations had a common trigger for adapting to a changing market.

Robustness There are two main sample-related concerns to address. First, a majority of firm-level observations pertains to the so-called micro firms. In columns 1 to 4 of Table 6, we rerun our analysis comparing Catalan movers to non-movers excluding micro firms and considering four key outcome variables. We obtain similar results to the estimations on the full sample. Perhaps one difference to highlight is the stronger result for reliance on public funding. For these firms with more than ten employees, Catalan movers accessed public funding by 12 percentage points less, compared to a baseline of 42% more public funding. Second, after the referendum and until 2021, 515 firms from our sample relocate back to Catalonia. These are on average substantially smaller firms within the population of movers. In columns 5 to 8 of Table 6, we show that our results remain unchanged when removing these firms from the sample.

We have also checked the robustness of our results to different sets of fixed effects such as industry and region (instead of using firm fixed effects), and by clustering at province and firm-industry level (untabulated). In Table A6 we corroborate our key results when controlling for firm age (log), total assets (log), and liquidity and leverage ratios.

4.3 Regional Business Dynamics

Finally, we analyze the potential real economic effects of political uncertainty. An economic prior is that (new) Catalan firms have historically shown higher growth rates than their counterparts in the rest of Spain. To the extent to which the referendum effects were more than symbolic, we would expect these dynamics to change. Moreover, if headquarters' relocations, especially of large firms, were followed by slowdown in local activity by moving firms, new firm dynamics would deferentially change the areas where these firms were previously located.

Catalan vs. Non-Catalan New Firms To test our first conjecture that the referendum-generated uncertainty can shift business dynamics, we focus on growth rates of new firms incorporated in Catalonia versus the rest of Spain. First, in Figure 3 we show that incorporation rates of new firms were similar between Catalonia and the rest of regions before the referendum year, and dynamics diverge after uncertainty spikes. Trends diverge at the time of political uncertainty, with Catalonia maintaining lower rates of new firm incorporation until the Covid-19 period. After 2020, during the economic downturn, higher rates of new business incorporation may actually reflect lower employment opportunities Conti and Roche (2021).[12] Therefore, we attribute to the political uncertainty episode the lower rates of new firms' incorporation during 2017-2019.

Second, and more importantly, in Figure 4 we focus on these new firms' growth. For yearly incorporations of new firms, we compute firm-level growth rates in total assets, sales, and employment defined as log difference between t+1 and t (the figure displays percentage values). Especially in terms of total assets (Panel A) and sales growth (Panel B), Catalan firms displayed higher growth rates pre-referendum compared to the rest of Spanish firms. However, after the Catalan referendum these rates dropped significantly to become similar to those in the rest of Spain, or even lower for growth in total assets. As in the previous case, we attribute the political uncertainty episode the decline in new firms' growth during 2017-2019.

Dynamics Around Headquarters' Relocations Next we estimate whether new business dynamics deferentially change in areas from which large firms relocate their headquarters. Our general specification is:

$$Y_{i,t} = \beta_1 Post + \beta_2 LargeMoverArea + \beta_3 LargeMoverArea \times Post + \gamma + \eta + \epsilon_{i,t}, \quad (3)$$

[12] Incorporation rates from the second part of 2020 and during 2021 may also capture the effect Spain's "Recovery and Resilience Plan," which among other included support for start-ups.

where $Y_{i,t}$ is a measure of new business dynamics. We start by estimating new firms' incorporation rates at the 4-digit zipcode level. Next, at the level of these newly created firms we estimate growth in total assets, sales and employment.

$LargeMoverArea$ is the 4-digit zipcode from which a large Catalan firm relocates its headquarters between September 2017 and February 2018. *Post* is an indicator variable that takes the value of 1 for periods 2017-2019 or 2017-2021, and zero for 2015-2016. We design our empirical strategy within Catalonia, using fixed effects to identify variation within municipality (3-digit zipcode) and controlling for heterogeneity at the 3-digit industry level. We cluster standard errors at the 4-digit zipcode level.[13]

Panel A in Table 7 focuses on the period 2015-2019, with the post indicator capturing the period 2017-2019. It first shows as anticipated by the previous analysis, that new firms' incorporations and growth decrease significantly in the wake of political uncertainty. These decreases are substantially lower in the areas from which large firms relocate. Whereas new firm incorporations decrease by 2.7% post-referendum, this decrease is lower by 2 percentage points in the areas of large firms' relocations (column 1). In a similar manner, the decrease in sales of newly created firms in large movers' areas is 5.8 percentage points lower from the baseline of 11.4% (column 3). In the case of employment growth, new firms incorporated post-referendum decrease by 3.8 percentage points less from the baseline decrease of 6.2%. We do not find a significant differential effect for growth in total assets.

Panel B in Table 7 corroborates these results by extending the post indicator to cover the period 2017-2021. However, the estimates on new firm growth measures results become statistically and economically weaker. This supports the crisis-related arguments we have discussed above. To empirically confirm our rationales, in Table A7 we decompose the post indicator into post-ref (2017-2019) and C19 (2020-2021) categories. The estimations show that while new incorporations continue being differentially higher in the area of large headquarters' relocations, the results on the lower growth rates of new firms are mostly

[13] We check the robustness of our results to using no fixed effects, or 2-digit zipcode (province) and 2-digit industry fixed effects.

driven by the 2017-2019 period.

Overall, the findings in this section support the hypothesis of real rather than symbolic effects on regional business dynamics of political uncertainty in general, and headquarters' relocations in particular. Our findings are indicative of potential changes in occupational choices, with entreprenuership emerging more in the areas of large firms' relocations (Burton *et al.*, 2016; Kacperczyk and Marx, 2016), but with new firms' growth rates lingering after the spike in political uncertainty.

5 Conclusions

Relocations due to political uncertainty may remain sticky in time even if the uncertainty diminishes, and political proposals may aim at sanctioning moving (and non-returning firms).[14] Yet, there is little empirical evidence on the corporate and real economic effects of political uncertainty and headquarters' relocations in the wake of uncertainty triggered by regional independence referendums. Our contribution is to document firm-level effects and changes in regional business dynamics following the Catalan independence referendum which occurred on October 1, 2017. This represents a unique context for investigating political uncertainty effects that could have been either symbolic or real since, as opposed to other cases, the Catalan referendum was unilateraly organized by the region in the absence of legal support from the Spanish state.

The firms relocating their headquarters around the political uncertainty episode held substantial shares within the Catalan economy in terms of sales (25% within the total of active Catalan firms in 2017) and total assets (25%). These figures are as high as 19% for sales and 37% for total assets when considering only large firms. Our corporate-level analysis revealed that Catalan movers compared to non-movers were not only larger, but also younger, larger, less capital intensive, and held more debt and cash. Their pre-referendum

[14] See *La Vanguardia*, May 5, 2024, for an example from the Catalan election campaign, and *El Correo*, May 8, 2024, for an example from the Basque region (accessed May 13, 2024).

financial showed higher variation in total assets and liquidity, and their ownership was more often international and less often local (through families or individuals). In line with our predictions of a market behavior of movers, we find that during the Covid-19 crisis these firms used relied less on public funding and had lower insolvency rates. Overall the firms that relocated their headquarters fared better to distress times, exhibiting lower decreases in employment, sales, and sales to assets.

In key results, we uncover the real effects of political uncertainty for business dynamics. In the wake of the referendum, incorporation rates decrease and new firms in the region exhibit lower growth in total assets, sales, and employment compared to their counterparts in the rest of Spain. An important heterogeneity emerges within Catalonia when comparing the local geographies from which large firms relocated headquarters to the rest of the region. Arguably due to the reduced employment opportunities, incorporation rates decrease less in the areas of relocated headquarters by large firms. However, these new firms possibly created due to fewer occupational alternatives grow even less in sales and employment.

Whereas our results can have important implications for policymakers during tranquil and uncertainty times, our estimations should be interpreted with the caution required by a reduced-form empirical approach. In this sense, our analysis is positive instead of normative. Among other, it can serve as a stepping stone for analyses of the direct and spillover effects of the potential emergence of borders (e.g. Santamaría *et al.*, 2020) and corporate relocations during political uncertainty.

References

Alesina, A. and Zhuravskaya, E. (2011). Segregation and the quality of government in a cross section of countries. *American Economic Review*, **101** (5), 1872–1911.

Baaij, M. G., Mom, T. J., Van den Bosch, F. A. and Volberda, H. W. (2015). Why do multinational corporations relocate core parts of their corporate headquarters abroad? *Long Range Planning*, **48** (1), 46–58.

Barrios, S., Huizinga, H., Laeven, L. and Nicodème, G. (2012). International taxation and multinational firm location decisions. *Journal of Public Economics*, **96** (11), 946–958, fiscal Federalism.

Belderbos, R., Du, H. S. and Goerzen, A. (2017). Global cities, connectivity, and the location choice of mnc regional headquarters. *Journal of Management Studies*, **54** (8), 1271–1302.

Benito, G. R. G., Lunnan, R. and Tomassen, S. (2011). Distant encounters of the third kind: Multinational companies locating divisional headquarters abroad. *Journal of Management Studies*, **48** (2), 373–394.

Birkinshaw, J., Braunerhjelm, P., Holm, U. and Terjesen, S. (2006). Why do some multinational corporations relocate their headquarters overseas? *Strategic Management Journal*, **27** (7), 681–700.

Blake, D. J. and Moschieri, C. (2017). Policy risk, strategic decisions and contagion effects: Firm-specific considerations. *Strategic Management Journal*, **38** (3), 732–750.

Bloom, N., Sadun, R. and Reenen, J. V. (2012). The organization of firms across countries. *Quarterly Journal of Economics*, **127** (4), 1663–1705.

Boffa, F., Piolatto, A. and Ponzetto, G. A. M. (2016). Political centralization and government accountability. *The Quarterly Journal of Economics*, **131** (1), 381–422.

Burton, M. D., Sørensen, J. B. and Dobrev, S. D. (2016). A careers perspective on entrepreneurship. *Entrepreneurship Theory and Practice*, **40** (2), 237–247.

Bylund, P. L. and McCaffrey, M. (2017). A theory of entrepreneurship and institutional uncertainty. *Journal of Business Venturing*, **32** (5), 461–475.

Casas, A., Curci, F. and Moragas, A.-I. D. (2022). *Checks and Balances and Nation Building: The Spanish Constitutional Court and Catalonia*. Working Papers 189, Red Nacional de Investigadores en Economía (RedNIE).

Chen, S., Yan, X. and Yang, B. (2020). Move to success? headquarters relocation, political favoritism, and corporate performance. *Journal of Corporate Finance*, **64**, 101698.

Conti, A. and Roche, M. P. (2021). Lowering the bar? external conditions, opportunity costs, and high-tech start-up outcomes. *Organization Science*, **32** (4), 965–986.

Ding, W., Levine, R., Lin, C. and Xie, W. (2021). Corporate immunity to the covid-19 pandemic. *Journal of Financial Economics*, **141** (2), 802–830.

Galasso, V. (2022). The cost of political uncertainty: Evidence from catalonia. *Journal of Economic Behavior & Organization*, **201**, 250–259.

Gao, W., Ng, L. and Wang, Q. (2011). Does corporate headquarters location matter for firm capital structure? *Financial Management*, **40** (1), 113–138.

Haimanko, O., Le Breton, M. and Weber, S. (2005). Transfers in a polarized country: bridging the gap between efficiency and stability. *Journal of Public Economics*, **89** (7), 1277–1303, the Economics of Political Integration and Disintegration.

Jia, N., Zhao, B., Zheng, W. and Lu, J. (2022). No free lunch after all: Corporate political connections and firms' location choices. *Organization Science*, **33** (2), 650–670.

Kacperczyk, A. and Marx, M. (2016). Revisiting the small-firm effect on entrepreneurship: Evidence from firm dissolutions. *Organization Science*, **27** (4), 893–910.

Kalemli-Ozcan, S., Gourinchas, P.-O., Penciakova, V. and Sander, N. (2020). Covid-19 and sme failures. *IMF Working Paper No. 2020/207*.

Pirinski, C. and Wang, Q. (2006). Does corporate headquarters location matter for stock returns? *The Journal of Finance*, **61** (4), 1991–2015.

Santamaría, M. A., Ventura, J. and Yeşilbayraktar, U. (2020). *Borders within Europe*. Working Paper 28301, National Bureau of Economic Research.

Tirtiroglu, D., Bhabra, H. S. and Lel, U. (2004). Political uncertainty and asset valuation: Evidence from business relocations in canada. *Journal of Banking & Finance*, **28** (9), 2237–2258.

Voget, J. (2011). Relocation of headquarters and international taxation. *Journal of Public Economics*, **95** (9), 1067–1081, special Issue: The Role of Firms in Tax Systems.

FIGURES AND TABLES

Figure 1: Timeline of Political Uncertainty

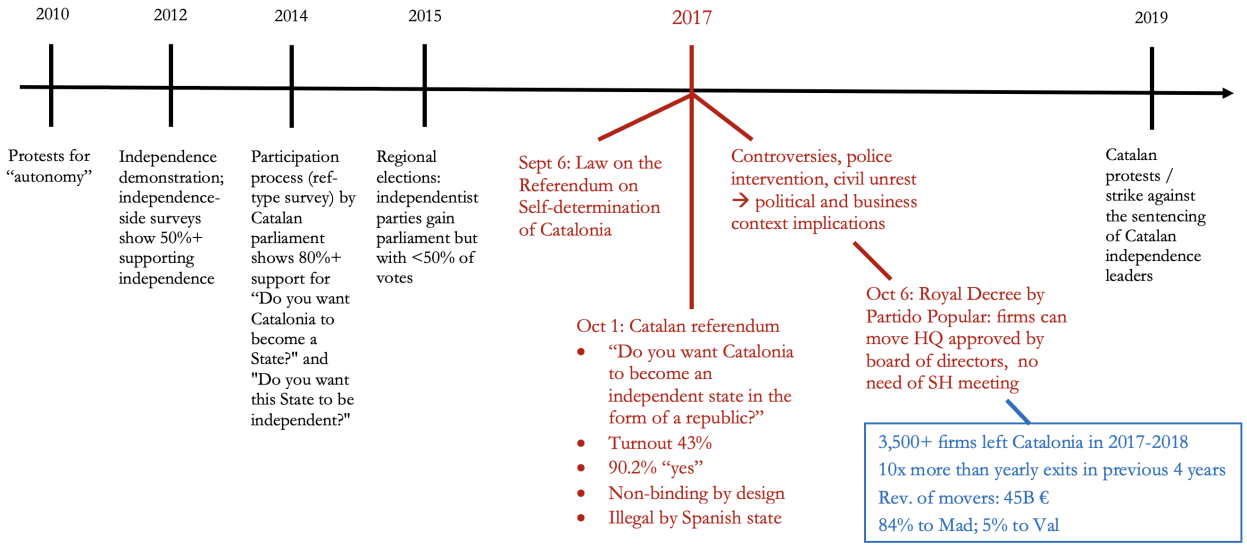
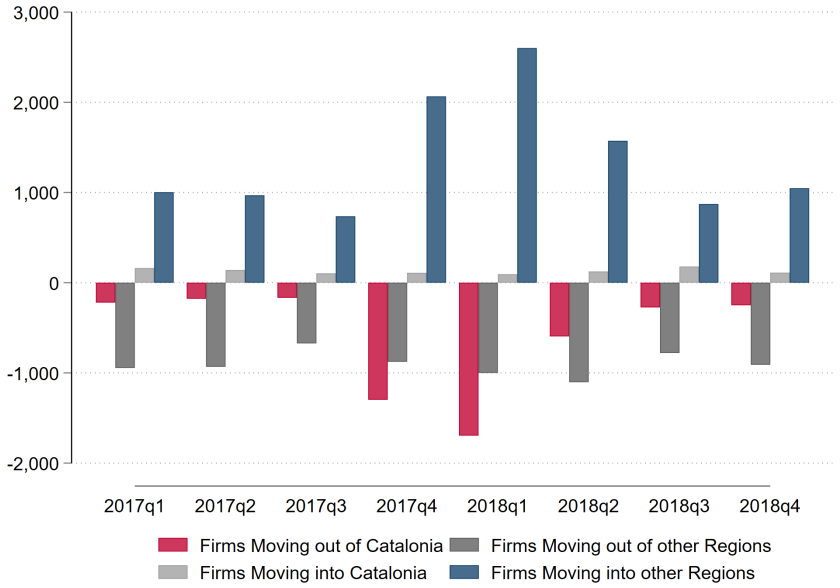
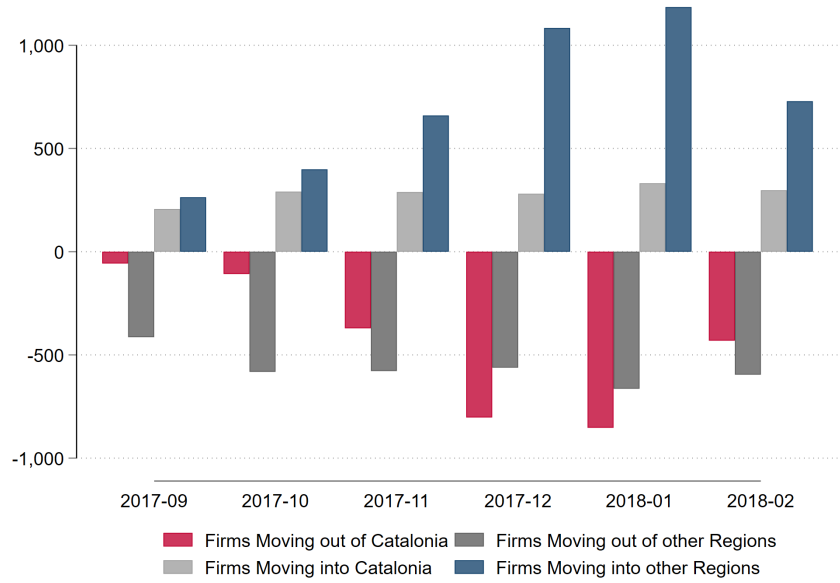


Figure 2: Headquarter Movers Around the Catalan Referendum

Panel A: Quarterly Headquarter Relocations during 2017-2018

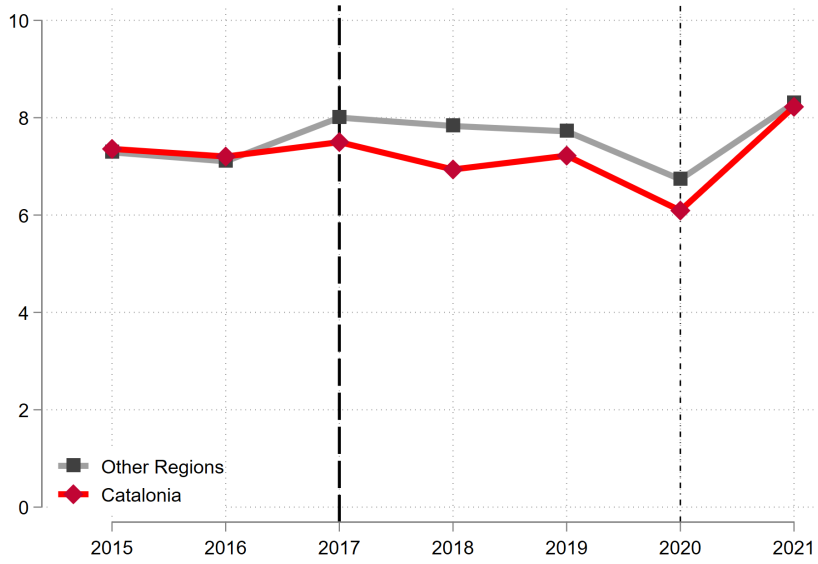


Panel B: Monthly Headquarter Relocations during October 2017-February 2018



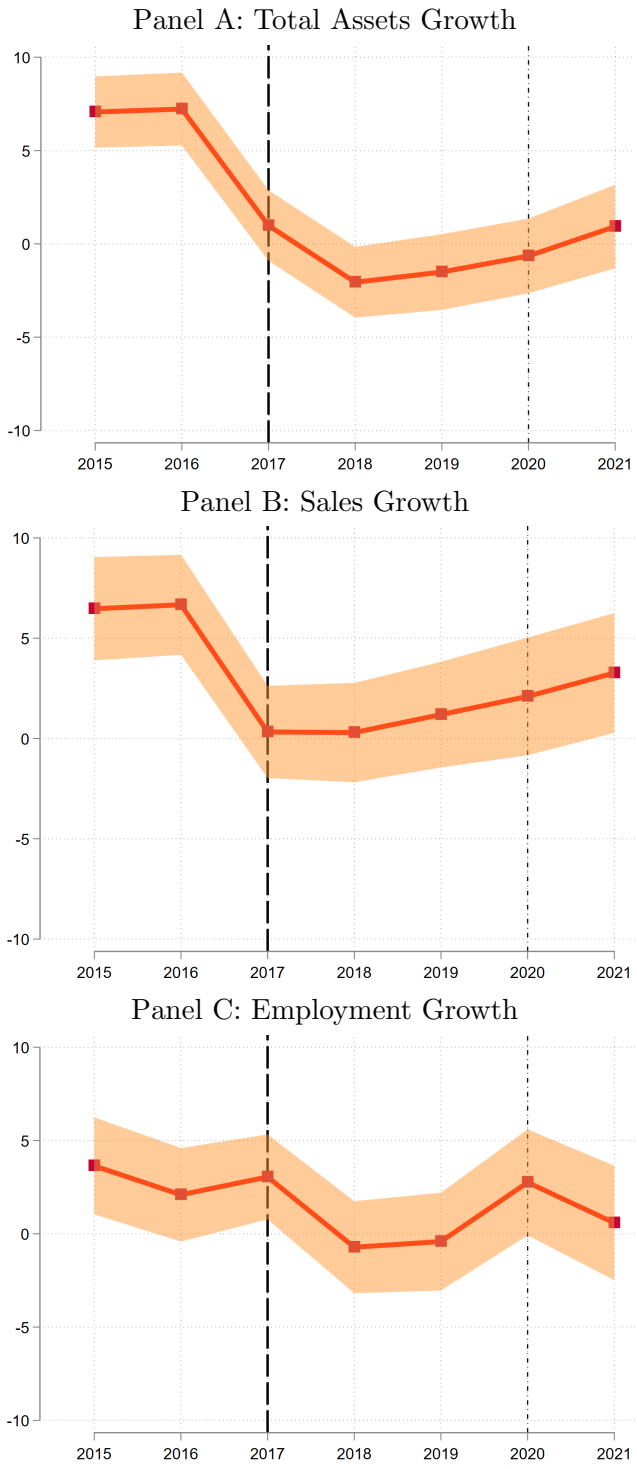
Notes: This figure plots the number of firms relocating their headquarter movers around the 2017 Catalan referendum. In Panel A, we plot the quarterly headquarter movers from 2017 to 2018. We count the number of firms moving out of Catalonia, moving into Catalonia, moving out of other regions, and moving into other regions, respectively. In Panel B, we zoom into a narrower period around the referendum and count monthly headquarter movers from September 2017 to February 2018.

Figure 3: Incorporation Rates



Notes: This figure plots new incorporation rates in Catalonia and other Spanish regions during 2015-2019. New incorporation rates are defined as new firms in period t divided by total number of firms in year t-1, and displayed as percentages.

Figure 4: New Business Growth: Catalan vs. Non-Catalan Firms



Notes: This figure plots coefficients and depicts 95% confidence intervals from t-tests between growth rates of new incorporated firms in Catalonia and other Spanish regions. New incorporated firms are defined as new firms in period t. The growth rates are computed as log difference between $t+1$ and t of new incorporated firms in period t, and displayed as percentages.

Table 1: Sample

Cat movers with non-missing data (Sept. 2017-Feb. 2018)	1,916 (80% of total)
Cat non-movers with non-missing data (in 2017)	124,069
% Sales of Cat movers among all Cat firms (in 2017)	13.14%
% Total Assets of Cat movers among all Cat firms (in 2017)	25.49%
% Employees of Cat movers among all Cat firms (in 2017)	9.14%
% Sales of large Cat movers among large Cat firms (in 2017)	19.14%
% Total Assets of Cat movers among large Cat firms (in 2017)	36.55%
% Emplyees of Cat movers among large Cat firms (in 2017)	27.68%

Notes: Observations with non-missing information for total assets, employment and headquarters' location.

Table 2: Summary Statistics

	All			Movers			Non-Movers		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Log (Firm Age)	2.474	0.858	2.708	2.585	0.852	2.773	2.473	0.858	2.708
Log (Total Assets)	5.975	1.745	5.851	7.818	1.840	7.885	5.951	1.730	5.832
Liquidity	0.255	0.379	0.120	0.210	0.357	0.080	0.255	0.379	0.121
Leverage	0.537	0.316	0.542	0.504	0.304	0.508	0.537	0.317	0.543
Public Funding (dummy)	0.176	0.381	0.000	0.200	0.400	0.000	0.176	0.381	0.000
Capital Intensity	0.231	0.263	0.120	0.171	0.232	0.063	0.231	0.264	0.121
Log (Sales)	5.900	1.587	5.795	7.321	2.007	7.365	5.882	1.572	5.783
Log (Employment)	1.196	1.313	1.099	2.081	1.679	2.041	1.185	1.304	1.099
Sales/Assets	1.738	1.907	1.270	1.328	1.407	1.050	1.743	1.912	1.273
ROS	0.050	0.412	0.050	0.015	0.589	0.061	0.050	0.409	0.050
ROA	0.077	0.339	0.056	0.084	0.307	0.059	0.077	0.340	0.056
Obs		555,740			7,148			548,592	

Notes: This table provides summary statistics of the main variables used in the empirical analysis for Catalan firms during 2017-2021. We keep firm-year observations with non-missing total assets, employment and locations. Sales, total assets and working capital are logs of values in thousands of euros. All continuous variables are winsorized at 1% and 99% levels. See Table A1 for variable definitions.

Table 3: Antecedents of Headquarters' Relocation

DV: Cat Ref HQ Mover						
Antecedents in:	t-1		avg(t-3, t-2, t-1)		t-1	
	(1)	(2)	(3)	(4)	(5)	(6)
Log (Firm Age)	-0.201***	-0.196***	-0.090***	-0.085**	-0.085***	-0.072**
	(0.029)	(0.029)	(0.033)	(0.033)	(0.030)	(0.030)
Log (Total Assets)	0.339***	0.336***	0.340***	0.338***	0.350***	0.286***
	(0.022)	(0.022)	(0.026)	(0.026)	(0.025)	(0.023)
ROS	-0.221***	-0.219***	-0.217**	-0.213**	-0.202**	-0.192**
	(0.071)	(0.071)	(0.098)	(0.098)	(0.089)	(0.089)
Liquidity	0.107*	0.102	0.244***	0.233***	-0.035	-0.036
	(0.065)	(0.065)	(0.072)	(0.072)	(0.065)	(0.065)
Leverage	0.339***	0.334***	0.466***	0.458***	0.307***	0.247***
	(0.064)	(0.064)	(0.073)	(0.073)	(0.065)	(0.065)
Capital Intensity	-0.327***	-0.296***	-0.316***	-0.291***	-0.244***	-0.172***
	(0.063)	(0.063)	(0.069)	(0.068)	(0.062)	(0.061)
SD - ROS					-0.030	-0.007
					(0.059)	(0.060)
SD - Log (Total Assets)					0.404***	0.322***
					(0.099)	(0.099)
SD - Liquidity					0.535***	0.466***
					(0.158)	(0.157)
Family/Micro Firm						-0.207***
						(0.066)
Foreign Ultimate Shareholder						1.318***
						(0.289)
R-squared	0.739	0.738	0.757	0.756	0.757	0.756
Obs	103,603	103,598	85,369	85,363	94,237	94,232
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Province FE		Yes		Yes	Yes	Yes

Notes: This table reports the estimated coefficients and standard errors from the OLS regression of Equation 1 on antecedents of headquarter movers. The dependent variable is a dummy equal to one if a firm relocates its headquarters. Standard errors are clustered at the firm level. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. See Table 2 for summary statistics and Table A1 for variable definitions.

Table 4: Outcomes during Covid-19: Cat Movers vs. Cat Non-Movers

DV:	Public Funding	Firm Exit	Insolvency	Log (Sales)	Log (Empl)	ROA	Sales/Assets	Interest
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
C19	0.332***	0.097***	0.026***	-0.088***	-0.047***	-0.037***	-0.352***	-1.433***
	(0.001)	(0.001)	(0.005)	(0.002)	(0.002)	(0.001)	(0.004)	(0.075)
Cat Ref Mover × C19	-0.044***	-0.006	-0.026***	0.052***	0.063***	-0.003	0.096***	0.043
	(0.011)	(0.006)	(0.005)	(0.019)	(0.016)	(0.007)	(0.022)	(0.666)
R-squared	0.528	0.333	0.308	0.931	0.914	0.467	0.802	0.491
Obs	548,561	574,947	548,561	543,443	548,561	543,193	548,561	401,494
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports the estimated coefficients and standard errors from an OLS regression in the main specification of Equation 2. Standard errors are clustered at the firm level. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. See Table 2 for summary statistics and Table A1 for variable definitions.

Table 5: Outcomes during Covid-19: Cat Movers vs. Cat Non-Movers and All Other Firms

DV:	Public Funding	Firm Exit	Insolvency	Log (Sales)	Log (Empl)	ROA	Sales/Assets	Interest
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
C19	0.294***	0.108***	0.025***	-0.032***	-0.012***	-0.035***	-0.311***	-1.221***
	(0.001)	(0.000)	(0.002)	(0.001)	(0.001)	(0.000)	(0.002)	(0.037)
Cat Non-Mover × C19	0.038***	-0.011***	0.001	-0.055***	-0.035***	-0.001	-0.041***	-0.212**
	(0.001)	(0.001)	(0.005)	(0.002)	(0.002)	(0.001)	(0.004)	(0.084)
Cat Ref Mover × C19	-0.006	-0.016***	-0.025***	-0.003	0.028*	-0.004	0.055**	-0.169
	(0.011)	(0.006)	(0.002)	(0.019)	(0.016)	(0.007)	(0.022)	(0.663)
R-squared	0.524	0.338	0.310	0.922	0.900	0.493	0.800	0.506
Obs	3,009,082	3,037,834	3,009,082	2,975,044	3,009,082	2,911,750	3,009,082	2,106,078
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports the estimated coefficients and standard errors from an OLS regression in the main specification of Equation 2. Standard errors are clustered at the firm level. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. See Tables 2 and A2 for summary statistics and Table A1 for variable definitions.

Table 6: Outcomes during Covid-19: Cat Movers vs. Cat Non-Movers Excluding Micro and Returning Firms

Sample:	Without micro firms				Without returning firms			
DV:	Public Funding	Insolvency	Log (Empl)	Sales/Assets	Public Funding	Insolvency	Log (Empl)	Sales/Assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
C19	0.416***	0.034**	-0.077***	-0.352***	0.332***	0.026***	-0.047***	-0.352***
	(0.003)	(0.015)	(0.003)	(0.006)	(0.001)	(0.005)	(0.002)	(0.004)
Cat Mover × C19	-0.121***	-0.034**	0.046**	0.094***	-0.044***	-0.026***	0.049***	0.091***
	(0.016)	(0.015)	(0.019)	(0.027)	(0.014)	(0.005)	(0.018)	(0.027)
R-squared	0.560	0.302	0.933	0.862	0.528	0.308	0.913	0.802
Obs	126,883	126,883	126,883	126,883	546,350	546,350	546,350	546,350
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports the estimated coefficients and standard errors from an OLS regression in the main specification of Equation 2. Standard errors are clustered at the firm level. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. See Table 2 for summary statistics and Table A1 for variable definitions.

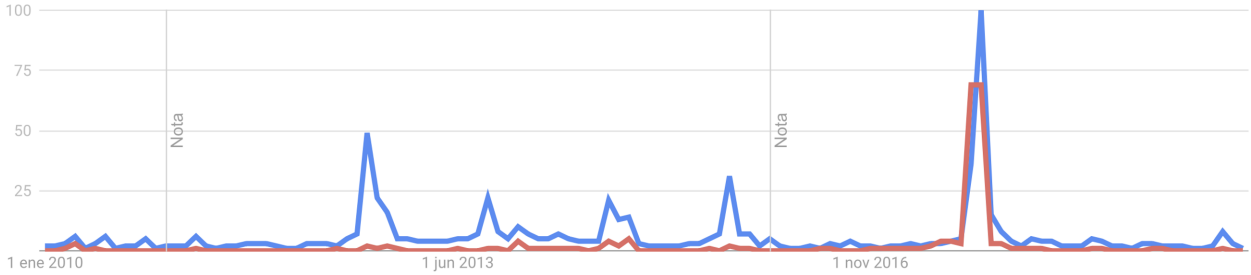
Table 7: New Business Dynamics Around Headquarters' Relocations

DV:	New Incorp. Rates	Total Assets Growth	Sales Growth	Empl. Growth
	(1)	(2)	(3)	(4)
		Panel A: 2015 - 2019		
Post	-0.027***	-0.045***	-0.114***	-0.062***
	(0.009)	(0.012)	(0.013)	(0.015)
Large mover area	-0.029***	-0.004	0.043**	0.039*
	(0.011)	(0.015)	(0.020)	(0.022)
Large mover area × Post	0.020**	0.008	-0.058***	-0.038*
	(0.009)	(0.016)	(0.021)	(0.022)
R-squared	0.033	0.030	0.033	0.022
Obs	1,506	26,426	25,232	25,611
		Panel B: 2015 - 2021		
Post	-0.029***	-0.040***	-0.088***	-0.054***
	(0.009)	(0.011)	(0.013)	(0.014)
Large mover area	-0.032***	-0.004	0.048**	0.045**
	(0.010)	(0.014)	(0.020)	(0.021)
Large mover area × Post	0.020**	0.013	-0.047**	-0.035
	(0.009)	(0.015)	(0.020)	(0.022)
R-squared	0.047	0.028	0.028	0.020
Obs	2,128	29,993	28,643	29,010
Municipality FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Notes: This table reports the estimated coefficients and standard errors from an OLS regression in the main specification of Equation 3. Standard errors are clustered at the 4-digit zipcode level. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. See Table A1 for variable definitions.

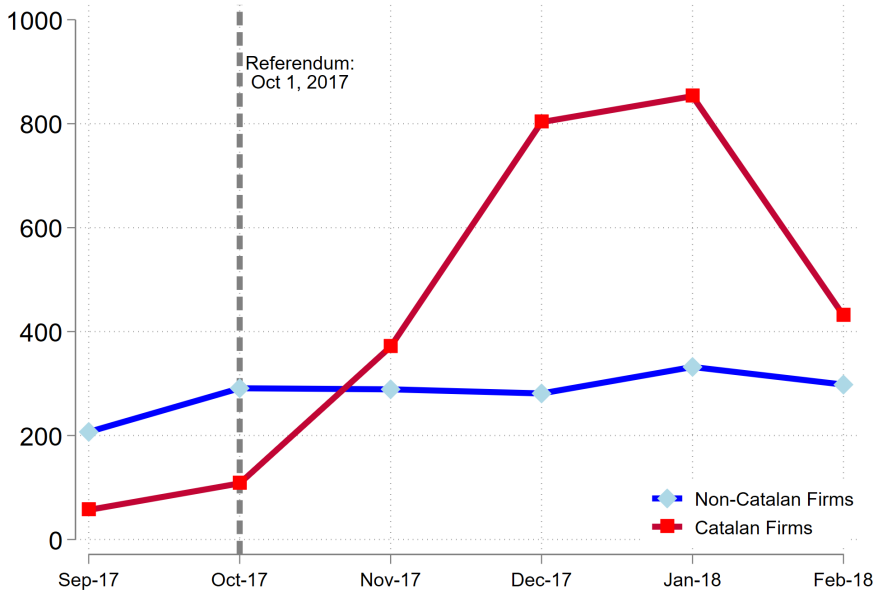
APPENDIX FIGURES AND TABLES

Figure A1: Catalan Independence Google Trends



Notes: Interest over time in "*Independencia Catalunya*" (blue line) and "*Referendum Catalunya*" (red line). Period: January 1, 2010 – December 31, 2019. Numbers represent search interest relative to the highest point on the chart for Spain - time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. A score of 0 means there was not enough data for this term.

Figure A2: Trends in Headquarters' Relocations Around the Catalan Referendum



Notes: This figure plots the number of Catalan and non-Catalan firms relocating their headquarters around the 2017 Catalan referendum.

Table A1: Variable Definitions

Variable	Definition	Source
Headquarters		
Mover	Indicator taking the value of one if a firm moves its headquarter location to a different region in Spain, and zero otherwise. Based on monthly data (between September 2017 and February 2018) for Catalan referendum movers, and on yearly data other movers.	CBI/Informa
Corporate-level Variables		
Firm Age	Current fiscal year - Year of incorporation	CBI
Total Assets	The book value of total assets	CBI
Liquidity	Cash and cash equivalents$_t$/Total assets$_{t-1}$	
Leverage	(Non-current liabilities + current liabilities)/Total assets	CBI
Public Funding	A dummy variable equal to one if a firm receives grants from the government in the corresponding year, and zero otherwise	SABI
Capital Intensity	Tangible fixed assets/Total assets	CBI
Sales/Total Assets	Sales/Total assets	CBI
ROS (Return to Sales)	Gross profits$_t$/Sales$_{t-1}$	CBI
ROA (Return to Assets)	Gross profits$_t$/Total assets$_{t-1}$	CBI
Firm Exit	Dummy variable equal to one if firm exists this year but is not included in the CBI in the following year, and zero otherwise	CBI
Insolvency	Dummy variable if the firm has filed for insolvency in the current year, and zero otherwise	CBI
Interest	Interest on borrowed funds and similar costs to interest-bearing borrowing	CBI
New Business Dynamics		
New incorporation rate	New firms in period t divided by total number of firms in year t-1	CBI
Total assets growth	Log difference of total assets between t+1 and t of new incorporated firms in period t	CBI
Sales growth	Log difference of sales between t+1 and t of new incorporated firms in period t	CBI
Employment growth	Log difference of employees between t+1 and t of new incorporated firms in period t	CBI

Notes: This table provides definitions of the main variables used in the empirical analysis. CBI: Central Balance Sheet Data Office Microdata from the Bank of Spain. SABI: *Sistema de Análisis de Balances Ibéricos*. See Table 2 for summary statistics.

Table A2: Summary Statistics: Spain

	All			Movers			Non-Movers		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Log (Firm Age)	2.405	0.904	2.639	2.659	0.608	2.708	2.401	0.907	2.639
Log (Total Assets)	5.841	1.751	5.729	6.755	1.832	6.728	5.827	1.746	5.716
Liquidity	0.262	0.398	0.121	0.205	0.347	0.077	0.263	0.399	0.121
Leverage	0.570	0.322	0.593	0.538	0.327	0.558	0.571	0.322	0.594
Public Funding (Dummy)	0.184	0.388	0.000	0.189	0.391	0.000	0.184	0.388	0.000
Capital Intensity	0.254	0.271	0.150	0.244	0.283	0.115	0.254	0.271	0.151
Log (Sales)	5.766	1.597	5.663	6.209	1.831	6.107	5.760	1.592	5.658
Log (Employment)	1.191	1.307	1.099	1.329	1.486	1.112	1.189	1.304	1.099
Sales/Assets	1.721	1.955	1.197	1.312	1.628	0.874	1.727	1.959	1.202
ROS	0.044	0.426	0.049	0.032	0.553	0.059	0.044	0.424	0.048
ROA	0.075	0.361	0.054	0.076	0.316	0.048	0.075	0.362	0.054
Obs	2,953,535			43,955			2,909,580		

Notes: This table provides summary statistics of the main variables used in the empirical analysis for all Spanish firms during 2017-2021. See Table A1 for variable definitions.

Table A3: Antecedents of Headquarters' Relocation: Non-Cat Movers

DV: Non-Cat HQ Mover						
Antecedents in:	t-1		avg(t-3, t-2, t-1)		t-1	
	(1)	(2)	(3)	(4)	(5)	(6)
Log (Firm Age)	0.079***	0.079***	-0.387***	-0.387***	-0.019	-0.010
	(0.017)	(0.017)	(0.031)	(0.031)	(0.024)	(0.024)
Log (Total Assets)	0.333***	0.334***	0.380***	0.380***	0.380***	0.346***
	(0.013)	(0.013)	(0.016)	(0.016)	(0.015)	(0.017)
ROS	-0.174***	-0.173***	-0.247***	-0.247***	0.056	0.063
	(0.048)	(0.048)	(0.085)	(0.085)	(0.068)	(0.068)
Liquidity	-0.159***	-0.158***	-0.097	-0.097	-0.543***	-0.534***
	(0.040)	(0.040)	(0.079)	(0.079)	(0.053)	(0.053)
Leverage	0.253***	0.254***	0.176**	0.176**	0.017	-0.012
	(0.060)	(0.060)	(0.073)	(0.073)	(0.065)	(0.065)
Capital Intensity	-0.428***	-0.428***	-0.428***	-0.428***	-0.249***	-0.209***
	(0.071)	(0.071)	(0.084)	(0.084)	(0.077)	(0.077)
SD - ROS					0.627***	0.638***
					(0.065)	(0.065)
SD - Log (Total Assets)					2.207***	2.163***
					(0.118)	(0.119)
SD - Liquidity					0.156	0.130
					(0.159)	(0.159)
Family Firm						-0.032
						(0.060)
Foreign Ultimate Shareholder						1.655***
						(0.246)
R-squared	0.042	0.042	0.041	0.041	0.043	0.044
Obs	1,271,623	1,271,623	1,026,273	1,026,273	1,142,247	1,142,247
Industry FEs	Yes		Yes		Yes	Yes
Region FEs	Yes		Yes		Yes	Yes
Year FEs	Yes		Yes		Yes	Yes
Industry × Year FEs		Yes		Yes		
Region × Year FEs		Yes		Yes		

Notes: This table reports the estimated coefficients and standard errors from the OLS regression of Equation 1 on antecedents of headquarter movers. The dependent variable is a dummy equal to one if a firm relocates its headquarters. Standard errors are clustered at the firm level. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. See Table A2 for summary statistics and Table A1 for variable definitions.

Table A4: Antecedents of Headquarter Relocation to Different Regions

DV: Destination Region:	Other	Valencia	Madrid	Other	Valencia	Madrid
	(1)	(2)	(3)	(4)	(5)	(6)
Log (Firm Age)	-0.213***	-0.139	-0.359***	-0.239**	0.060	-0.339***
	(0.066)	(0.125)	(0.112)	(0.096)	(0.146)	(0.030)
Log (Total Assets)	0.530***	0.497***	0.693***	0.568***	0.564***	0.722***
	(0.047)	(0.075)	(0.080)	(0.051)	(0.095)	(0.077)
ROS	-0.045	-0.052	-0.156	-0.099	-0.378**	-0.144
	(0.077)	(0.146)	(0.102)	(0.116)	(0.176)	(0.105)
Liquidity	0.160	0.162	0.392***	-0.039	-0.207	0.052
	(0.173)	(0.145)	(0.049)	(0.215)	(0.202)	(0.060)
Leverage	-0.221	0.162	0.597***	-0.431**	-0.143	0.454**
	(0.210)	(0.382)	(0.169)	(0.198)	(0.335)	(0.219)
Capital Intensity	-0.068	-1.104***	-1.369***	0.050	-0.827***	-1.350***
	(0.263)	(0.185)	(0.257)	(0.268)	(0.181)	(0.210)
SD - ROS				-0.164*	-0.695**	-0.108***
				(0.085)	(0.304)	(0.022)
SD - Log (Total Assets)				1.114***	1.296***	0.867***
				(0.197)	(0.197)	(0.146)
SD - Liquidity				0.569	1.200***	1.119***
				(0.385)	(0.337)	(0.264)
Pseudo R-squared		0.094			0.100	
Obs		103,605			94,239	

Notes: This table reports the estimated coefficients and standard errors from the multinomial logit regression on antecedents of headquarter movers by their destinations. The dependent variable is the destination of headquarter relocation: Madrid, Valencia or other regions, and the base outcome is Catalan non-movers during the referendum. Standard errors are clustered at the province level. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. See Table 2 for summary statistics and Table A1 for variable definitions.

Table A5: Outcomes during Covid-19: Non-Cat Movers

DV:	Public Funding	Firm Exit	Insolvency	Log (Sales)	Log (Empl)	ROA	Sales/Assets	Interest
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
C19	0.303***	0.105***	0.025***	-0.059***	-0.033***	-0.035***	-0.333***	-1.292***
	(0.001)	(0.000)	(0.002)	(0.001)	(0.001)	(0.000)	(0.002)	(0.034)
Non-Cat Mover × C19	-0.028***	0.017***	-0.010	-0.024***	-0.001	0.002	0.082***	-0.198
	(0.005)	(0.003)	(0.019)	(0.009)	(0.007)	(0.003)	(0.012)	(0.301)
R-squared	0.519	0.335	0.309	0.926	0.904	0.479	0.803	0.503
Obs	2,871,760	2,975,268	2,871,760	2,841,739	2,871,760	2,820,316	2,871,760	2,034,972
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports the estimated coefficients and standard errors from an OLS regression in the main specification of Equation 2. Standard errors are clustered at the firm level. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. See Table A2 for summary statistics and Table A1 for variable definitions.

Table A6: Outcomes during Covid-19: Robustness to Controls

DV:	Public Funding	Firm Exit	Insolvency	Log (Sales)	Log (Empl)	ROA	Sales/Assets	Interest
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
C19	0.326***	0.049***	0.020***	-0.164***	-0.108***	-0.019***	-0.233***	-1.527***
	(0.002)	(0.001)	(0.006)	(0.002)	(0.002)	(0.001)	(0.004)	(0.095)
Cat Ref Mover × C19	-0.044***	0.005	-0.023***	0.016	0.035**	0.001	0.071***	-0.025
	(0.012)	(0.006)	(0.005)	(0.018)	(0.015)	(0.006)	(0.022)	(0.719)
R-squared	0.538	0.363	0.311	0.943	0.932	0.518	0.828	0.498
Obs	495,353	562,641	495,353	491,393	495,353	494,965	495,353	367,117
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports the estimated coefficients and standard errors from an OLS regression in the main specification of Equation 2. Firm controls firm age (log), total assets (log), liquidity and leverage. Standard errors are clustered at the firm level. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. See Table 2 for summary statistics and Table A1 for variable definitions.

Table A7: New Business Dynamics: Alternative Specification

DV:	New Incorp. Rates	Total Assets Growth	Sales Growth	Empl. Growth
	(1)	(2)	(3)	(4)
Post-Ref	-0.027***	-0.045***	-0.114***	-0.062***
	(0.009)	(0.012)	(0.013)	(0.015)
C19	-0.032***	-0.020	0.019	-0.019
	(0.009)	(0.018)	(0.025)	(0.023)
Large mover area	-0.032***	-0.004	0.048**	-0.045**
	(0.010)	(0.014)	(0.020)	(0.021)
Large mover area × Post-Ref	0.020**	0.007	-0.058***	-0.038*
	(0.009)	(0.016)	(0.021)	(0.022)
Large mover area × C19	0.019**	0.036	0.001	-0.025
	(0.010)	(0.025)	(0.035)	(0.032)
R-squared	0.047	0.028	0.032	0.021
Obs	2,128	29,993	28,643	29,010
Municipality FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Notes: This table reports the estimated coefficients and standard errors from an OLS regression in the main specification of Equation 3. Standard errors are clustered at the 4-digit zipcode level. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. See Table A1 for variable definitions.