ONLINE APPENDIX - Customer capital spillovers: Evidence from sales managers in international markets

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Contents

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A Sales managers' job-to-job transitions

To understand the drivers of poaching of sales managers, we describe in this Section the prevalence and direction of sales managers' job-to-job transitions. We first show that sales managers' job-to-job transitions are common in our data: 8.6% of sales managers change firms in a given year. We find no evidence that sales managers moving across firms are either more highly or less highly-skilled than the average sales manager in the population. Second, we show that when firms recruit sales managers, they tend to slightly increase their sales managers' workforce: firms do not recruit sales managers only as replacements for sales managers leaving the firm. Third, we describe the destination firms of sales managers: sales managers working for exporting firms move in majority to exporting firms. Yet, still 44.5% of them move to non-exporting firms, which suggests that sales managers may be recruited for their existing network of buyers by firms willing to expand on international markets. We complement these findings with an analysis of firms' closures, for which sales managers are not likely to be poached by the destination firm but rather pushed from their origin firm. Fourth, we study the similarity of the origin and destination firms of sales managers in terms of buyers portfolio. We find that in 18.8% of the cases, the poaching firm shares at least one common buyer with the origin firm. This number is higher than for a randomly-chosen pair of firms, which suggests that a poaching firm might benefit more from recruiting a sales manager when it recruits from a firm with an overlap of buyers.

A.1 How prevalent are sales managers' job-to-job transitions?

In the data, 1,186,190 workers - out of the 13,743,874 workers we observe in the data in 2012 - move across firms from 2012 to 2013, and 7.9% of those movers are sales managers. Sales managers represent 7.9% of the total workforce in 2012, which suggests that sales managers change firms at a similar frequency as other workers in the population. Phrased differently: 8.6% of sales managers change firms in a given year. We can also compare sales managers to other types of managers. Sales managers represent 22.2% of the managers who move across firms from 2012 to 2013, but only 21.2% of the managers in 2012: sales managers thus move more across firms than other types of managers.

Sales managers in 2012 are paid on average 27.5 euro per hour worked. 37% of sales managers are women and 56% are top managers.[1] The sales managers who change firms in 2013 are paid on average 26.1 euro per hour worked, 36% of sales managers are women and 54% are top managers. We therefore find no evidence that sales managers moving across firms are either more highly or less highly-skilled than the average sales manager in the population.

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[1]We denote top managers as managers in the first two categories of the French nomenclature, i.e. occupations with either 2 or 3 as a first digit.)

A.2 Are sales managers hired by firms to replace sales managers who left?

In this paper we study whether sales managers, when recruited, bring some of their former customers with them, and thus help firms grow on international markets. Yet, it could be that the arrival of a sales manager, who connects the firm to a new consumer abroad, comes together with a departure of another manager and a loss of a consumer who was connected to it. Relatedly, if the firms that lost the manager replaced it with another one, it could be optimal for that firm to close old connections and open new ones that are specific to the new manager. We investigate these questions by providing below some descriptive statistics on the replacement patterns of the poached and recruiting firms. Among the firms poached in 2013, 52.5% see a decline in their number of sales managers in 2013 as compared to 2012, 26.9% see an increase, and 20.6% have a stable number of sales managers. This suggests that the sales managers who left in 2013 were not immediately replaced in most of the cases. Among the firms recruiting a sales manager in 2013, 36.6% actually see an increase in their number of sales managers in 2013 as compared to 2012, 26.3% a decline and 37.1% have a stable number of sales managers. Recruiting firms thus do not only recruit a sales manager to replace another one leaving in 2013, but they tend to slightly increase their sales managers workforce.

A.3 Which firms are the most likely to poach sales managers from exporting firms?

In this sub-section, we wonder which types of firms poach sales managers. If sales managers' connections are valuable, we could observe either that poaching firms are firms with only a few foreign buyers, which recruit sales managers to expand on international markets, or firms with many foreign buyers, which have less need expanding but for which selling to the worker's connections might be easier. We study this question empirically by describing the destination firms of sales managers in terms of export behavior. We then compare the results with cases in which the origin firm of the sales managers closes down: in this case, we can assume that the sales managers were not poached, but rather pushed from their former firm.

Do sales managers move frequently to exporting firms? We first compare the origin and destination firms of sales managers in terms of export status. In 2013, 51.0% of the sales managers changing firms come from an exporting firm, while only 44.4% of all types of managers changing firms come from an exporting firm. We display in Table 1 and Table 2 the transition matrices for respectively sales managers and all types of managers. We find that managers, as well as sales managers, working for non-exporting firms in 2012 and changing firms in 2013 remain for a vast majority in non-exporting firms in 2013. Conditionally on working for an exporting firm in 2012 and changing firms in 2013, a majority of sales managers work for an exporting firm in 2013, but still a substantial fraction - 44.5% - work for a non-exporting firm in 2013. The patterns is quantitatively similar for managers changing firms: conditionally on working initially for an exporting firm, 44.1% of them work

for a non-exporting firm in 2013.

Table 1: Sales managers' transition matrix

	Exporting firm in t	Non-exporting firm in t	Total
Exporting firm in t-1	55.5%	44.5%	100%
Non-exporting firm in t-1	27.2%	72.8%	100%
All	41.7%	58.3%	100%

Notes: We denote by exporting firm a firm exporting at least once in 2012. The top-left cell indicates that 55.5% of the sales managers that were employed in an exporting firm in $t-1$ and move to another firm in t actually move to an exporting firm while, for example, the first cell of the bottom row indicates that 41.7% of sales managers changing firm between $t-1$ and t end up in t in an exporting firm. Statistics for 2012 and 2013.

Table 2: All types of managers' transition matrix

	Exporting firm in t	Non-exporting firm in t	Total
Exporting firm in t-1	55.9%	44.1%	100%
Non-exporting firm in t-1	22.7%	77.3 %	100%
All	37.4%	62.6%	100%

Notes: We denote by exporting firm a firm exporting at least once in 2012. The top-left cell indicates that 55.9% of the managers that were employed in an exporting firm in $t-1$ and move to another firm in t actually move to an exporting firm while, for example, the first cell of the bottom row indicates that 37.4% of sales managers changing firm between $t-1$ and t end up in t in an exporting firm. Statistics for 2012 and 2013.

Do sales managers move to better firms when changing firms? 28.3% of the sales managers' job-to-job transitions we observe in the data are from an exporting firm to another exporting firm. From now on until the end of the sub-section, we focus on those transitions, which are the ones relevant for this paper. Conditionally on moving from an exporting firm to another exporting firm, 66.7% of sales managers move to a firm with more foreign European buyers than her previous firm, and 53.8% move to a firm which exports more in euros terms. This pattern is qualitatively similar to the ones for all types of managers: conditional on a manager moving from an exporting firm to another exporting firm, 73.7% move to a firm with more foreign European buyers, and 55.6% move to a firm which exports more in euros terms. Quantitatively though, it is apparent that sales managers move more frequently to firms with a lower number of buyers than other types of managers, which indicates that sales managers may be recruited for their existing network of buyers by firms willing to expand on international markets.

Closures of firms As a complementary exercise we study where sales managers go to when their firm closes down, and compare such pattern with other types of managers. We focus on exporting firms that close and define a closure in year t if the number of workers employed is equal to zero in year t and remains equal to zero until 2017, i.e. the end of our panel data.[2] We obtain in the end 266,606 movers throughout the years, among which 108,477 managers and 32,181 sales managers. We find that 72.9% of sales managers move to

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[2]We remove from the samples the firms that likely change their firm identifier from $t-1$ to t, in order not to mistakenly identify them as closed.

an exporting firm, while 69.1% of all managers do. When a closure happens, sales managers are thus more likely to go work for another exporting firm than other managers. We found that this was not the case when studying sales managers in the case of non-closure of their firms. An interpretation is that when sales managers are 'pushed out' of a firm - because of a closure - they tend to find work more easily in exporting firms, which may be more likely to benefit from their network. Yet, in case of non-closure of their firm, sales managers who change firms are more likely to be poached by non-exporting firms, which actively want to expand.

A.4   Do sales managers go to similar firms when changing firms?

In this sub-section, we describe the similarity in terms of buyers' portfolio between the origin and destination firms of sales managers. Do sales managers land jobs in firms that are likely to benefit from their pre-existing networks? The answer to this question is indicative of the extent to which the recruitment of a sales manager is driven by a desire to recruit a particular type of client.

How similar are the buyer portfolio of the poached and recruiting firms? We study the similarity of the origin and destination firms in terms of buyer portfolio and display the results in Table 3. We find that in 2012, i.e. the year before the sales manager's transition, the poached and the recruiting firms export on average to 3.7 common countries (out of 26 potential export destinations). In 64.2% of the cases, they share at least one common export destination, and conditionally on having at least one common export destination, they share 5.8 common export destinations. To interpret the magnitude of these numbers, we measure the number of common exporting countries of randomly-picked couples of exporting firms from the data, displayed in Column (2). We find that for two firms of the same sample but randomly assembled in pairs, they export on average to 2.7 common countries. This is substantially lower than the previous number - 3.7 common countries - thereby indicating that a poached and a recruiting firm tend to have closer buyer portfolios than random pairs of firms.

We complete this picture by looking at the overlap in terms of foreign buyers of firms. The poached and the recruiting firms have on average 1.0 buyers in common. They have a common foreign European buyer in 2012 in 18.9% of the cases, and conditionally on having at least one common buyer, they have 5.5 buyers in common on average. With randomly-paired firms, we find that two firms share on average 0.1 common buyers, and they have a common buyer in only 4.3% of the cases.

The poached firm and the poaching firm may sell to the same buyers partly because they sell similar products. We inspect whether the poached and poaching firms have more buyers in common than two random firms selling the same 6-digit products would have. We compare the pair of poached and recruiting firms - in column (3) of Table 3 - to random pairs but replacing the true destination firm by a firm exporting the same main 6-digit product (instead of a random firm). The statistics for this sample are displayed in column (4).[3] Now

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[3]We use as a 6-digit product the CPA6 nomenclature. The difference in the number of pairs of firms between columns (1) and (3) can be explained by the fact that for some firms we do not observe the 6-digit

Table 3: Portfolio of buyers of poached and recruiting firms

	(1) Pairs of poached × recruiting firms	(2) Random pairs of firms	(3) Pairs of poached × recruiting firms with a non-missing 6-digit product	(4) Random pairs taking into account 6-digit product
# of common countries	3.7	2.7	5.6	5.5
1(# common countries > 0)	64.2%	50.8%	95.3%	94.9%
# common countries | # > 0	5.8	5.3	5.9	5.8
# of common buyers	1.0	0.1	1.5	1.1
1(# common buyers > 0)	18.9%	4.3%	28.9%	19.8%
# common buyers | # > 0	5.5	2.8	5.1	5.8
# pairs of firms	9,524	9,517	4,328	4,310

Note: In this Table we study the similarity of the origin and destination firms in terms of buyer portfolio. Column (1) displays the statistics for the pairs of poached × recruiting firms. Column (2) displays the statistics after randomly assigning a recruiting firm to each poached firm: to do so we start from the sample of pairs of firms and re-shuffle them randomly. We thus attribute a placebo recruiting firm instead of the true recruiting firm. In column (3) we use the sample from column (1) but restricting it to pairs such that the recruiting firm has a non-missing 6-digit product. In column (4) we use a similar strategy but attributing instead of the recruiting firm a placebo recruiting firm selling the same 6-digit product as the true recruiting firm.

the samples of column (3) and (4) are much more similar than were the samples of column (1) and (2) in terms of number of common countries. Yet, the number of common buyers is still slightly higher for a pair of poached firm-poaching firm than it is for a random pair of firms.

Closures of firms We complement our exercise with an analysis of firms' closures. We study whether sales managers land jobs, after the closure, in firms that are likely to benefit from their pre-existing networks. We assume that a firm is likely to benefit from a sales manager's pre-existing network if it was selling, before the recruitment, the same 6-digit product to the same country as the closed firm. Such a firm is indeed more likely, upon meeting a foreign buyer of the closed firm, to start selling to such a buyer. We display in Table 4 some statistics on the proximity of the closing and recruiting firms, and we display the results first unconditionally on the recruiting firm being an exporter, and then conditionally on the recruiting firm being an exporter. Overall we find that sales managers are more likely to go work for a firm with similar product × country pairs as their previous firm than other types of managers. Namely, conditionally on the recruiting firm being an exporter, 52.6% of the pairs of closing firm × recruiting firm sell at least one common product to the same country the year before the closure, while the number is only 44.6% for all types of managers.

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products they export.

Table 4: Proximity between the closing firm and the recruiting firm, in terms of pairs of product × export destination

Unconditionally on the recruiting firm being an exporter

	Sales managers	All managers
# of common pairs of product × country	4.4	3.3
1(# of common pairs > 0)	36.7%	29.4%
# of common pairs as a ratio of total pairs of closing firm	13.9%	12.3%
# pairs of firms	790	2,357

Conditionally on the recruiting firm being an exporter

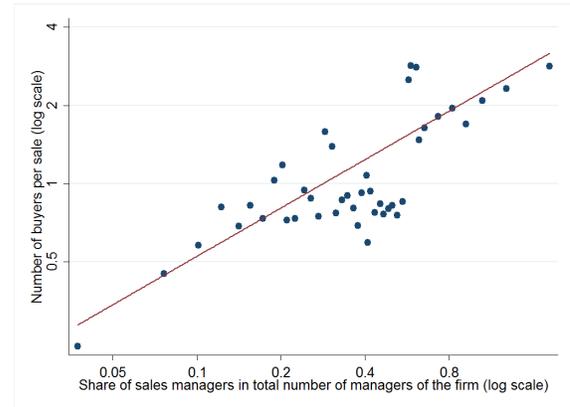|	Sales managers	All managers
# of common pairs of product × country	6.3	5.0
1(# of common pairs > 0)	52.6%	44.6%
# of common pairs as a ratio of total pairs of closing firm	20.0%	18.8%
# pairs of firms	551	1,550

Note: This Table describes the proximity between the closing firm and recruiting firm of sales managers, versus the proximity between the closing firm and recruiting firm of all types of managers. The # of common pairs of product × country is the number of distinct export destinations × 6-digit products that the closing firm and the recruiting firm have in common the year before the closure. We compute the # of common pairs as a ratio of total pairs of closing firm as the # of common pairs of product x country divided by the # of distinct pairs of product × country sold by closing firm the year before its closure. This ratio measures the proximity between the closing and the recruiting firm in terms of product and export destinations.

B   Stylized facts: sales managers and exports

First, we reproduce in Figure B.1a the stylized fact 3 of Section I - i.e. we correlate the firm's number of buyers per sale with the firm's share of sales managers in the total number of managers - without any sectoral fixed effects. Second, we add 2-digit sector fixed effects, instead of 4-digit fixed effects, in Figure B.1b. Third, we remove the retail and wholesale sectors, and exhibit the correlation in Figure B.1c - without sector fixed effects - and Figure B.1d - with sector fixed effects. We see that changing the type of fixed effects added does not change the results. Yet, excluding the retail and wholesale sectors strengthens the correlation between a firm's share of sales managers and the firm's number of buyers per sale.
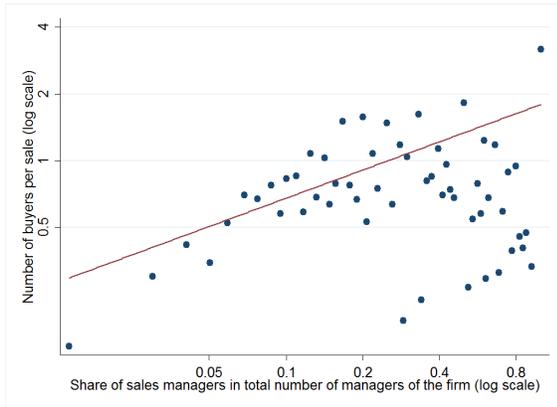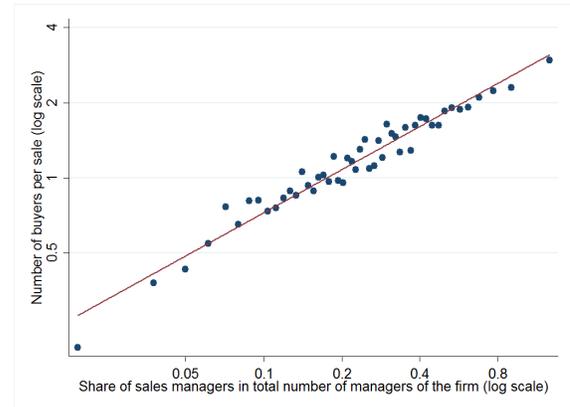

(a) No fixed effect

(b) With 2-digit fixed effects
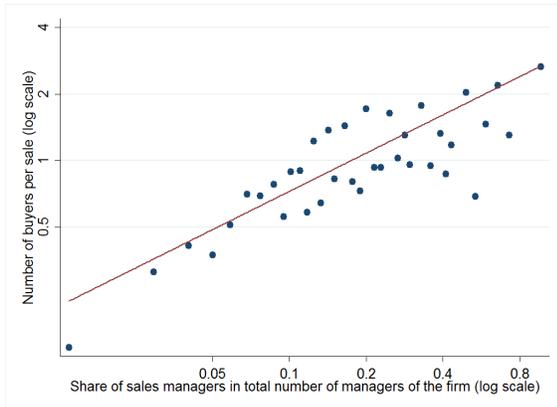
(c) Removing the retail and wholesale sectors - without sector fixed effects

(d) Removing the retail and wholesale sectors - with sector fixed effects

Figure B.1: Firms' share of sales managers and number of buyers per sale

Notes: These figures plot the correlation between a firm's share of managers and a firm's exports per sale. The x-axis, in log scale, represents the share of managers in a firm's total employment. The y-axis, in log scale, represents the number of buyers per sale (in million euros) in a firm. In panel (a) no sector fixed effects are added. In panel (b), 2-digit sector fixed effects are added. In panel (c), we remove the retail and whole sectors and do not add any sector fixed effects. In panel (d), we remove the retail and whole sectors and add 2-digit sector fixed effects. The data sources are customs data merged with matched employer-employee data, in the 2009-2015 period. The observations are pooled into bins.

C   Sample of sales-manager recruitments in the final sample

C.1   Potential buyers

We define potential buyers of a firm as follows. For every 4-digit sector, we list all the buyers which import from at least one French firm in this sector in 2005. We then attribute to a French firm all the buyers importing from the firm's sector in 2005 as potential buyers. With this definition, among buyer-supplier pairs which trade in 2012 - and such that the buyer imports from France in 2005 and 2017 - 58.9% are potential buyers. In the largest sample we use, described in Appendix D.1, we observe that the probability for a supplier to export to a given buyer in 2012 is 3.09% when it is a potential buyer for this specific firm, and only 0.663% when it is not.

C.2   Excluding firm deaths, mergers and absorptions

We exclude cases in the data that likely correspond to firm death, mergers or absorptions.

The poached firm is dying We exclude situations in which the poached firm is potentially dying. A large negative shock to a firm simultaneously spurs the movement of workers to its competitors and of its buyers to its competitors. In this case, the effect of a sales-manager hire on the probability to sell to a former buyer of the sales manager very likely stems from the correlated effects between sales-manager departure and buyer departure. We exclude these problematic cases by dropping sales-manager movements for which the poached firm exhibits a fall of over 60% of its workforce the year of the sales-manager recruitment.

The recruiting firm absorbs the poached firm We remove from the sample worker flows that have the three following characteristics: i) the worker flow from firm A to firm B represents more than 70% of firm A's employment before the move, ii) firm A has more than five workers the year before the move, and iii) firm A has fewer than two employees the year of the move. These cases correspond to situations in which the administrative identifier of firm A has probably been changed into firm B. This may correspond to an absorption of firm A by firm B, a merger, or a simple administrative change of identifier. In this case we take the conservative approach of excluding both firm A and firm B from the sample.

The recruiting firm absorbs an establishment of the poached firm We apply the exact same procedure at the establishment level: if the flow from establishment A to establishment B corresponds to more than 70% of establishment A's employment before the move, if establishment A has over five workers the year before the move, and if establishment A has no employment in t (meaning that the identifier may have changed), then we consider that the identifier of establishment A has been changed into establishment B. Then, if the year of the sales-manager movement from firm 1 to 2, at least one establishment of firm 1 is bought by firm 2, we remove this worker move from the sample, as it may correspond to a potential merger between any two establishments in these firms.

C.3 The sample of buyers

The way in which we constitute our sample may produce some selection bias. We select firm $f \times$ buyer pairs such that, in year t, a sales manager moves from an initial firm f' to f. A buyer is thus included in our sample if it buys from at least one French supplier from which at least one sales manager leaves. Buyers with positive unobserved shocks are thus more likely to appear in our sample. However, even conditional on being selected, the year of the sales-manager movement likely corresponds to the largest positive unobserved shock faced by the buyer in the period. As a result, year $t-1$, where t designates the year of the sales-manager movement, corresponds to a peak of imports for the buyer, which may create issues in an event-study setting in which the outcome in all other years is compared to that at $t-1$. A simple way of solving this issue is to control for buyer $\times$ year fixed effects, which remove unobserved buyer-level time-variant shocks.

C.4 Descriptive statistics of the final sample

We provide below some descriptive statistics of our main sample. The final sample is at the French firm $\times$ foreign buyer $\times$ year level. It comprises 23,728 distinct French firms, 63,268 foreign buyers and 402,570 pairs of French firms $\times$ foreign buyers. Table 5 describes the sample of French firms and foreign buyers included in the final sample. Descriptive statistics are included for 2012.[4] Table 7 in Appendix D compares the characteristics of this sample with alternative samples.

Table 5: Summary of main variables in 2012 - main estimation sample

	mean	min	med	max	sd	count
Statistics on French firms of our sample						
Sales (in K euros)	57,272	0	9,586	46.3M	429,428	23,521
Share of sales abroad	0.16	0	0.02	1	0.26	23,589
Nb of foreign buyers	25.12	0	0	33,672	249	23,728
Nb of export destinations	3.9	0	0	26	6.0	23,728
Nb of workers	137.7	1	33	52,062	660.3	23,728
Share of sales managers in employment	0.17	0	0.10	1	0.20	23,728
Statistics on foreign buyers of our sample						
Imports from France (in K euros)	20,702	0.01	745	13.8M	188,430	60,731
Nb of years importing from France	12.7	4	13	13	0.9	60,731
Nb of French suppliers	6.9	1	4	898	13.7	60,731

Note: "Nb of workers" corresponds to headcounts on 31 December before the judgment year. The total number of foreign buyers in our sample is 63,268. Yet, not all of these buyers import from France in 2012, which explains that the number of foreign buyers to compute the statistics of the table is only 60,731. Source: DADS, FICUS-FARE, customs data.

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[4]One can note from Table 5 that out of the 63,268 foreign buyers included in our main sample, 60,731 are importing from France in 2012, and are therefore described in the Table.

D   Alternative samples

This Section describes the robustness of our results to using alternative samples. In particular, we show in sub-section D.1, that our results are qualitatively unchanged when relaxing the restrictions on foreign buyers included. In sub-section D.2, we include never-treated pairs in our sample, and show our results are robust to including all French firms - ie irrespective of whether they recruited a sales manager over the period - in the sample.

D.1   Alternative sample: relaxing the restrictions on foreign buyers

In our main sample, described in sub-section II.A, we make two restrictions relative to foreign buyers. First, we include buyers importing from France at least in 2005 and in 2017. This enables us to study how the probability to match with a buyer evolves every period before and after the recruitment, conditional on the buyer not exiting the market. This selection thus reduces noise from small buyers, and also importantly enables us to reduce the dimensionality of the dataset, which is a key concern in our analysis. Yet, this selection restricts the sample to 21.9% of all buyers importing from France in 2012. Second, we restrict for each French firm the analysis to potential buyers, where potential buyers are defined according to the products exported by French firms.

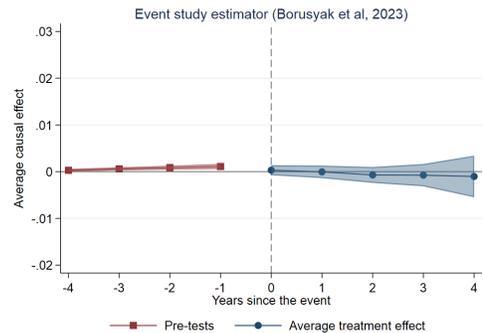**Removing the restriction to buyers importing from France in 2005 and 2015** We here reproduce our main estimation - Equation (2) - by restricting the sample to potential buyers, but which are not necessarily foreign buyers importing from France in 2005 and 2017. We do however still focus on buyers for which the French firm recruits in the period a sales manager from a firm selling to this particular buyer. In other words, only treated pairs of French firms × foreign buyers are included. This alternative sample comprises the same French firms as in our main sample - i.e. 23,728 firms - but now the number of buyers is equal to 101,117, instead of 63,268. Figure D.1a displays the results. We find that the probability to export to a foreign buyer increases by 0.92 percentage points one year after the recruitment. This effect is very similar to our main effect, equal to 1.11 percentage points, which indicates that the restriction to foreign buyers importing from France in 2005 and 2017 is benign.

Removing the restriction to potential buyers We here reproduce our main estimation - Equation (2) - by restricting to foreign buyers importing from France in 2005 and 2017, but which are not necessarily potential buyers for the French firm. This alternative sample comprises the same French firms as in our main sample - i.e. 23,728 firms - but now the number of buyers is equal to 128,178, instead of 63,268. This increases our sample size from 3,031,324 to 25,715,561 observations. We depict the results in Figure D.1b. When including non-potential buyers, we cannot detect any significant effect of the sales manager's recruitment. This indicates that sales managers' business networks are effective only when the buyers are in an industry close to the recruiting firm's industry. This result is consistent with Figure 6.(b), which shows that sales managers bring their business networks only when the poached and recruiting firms belong to the same sector, and is consistent with the

discussions we had with sales managers, see Section III.C.
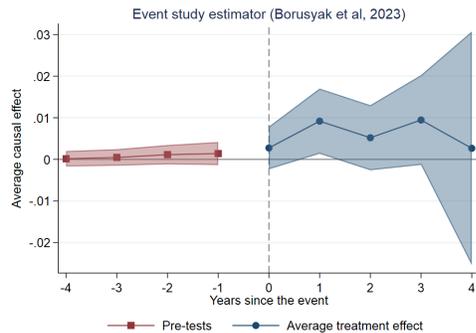
(a) Removing the restriction to buyers importing from France in 2005 and 2015

(b) Removing the restriction to potential buyers

Figure D.1: The effect of recruiting on the probability to sell to a buyer

Notes: The graph displays the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b, k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.

Comparing the different samples Table 6 below compares the different samples mentioned above. All four samples have the same French firms, but they differ by the foreign buyers included. The baseline probability for a French firm and a buyer to match increases substantially when restricting the sample to potential buyers - i.e. columns (1) and (3).

Table 6: Summary of main variables in 2012 - comparison across estimation samples

	(1) Main sample	(2) Potential buyers	(3) Buyers here in 2005 & 2017
Statistics on French firms			
Sales (in K euros)	57,272	57,272	57,272
Share of sales abroad	0.16	0.16	0.16
Nb of foreign buyers	25.1	25.1	25.1
Nb of export destinations	3.9	5.1	3.9
Nb of workers	137.7	137.7	137.7
Share of sales managers in empl.	0.17	0.17	0.17
Statistics on foreign buyers			
Imports from France (in K euros)	20,702	20,220	12,634
Nb of years importing from France	12.7	11.9	12.4
Nb of French suppliers	6.9	6.0	4.8
Dimensions of the sample			
Nb of observations	3,031,324	4,026,146	25,715,561
Nb of French firms in the sample	23,728	23,728	23,728
Nb of foreign buyers in the sample	63,268	101,117	128,178
Baseline proba to match (in t-1)	0.0309	0.0284	0.00663

Note: "Nb of workers" corresponds to headcounts on 31 December before the judgment year. Source: DADS, FICUS-FARE, customs data. Column (1) corresponds to our main sample, i.e. with foreign buyers importing from France at least in 2005 and 2017 and foreign buyers which are potential buyers for the French firm of interest. Column (2) corresponds to the sample with only potential foreign buyers, but removing the restriction to buyers importing from France in 2005 and 2015. Column (3) corresponds to the sample with foreign buyers importing from France at least in 2005 and 2017, and removing the restriction to potential buyers.

D.2 Alternative sample: including never-treated firm-buyer pairs

In our main sample, we include all pairs of French firms × foreign buyers such that the French firm recruits a sales manager from another French firm selling to this specific foreign buyer, and we call such French firm-buyer pairs treated. By construction, we thus select the French firms which recruited at least once a sales manager from an exporting firm over the period of interest. Ideally, one would want to include in the sample never-treated pairs, which would not contribute directly to identifying the parameters of interest, but could improve the estimation of the fixed effects included. Including all potential French firm × foreign buyer pairs is however challenging because of the high dimensionality of the data.[5] We devise two alternative strategies to test the robustness of our findings to the inclusion of never-treated pairs, while trying to manage the dimensionality of the dataset.

Same French firms as in main sample First, we select the same French firms as our main sample, *i.e.* firms which recruit at least one sales manager from an exporting firm over the period of interest. Then, instead of selecting only the buyers which are connected to the sales managers these firms recruit, we use a random sample of 10% of foreign buyers. For each of the French firm × buyer pairs that we form, we inspect whether the French firm recruits in the period a sales manager from a firm selling to this particular buyer, in which case we say the pair is treated. We obtain 5,870,996 pairs, among which 108,386 are treated. We then estimate Equation (2) on this new sample, including both treated and non-treated pairs, and the total number of observations is 75,551,529. Figure D.2a shows that the results are qualitatively unchanged, although the effect fades more quickly than in our main estimation. Recruiting a sales manager from a firm exporting to buyer b increases the likelihood to sell to buyer b by 0.14 percentage points the year of the recruitment and by 0.28 percentage points one year after the recruitment. These point estimates are within the confidence interval obtained in our main analysis, for which the point estimates were respectively 0.52 and 1.11 percentage points.

All French firms We now change our sample of French firms to all French firms active from 2009 to 2015, irrespective of whether they recruit sales managers over the period. This corresponds to 325,123 French firms. We then select a random sample of 2% of foreign buyers and inspect for each pair of French firm × foreign buyer whether the French firm recruits in the period a sales manager from a firm selling to this particular buyer, in which case we say the pair is treated. We obtain 5,806,877 pairs, among which 19,130 are treated. We estimate Equation (2) on this sample and exhibit the results in Figure D.2b. The results are again qualitatively similar to the results of our main estimation. Recruiting a sales manager from a firm exporting to buyer b increases the likelihood to sell to buyer b by 0.36 and 0.39 percentage points respectively the year of the recruitment and one year after the recruitment. The effect is very close to the one of Figure D.2a, except that there is a loss in precision due to the very small number of treated firm-buyer pairs in this sample.

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[5]If one were to select all French firms active from 2009 to 2015 - 654,591 French firms - and combine them with every foreign buyer which imports from France at least in 2005 and 2017 - 172,984 foreign buyers - one would obtain 132 million firm-buyer pairs, and thus 1,716 million observations when taking into account all time periods.

Table 7: Summary of main variables in 2012 - comparison across estimation samples

	(1) Main sample	(2) Including never-treated buyers to French firms in main sample	(3) All active French firms
Statistics on French firms			
Sales (in K euros)	57,272	56,834	6,214
Share of sales abroad	0.16	0.16	0.05
Nb of foreign buyers	25.1	25.2	3.4
Nb of export destinations	3.9	3.9	0.6
Nb of workers	137.7	137.6	18.7
Share of sales managers in empl.	0.17	0.17	0.09
Statistics on foreign buyers			
Imports from France (in K euros)	20,702	11,042	8,499
Nb of years importing from France	12.7	12.3	12.4
Nb of French suppliers	6.9	4.4	4.3
Dimensions of the sample			
Nb of observations	3,031,324	75,551,529	75,359,391
Nb of French firms in the sample	23,728	23,600	325,103
Nb of foreign buyers in the sample	63,268	15,829	2,866
Baseline proba to match (in t-1)	0.0309	0.0333	0.0353

Note: "Nb of workers" corresponds to headcounts on 31 December before the judgment year. Source: DADS, FICUS-FARE, customs data. Column (1) corresponds to our main sample, i.e. with foreign buyers importing from France at least in 2005 and 2017 and foreign buyers which are potential buyers for the French firm of interest. Column (2) corresponds to the sample where never-treated pairs are included: the sample of French firms is the same, but instead of selecting foreign buyers such that the French firm × buyer pair is treated, we select a random sample of foreign buyers. Column (3) corresponds to another sample where never-treated pairs are included: we select all French firms active in the period and match them with a random sample of buyers.
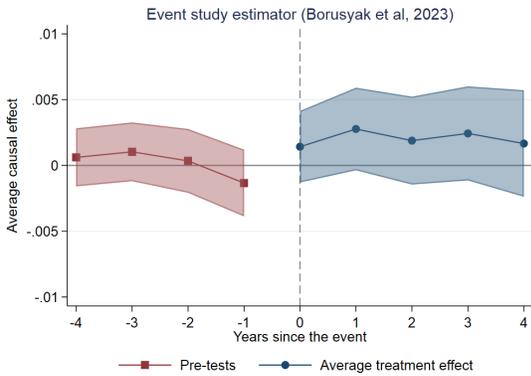
(a) Including non-treated buyers
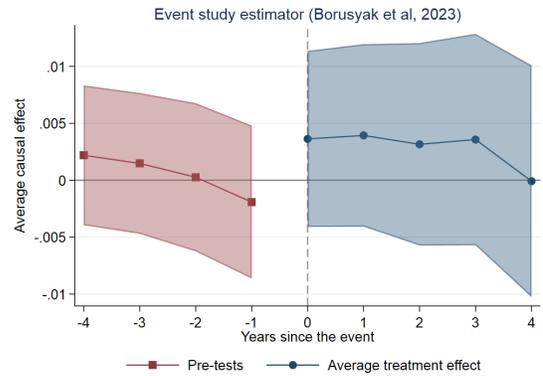
(b) Including all French firms active from 2009 to 2015

Figure D.2: The effect of recruiting on the probability to sell to a buyer

Notes: The graph displays the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b, k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm $\times$ foreign buyer pair. Firm $\times$ country $\times$ year, buyer $\times$ year and firm $\times$ buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.

E   Dissecting the estimated effect into causal effect of sales managers and other simultaneous actions

We devise in Section III.A an empirical strategy to disentangle the true causal effect of sales managers and that of other potential simultaneous actions. We provide more detail below on the computations and estimations necessary to achieve our result.

E.1   Assumptions

Probability for a firm to sell to one buyer We first write the probabilities to sell to buyer b depending on the actions of firm f. Namely, we can write the four following probabilities:

- Conditionally on not recruiting a sales manager connected to b, and not making any marketing effort toward b - which happens with probability p_1 - the probability to sell to b writes: $p_m \times \alpha$.

- Conditionally on recruiting a sales manager connected to b, and not making any marketing effort toward b - which happens with probability p_4 - the probability to sell to b writes: $p_m \times (\alpha + \beta)$.

- Conditionally on making a marketing effort toward b, and not recruiting a sales manager connected to b - which happens with probability p_3 - the probability to sell to b writes: $p_m \times (\alpha + \delta)$.

- Conditionally on making a marketing effort toward b and recruiting a sales manager connected to b - which happens with probability p_2 - the probability to sell to b writes: $p_m \times (\alpha + \beta + \delta)$.

Probability for a firm to sell jointly to two buyers We can then write the probability for a firm to sell jointly to two buyers of the poached firm. Table 8 illustrates all the cases that arise after taking the independent draws for buyer b and buyer b'. For instance, the cell in the first row and first column indicates that the probability to sell to buyer b, conditionally on the draw for buyer b being 'neither marketing nor recruiting' and the draw for buyer b' being 'neither marketing nor recruiting', is equal to $p_m \alpha$. The probability to sell to buyer b', with the same draws, is also $p_m \alpha$. Obtaining the draw 'neither marketing nor recruiting' for both buyer b and buyer b' happens with probability p_1^2. Let us take another example, looking at the cell on the fourth row and first column. The probability to sell to buyer b', conditionally on the draw for buyer b being 'recruiting' and the draw for buyer b' being 'nothing', is equal to $p_m(\alpha + \beta)$, because we assume that the effect of the recruitment for buyer b applies for buyer b'. This combination of the two draws happens with probability $p_1 p_4$.

Table 8: Probability sell to buyer b and to sell to buyer b', depending on the cases

(proba to sell to b, proba to sell to b')

Draw for b / Draw for b'	nothing	marketing + recruiting	marketing	recruiting
nothing	(α, α)	$(\alpha+\beta, \alpha+\beta+\delta)$	$(\alpha, \alpha+\delta)$	$(\alpha+\beta, \alpha+\beta)$
marketing + recruiting	$(\alpha+\beta+\delta, \alpha+\beta)$	$(\alpha+\beta+\delta, \alpha+\beta+\delta)$	$(\alpha+\beta+\delta, \alpha+\beta+\delta)$	$(\alpha+\beta+\delta, \alpha+\beta)$
marketing	$(\alpha+\delta, \alpha)$	$(\alpha+\beta+\delta, \alpha+\beta+\delta)$	$(\alpha+\delta, \alpha+\delta)$	$(\alpha+\beta+\delta, \alpha+\beta)$
recruiting	$(\alpha+\beta, \alpha+\beta)$	$(\alpha+\beta, \alpha+\beta+\delta)$	$(\alpha+\beta, \alpha+\beta+\delta)$	$(\alpha+\beta, \alpha+\beta)$

Associated probabilities

	nothing	marketing + recruiting	marketing	recruiting
nothing	p_1^2	$p_1 p_2$	$p_1 p_3$	$p_1 p_4$
marketing + recruiting	$p_1 p_2$	p_2^2	$p_2 p_3$	$p_2 p_4$
marketing	$p_1 p_3$	$p_2 p_3$	p_3^2	$p_3 p_4$
recruiting	$p_1 p_4$	$p_2 p_4$	$p_3 p_4$	p_4^2

Note: This Table indicates in its top half the probabilities (divided by p_m) to sell to buyers b and b' depending on the draws of the firm for buyer b and b'. We display the associated probabilities for each case in the bottom part of the Table. The main assumptions we make are that: i) the initial draws for buyer b and b' are independent ii) if the draw for one of the buyers includes 'recruiting', then the effect β of the recruitment applies to both buyers. For instance, the first cell indicates that the probability to sell to buyer b, conditionally on the draw for buyer b being 'neither marketing nor recruiting' and the draw for buyer b' being 'neither marketing nor recruiting', is equal to $p_m \alpha$. The probability to sell to buyer b', with the same draws, is also $p_m \alpha$. This combined draw happens with probability p_1^2. Let us take another example, looking at the cell on the fourth row and first column. The probability to sell to buyer b', conditionally on the draw for buyer b being 'recruiting' and the draw for buyer b' being 'nothing', is equal to $p_m(\alpha + \beta)$. This combination of two draws happens with probability $p_1 p_4$.

By combining those different cases we obtain that the probability to sell to both the buyer b and the buyer b' conditionally on not recruiting writes:

$$e_3 = P(sell\ to\ b\ and\ b'|not\ recruiting)$$
$$= p_m \left(\frac{p_1^2}{(p_1 + p_3)^2}\alpha^2 + \frac{p_3^2}{(p_1 + p_3)^2}(\alpha + \delta)^2 + \frac{2p_1 p_3}{(p_1 + p_3)^2}\alpha(\alpha + \delta) \right)$$

The formula is derived through combining the cases of Table 8. $(p_1 + p_3)^2$ is the probability that neither buyer b nor buyer b' enjoys the effect β of the recruitment: it is the probability that none of the buyer b and the buyer b' had a draw including 'recruiting'. Conditionally on neither of them enjoying the effect of the recruitment, the probability that neither enjoys the effect δ of the marketing is p_1^2. In this case, the probability to sell to both buyers b and b' is $p_m\alpha^2$. Conditionally on neither of them enjoying the effect of the recruitment, the probability that both of them enjoy the effect δ of the marketing is p_3^2. In this case, the probability to sell to both buyers b and b' is $p_m(\alpha + \delta)^2$. Conditionally on neither of them enjoying the effect of the recruitment, the probability that exactly one of them enjoy the effect δ of the marketing is $2p_1 p_3$. In this case, the probability to sell to both buyers b and b' is $p_m\alpha(\alpha + \delta)$.

The probability to sell to both the buyer b and the buyer b' conditionally on recruiting writes:

$$e_4 = P(sell\ to\ b\ and\ b'|recruiting)$$
$$= p_m \left(\frac{p_4^2 + 2p_1 p_4}{1 - (p_1 + p_3)^2}(\alpha + \beta)^2 + \frac{p_2^2 + 2p_2 p_3}{1 - (p_1 + p_3)^2}(\alpha + \beta + \delta)^2 + \frac{2(p_1 p_2 + p_2 p_4 + p_3 p_4)}{1 - (p_1 + p_3)^2}(\alpha + \beta)(\alpha + \beta + \delta) \right)$$

Recovering the recruitment effect β from the model moments The moments e_1, e_2, e_3 and e_4 enable us to recover β. First, p_m is identified from e_1 and e_3, as $p_m = \frac{e_1^2}{e_3}$. Second, conditionally on p_m, β is identified using e_1, e_2 and e_4. β writes:

$$\beta = \frac{1}{2p_m(p_1 + p_3)e_2} \times \left[e_2^2(p_1 + p_3 - 1) + e_4 p_m(p_1 + p_3 + 1) - 2(p_1 + p_3)e_1 e_2 \right]$$

E.2 Computing the data moments

We compute e_1 and e_3 directly from the data. We can then compute e_2 using our main event-study, i.e. the estimation of Equation (2). Through an additional event-study, we estimate the correlation ϕ_k between the sales manager's recruitment and the probability to export to buyers b, conditionally on selling to b', k years after/before the sales manager's recruitment. Formally, we estimate:

$$1(sell\ to\ b|selling\ to\ b'\ and\ recruiting\ from\ firm\ serving\ b)_{fbt} =$$
$$\sum_{k=-4}^{k=4} \phi_k 1\{t = t_{fb} + k\} \times 1\{sales\ manager\} + \sum_{k=-4}^{k=4} \delta_k 1\{t = t_{fb} + k\} + \gamma_{fb} + \gamma_{fct} + \gamma_{bt} + \epsilon_{fbt}$$

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where t_{fb} is the year of the recruitment by firm f of a sales manager from a firm selling to buyer b. γ_{bt}, γ_{fb} and γ_{fct} denote respectively buyer-year, firm-buyer b, firm-country-year fixed effects. We use the same empirical specification as for Equation (2) for a better comparability of results.

ϕ_1 is the increase in the probability to sell to b, conditional on selling to b', one year after the recruitment of a sales manager. Therefore:

$$\phi_1 = P(sell\ to\ b|sell\ to\ b'\ and\ recruit) - P(sell\ to\ b|sell\ to\ b'\ and\ not\ recruit)$$

$$= P(sell\ to\ b|sell\ to\ b'\ and\ recruit) - \frac{P(sell\ to\ b\ and\ b'|not\ recruit)}{P(sell\ to\ b'|not\ recruit)}$$

$$= P(sell\ to\ b|sell\ to\ b'\ and\ recruit) - \frac{e_3}{e_1}$$

We then obtain e_4 as follows:

$$e4 = e2 \times P(sell\ to\ b|sell\ to\ b'\ and\ recruit) = e_2 \times \left(\frac{e_3}{e_1} + \phi_1\right)$$

F   Heterogeneity tests for Section II

Sales manager characteristics We split our main event-study according to some sales-manager observable characteristics. We consider the sales manager's wage and hierarchical position within the firm. Figure F.1a and Figure F.1b show that high-hierarchy and high-wage sales managers drive the results.

(a) Wage

(b) Hierarchical level
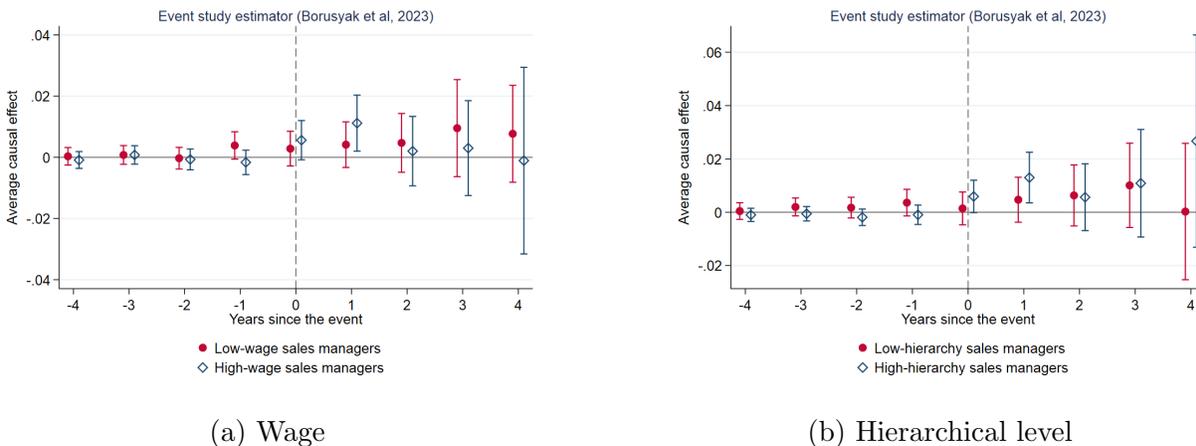
Figure F.1: The effect of recruiting on the probability to sell to a buyer - by sales-manager characteristics

Notes: The graphs display the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b, k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.

Firm characteristics Figure F.2a shows that the recruitment effect is relatively similar for small recruiting firms - in terms of number of employees - and for large firms. Figure F.2c shows that the effect is higher when the recruiting firm does export to the buyer's country at the beginning of the period . Last, we show in Figure F.2d that the effect is driven by recruiting firms who belong to a sector not dominated by a few large exporters. We compute the Herfindahl index of exports for each 2-digit sector. We find that the effect is stronger when the recruiting firm belongs to a sector not dominated by a few large exporters: the recruitment effect is larger when both sales managers and previous buyers have a lot of alternatives to choose from, which might correspond to cases for which buyer-specific knowledge is more important to establish a new buyer-supplier relationship.
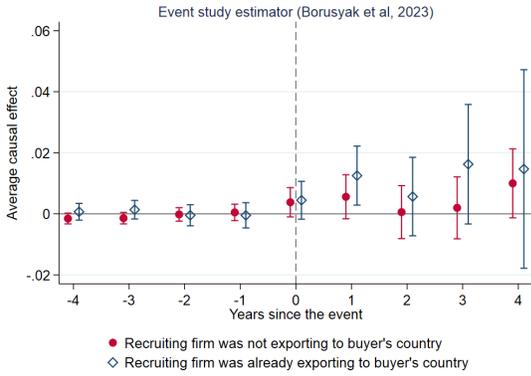
Country characteristics We show in Figure F.3a that the effect is slightly larger for countries close to France. Figure F.3b shows that the effect is non-monotonous in the market size of the country.
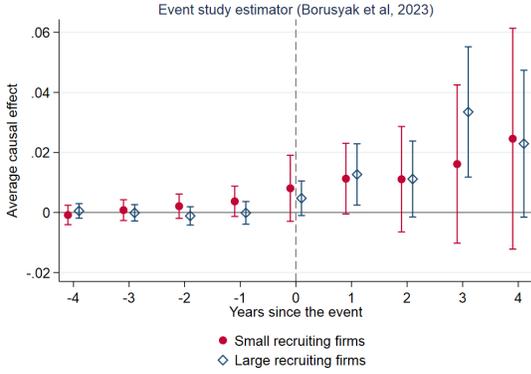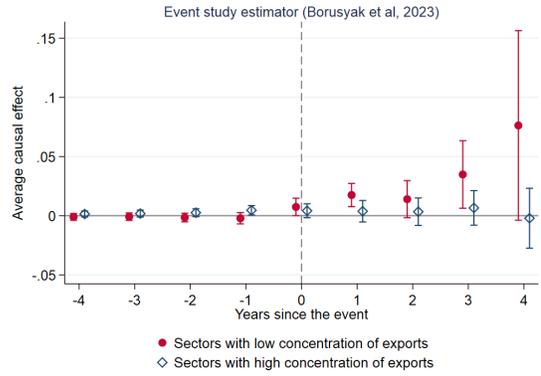
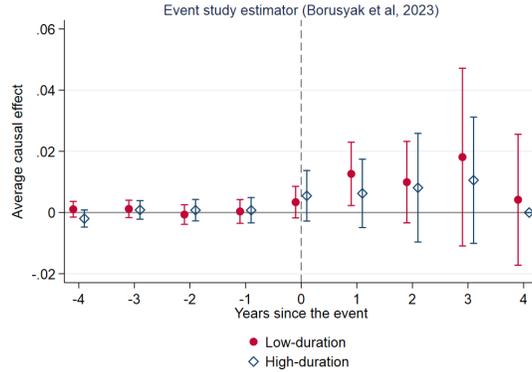(a) Recruiting firm's number of employees
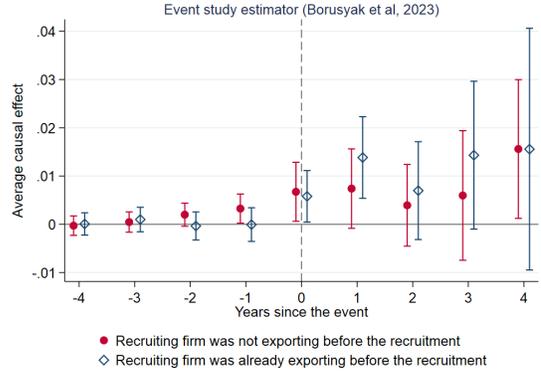
(b) Whether recruiting firm exports in $t-1$

(c) Whether recruiting firm exports to buyer's country in $t-1$


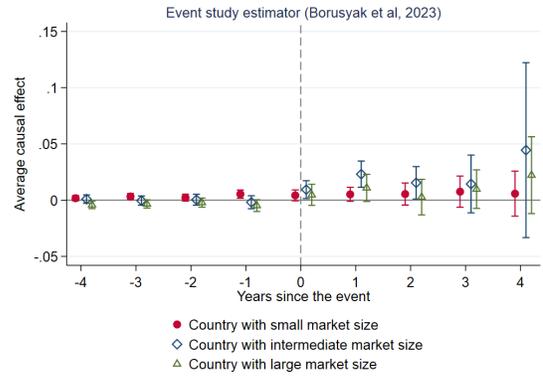(d) Sectors with low/high concentration of exports

(e) Duration of relationship between poached firm and buyer

Figure F.2: The effect of recruitment by firm's characteristics

Notes: The graphs display the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b, k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level. In panel (a) we split the sample according to the number of employees in the recruiting firm. In panel (b) we split the sample according to whether the recruiting firm exports the year before the recruitment. In panel (c) we split the sample according to whether the recruiting firm exports to the buyer's country the year before the recruitment. In panel (d) we split the sample according to the sectoral concentration of exports. More specifically, we compute the Herfindahl index of exports for each 2-digit sector, and split the sample into sectors dominated by a few large exporters and other sectors. In panel (e) we split the sample between long buyer-supplier durations and short buyer-supplier durations.
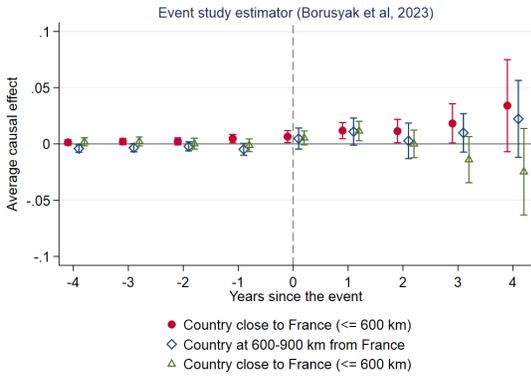
(a) Distance of country to France   (b) Country's market size

Figure F.3: The effect of recruitment according to the country of the foreign buyer

Notes: The graphs display the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b, k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level. In panel (a) we split the sample according to the distance of the foreign buyer's country to France. In panel (b) we split the sample according to the country's market size.

G   Robustness tests for Section II

Simple Difference in Difference In our main specification, we perform a triple Difference-in-Difference, in which we compare the effect of recruiting a sales manager versus recruiting an other type of manager. We display in Figure G.1 the results when performing a simple Difference-in-Difference: we estimate the effect of the recruitment of a connected sales manager on the probability to sell to a buyer. The effect in simple Difference-in-Difference is very close, both qualitatively and quantitatively, to our main effect. We exhibit in Figure G.2 the result of the triple Difference-in-Difference using the OLS estimator: results are qualitatively unchanged, though the OLS estimate is slightly downward-biased as compared to the estimate using Borusyak et al. (2022).

Intensive margin We study the effect of a sales manager's recruitment, versus another type of recruitment, on the log value of exports toward a given buyer. We exhibit the results in Figure G.3: we find that one year after the recruitment, the firm sees an increase of its exports toward the connected buyer by 10.1 percentage points.

Non-compete agreements There exist some legal clauses which impede workers' job-to-job transitions: non-compete agreements. Such agreements can be signed between a worker and a firm and subsequently forbid workers from going to work for a rival firm after they leave the firm.[6] Starr et al. (2019) find that the noncompete incidence increases with the employer's size and with the worker's skill. We show in Figure G.4 that our results are robust to excluding the most-skilled workers or the largest firms. In Figure G.4a, we estimate Equation (2) by restricting the sample respectively to: recruiting firms below the 8th employment decile, below the 9th employment decile, below the 95th employment centile and below the 99th employment centile the year of the recruitment. The recruitment effect in year t is virtually unaffected by these sample restrictions. Figure G.4b performs a similar exercise by restricting the sample respectively to: sales managers below the 8th wage decile, below the 9th wage decile, below the 95th wage centile and below the 99th wage centile. Once again, the magnitude of the results is very stable across those samples, and more importantly, not significantly different from the main estimate displayed in Figure 5. Figure G.4 overall shows that our results are not driven by a subset of firms and workers that are the most likely to sign non-compete agreements.

Fixed effects included We run the main estimation including different sets of fixed effects, and exhibit the results in Figure G.5. In panel (a) we exhibit the results for our main sample, and in panel (b) the results on a sample with never-treated observations, which corresponds to the sample of Figure D.2a. We use the estimator by Borusyak et al. (2022) throughout. We also show the results in Table 9 for our main sample. The first set of points - in pink - exhibits the results with firm × buyer fixed effects and year fixed effects. The second set of points - in blue - exhibits the results with firm-buyer and buyer-year fixed effects. The

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[6]In France, to be valid, such agreements: i) must be essential to protect the employer's legitimate interests, ii) shall be limited to a specific time period, to a geographical area and shall take the characteristics of the employee's job into account, and iii) must provide for a financial counterpart, i.e. workers should get paid to sign this non-compete.

third set of points - in green - exhibits the result with firm-buyer, buyer-year and firm-year fixed effects. The fourth set of points - in yellow - is our main specification, which includes firm-buyer, buyer-year and firm-country-year fixed effects. In panel (a), the only specification in which the effect is not significant is the third one. Note though that the results are less sensitive to the inclusion of fixed effects in our sample with never-treated observations, displayed in panel (b). In this sample, the inclusion of firm-buyer, firm-country-year and buyer-year fixed effects is the most conservative specification. A potential explanation for this lower sensitivity is the higher number of control observations - in this sample only 108,386 firm-buyer pairs are treated, out of the 5,870,996 pairs of this sample - which may increase the precision of the estimation of the fixed effects.

Falsification test As a falsification test, we re-run the analysis using placebo years for sales-manager recruitments. For a given firm × buyer, we assign a random year for the recruitment of the connected sales manager. Figure G.6 displays the results: there is no significant impact of sales-manager recruitment on the probability of starting to sell to a connected buyer.

Firms in the same Business Group In France, around half of employees work in firms that belong to what are called business groups. These allow firms to reallocate workers across firms within the same business groups in a more-seamless way, and thus to more-easily adjust to any shocks (Cestone et al., 2018). Sales managers who move across firms in the same business group may do so in response to negative shocks borne by the origin firm, or positive shocks to the destination firm. We carry out the same event study as in the main specification, but exclude sales managers who move between firms in the same business group. Figure G.7 shows the results, which are qualitatively and quantitatively unchanged.

Sales managers changing occupations In our main estimation, we defined as sales managers the workers who were sales managers in their previous firm, as they are the ones likely to be connected to their firm's buyers. Yet, we did not use any restriction on the worker's occupation in her recruiting firm. 55% of the sales managers who leave a firm remain sales managers in their new firm. For the 45% others, they predominantly take another manager position in their new firm. Figure G.8 shows that our effect is unchanged when we restrict the sample to sales managers who remain sales managers in their new firm.

Clustering of standard errors We display in Figure ?? the equivalent of Figure 5 but with different ways to cluster the standard errors. In our baseline specification, we cluster the standard errors at the firm-year level. Yet, error terms might also be correlated within buyer-year and within buyer-firm pairs over time. Figure ?? shows that our results remain significant at the 95% level no matter the level of clustering of the standard errors that we use.

Excluding advertising and marketing managers Our main definition of sales managers is relatively broad. As a robustness test, we exclude advertising and marketing managers from our sample. Namely, we exclude the four following occupations: 'Advertising, public relations (self-employed or salaried) assistants', 'Product managers, commercial buyers and other marketing executives', 'Public Relations and Communication Officers' and

'Advertising executives'. We show in Figure G.10 that the results are qualitatively and quantitatively unchanged when using this restricted definition of sales managers.

A caveat of our main analysis is that it is challenging to preclude the existence of marketing efforts, which would occur simultaneously to the sales manager's recruitment, from partially driving our result. Here we count the number of marketing and communication managers in each firm, and show in Figure G.11 its evolution over time, as compared to the recruitment year. We adopt the narrow definition of sales managers, i.e. without advertising and marketing managers, in order not to capture the mechanical increase of such marketing managers. We see no sensible increase in the lead up or at treatment. This result indicates that firms do not usually hire advertising or marketing managers simultaneously to the recruitment of a sales manager, which may indicate that sales and marketing efforts are not necessarily simultaneous within the firm.

Including all job-to-job transitions In our main estimation, we restrict job-to-job transitions to job spells that are under 40 days apart. Job spells that are under 40 days apart constitute 63.1% of the total job-to-job transitions in 2012. As a robustness test, we reproduce our main result including all types of transitions. Figure G.13 shows that one year after the recruitment of a sales manager, the probability to sell to a buyer b connected to the hired sales manager increases by 0.66 percentage points. Two years after the recruitment, the probability increases by 0.71 percentage points. Those numbers are to be compared with 1.11 and 0.61 percentage points, which were the effects obtained when excluding job spells that were under 40 days apart. Results are therefore qualitatively unchanged, although the timing of the effect is slightly different.

Quarterly data Annual data may not suffice to spot differential trends across firm-buyer pairs. We thus disaggregate the analysis at the quarterly level, and estimate the outcome for each quarter after the sales manager was hired, as compared to the quarter before the hire. Figure G.14 displays the results. There is no significant effect of sales-manager recruitment in the quarters before hiring, but one quarter after the sales manager's recruitment, the probability of selling to the connected buyer rises by 0.00078 percentage points. This effect lasts for around eight quarters. Were marketing expenditures targeted at buyer b to drive our results, but not appear in the quarterly pre-trends, they would have to occur in the exact same quarter as the sales manager's recruitment: this overall seems unlikely.
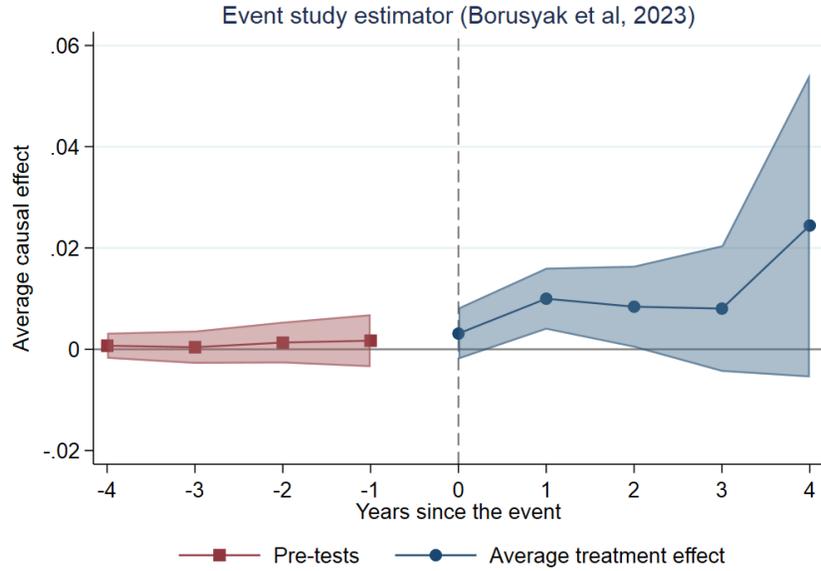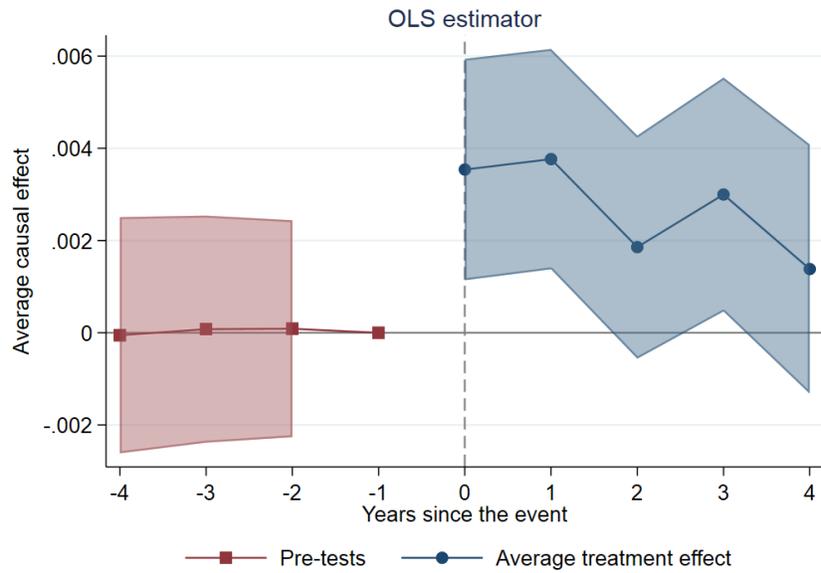
Figure G.1: The effect of recruiting on the probability to sell to a buyer - simple difference-in-difference

Notes: The graph displays the estimated β_k coefficients, $k \in [-4, 4]$, from Equation (2), which correspond to the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b k quarters before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022), in simple difference-in-difference. The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.
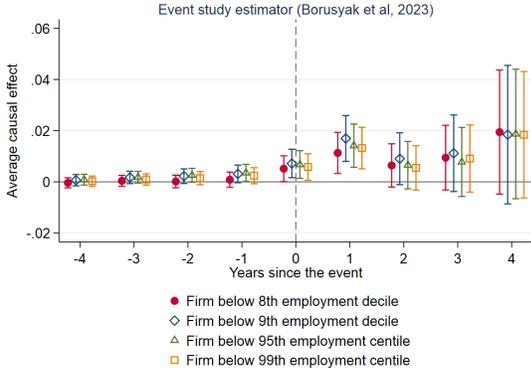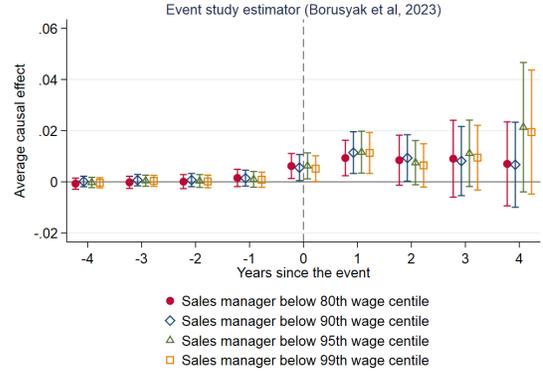
Figure G.2: The effect of recruiting on the probability to sell to a buyer - triple difference-in-difference using the OLS estimator

Notes: The graph displays the estimated β_k coefficients, $k \in [-4, 4]$, from Equation (2), which correspond to the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b k quarters before/after the recruitment. The estimation is carried out using the OLS in triple difference-in-difference. The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.
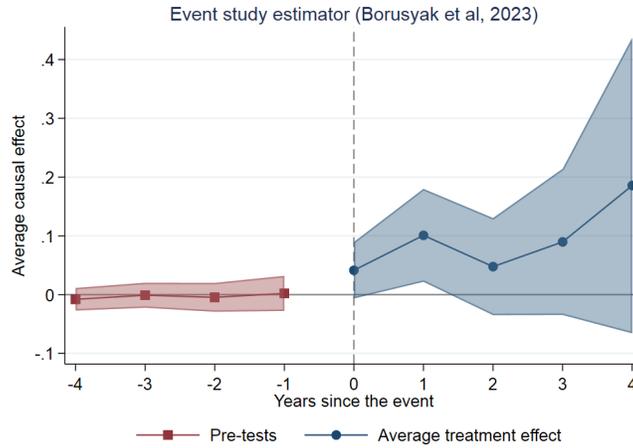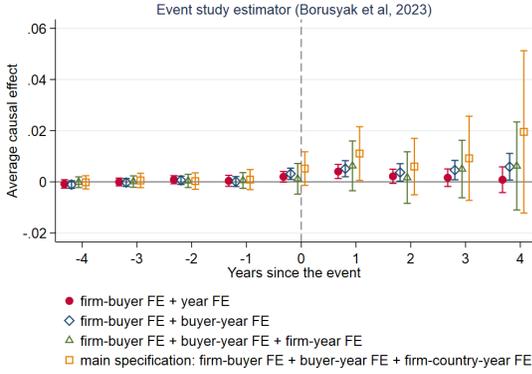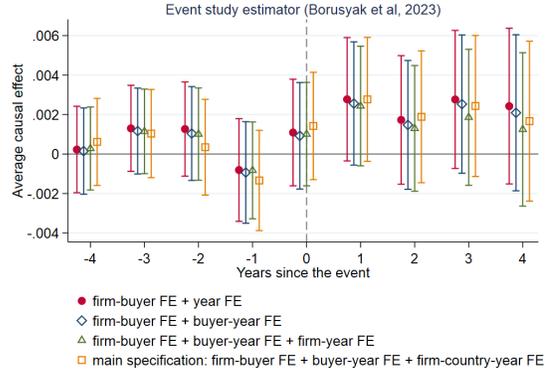
Figure G.3: The effect of recruiting a sales manager connected to a buyer on the log value of exports toward this buyer

Notes: This graph displays the estimated β_k coefficients, $k \in [-4, 4]$, from Equation (2), with as the outcome variable the log of exports by firm f toward a given buyer b in year t. The coefficients β_k therefore correspond to the effect of recruiting a sales manager from a firm selling to buyer b on the log value of exports toward this buyer b k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.

(a) Employment centiles

(b) Wage centiles

Figure G.4: The effect of recruiting on the probability to sell to a buyer - depending on the firm's employment decile and on the worker's wage decile

Notes: The graph displays the estimated β_k coefficients, $k \in [-4, 4]$, from Equation (2), which correspond to the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022), and is done for different sub-samples, excluding the most highly-paid sales managers and the largest firms. The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.

(a) Main sample

(b) Sample with never-treated observations - sample from Appendix D.2.(a)

Figure G.5: The effect of recruiting a sales manager connected to a buyer on the probability to sell to this buyer - different sets of fixed effects

Notes: The graph displays the estimated β_k coefficients, $k \in [-4, 4]$, from Equation (2), which correspond to the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b, k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm × foreign buyer pair. In panel (a) we exhibit the results for our main sample, and in panel (b) the results on a sample with never-treated observations, which corresponds to the sample of Appendix D.2. (a). We include different sets of fixed effects: the cranberry estimates are produced using firm-buyer and year fixed effects, the navy estimates are produced using firm-buyer and buyer-year fixed effects, the green estimates are produced using firm-buyer, buyer-year and firm-year fixed effects, the orange estimates are produced using firm-buyer, buyer-year and firm-country-year fixed effects. The latter corresponds to our main specification, written in Equation (2). 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.

Table 9: The effect of recruiting a sales manager connected to a buyer on the probability to sell to this buyer - different sets of fixed effects

	(1)	(2)	(3)	(4)
t-4	-0.0008167	-0.001064	-0.0001452	-0.0001953
	(-1.2821)	(-1.8485)	(-0.1789)	(-0.1948)
t-3	-0.00004056	-0.0002680	0.00009763	0.0005339
	(-0.06900)	(-0.4482)	(0.1123)	(0.4893)
t-2	0.0008382	0.0006095	0.0003662	0.0002919
	(1.3690)	(0.9498)	(0.3660)	(0.2329)
t-1	0.0003935	0.00009435	0.0005193	0.0008696
	(0.4717)	(0.1248)	(0.4366)	(0.5724)
t	0.001980**	0.003150**	0.001193	0.005200**
	(2.4645)	(3.6786)	(0.5135)	(2.0374)
t+1	0.004045***	0.005134***	0.006248*	0.01108***
	(3.7789)	(4.2118)	(1.6566)	(2.7225)
t+2	0.002160**	0.003679***	0.001657	0.006090
	(2.0065)	(2.7717)	(0.4233)	(1.4229)
t+3	0.001612	0.004592**	0.004991	0.009593
	(1.2131)	(3.1327)	(1.1426)	(1.5040)
t+4	0.0008190	0.005917**	0.006207	0.01953
	(0.4193)	(2.9313)	(0.9291)	(1.5870)
No. obs	3,972,487	3,706,496	3,220,750	3,030,969

Note: The graph displays the estimated β_k coefficients, $k \in [4, 4]$, from Equation (2), which correspond to the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm $\times$ foreign buyer pair. Column (1) uses firm-buyer and year fixed effects. Column (2) uses firm-buyer and buyer-year fixed effects. Column (3) uses firm-buyer, buyer-year and firm-year fixed effets. Column (4) uses firm-buyer, buyer-year and firm-country-year fixed effects. The latter corresponds to our main specification, written in Equation (2). Standard errors are clustered at the firm-year level. t-statistics are displayed in parentheses.
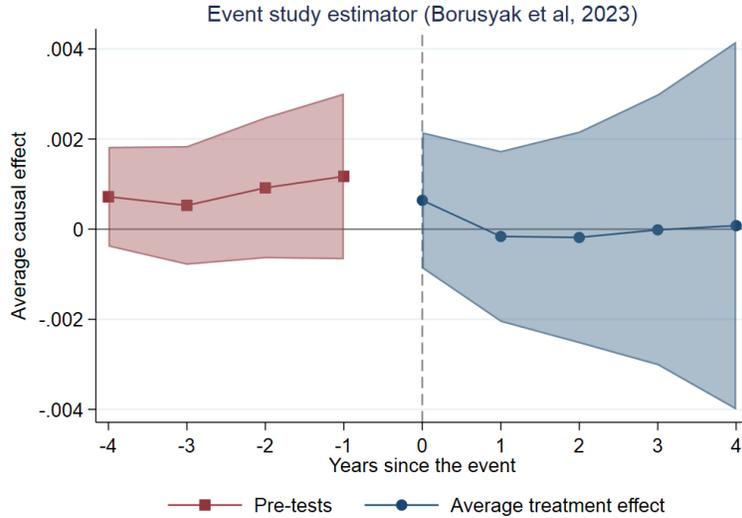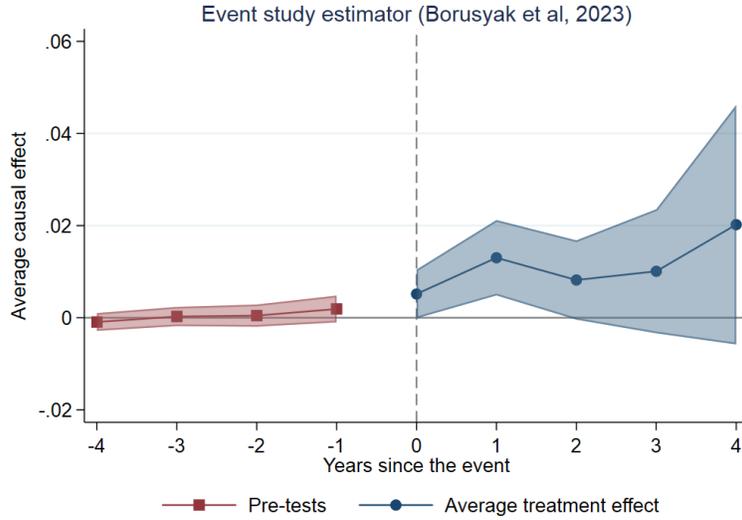
Figure G.6: The effect of recruiting a sales manager connected to a buyer on the probability to sell to this buyer - falsification test with random recruitment years

Notes: The graph displays the estimated β_k coefficients, $k \in [-4, 4]$, from Equation (2), which correspond to the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b, k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level. We attribute random years of recruitment to each French firm × foreign buyer pair as a falsification test.
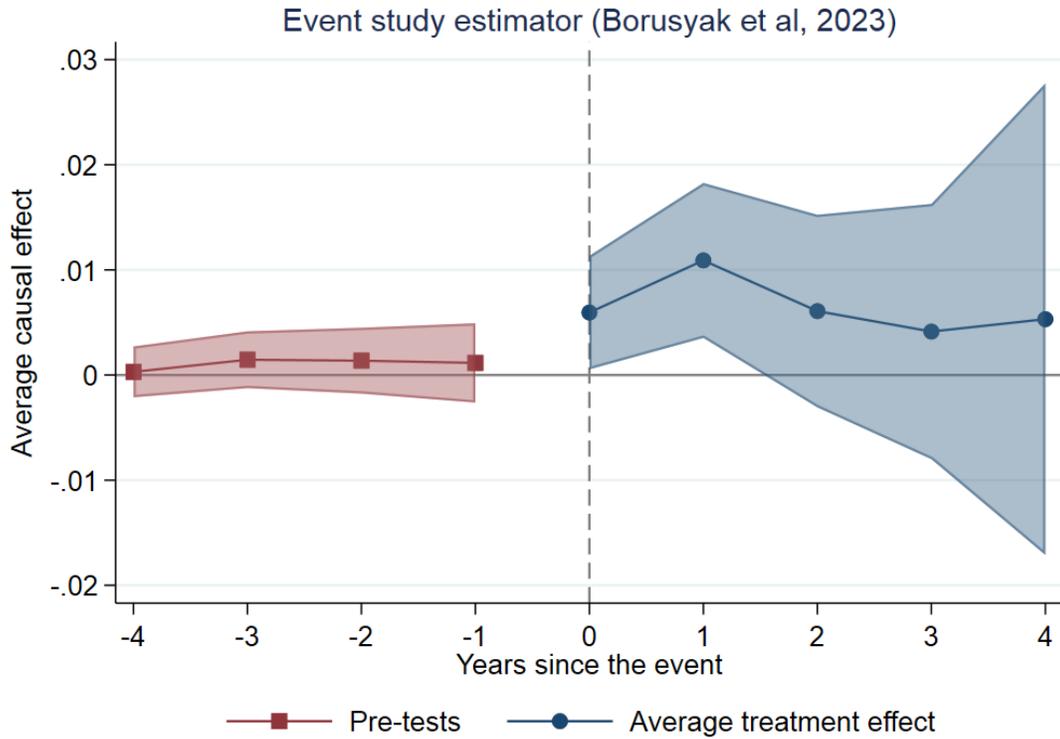
Figure G.7: The effect of recruiting a sales manager connected to a buyer on the probability to sell to this buyer - excluding firms in the same business group

Notes: The graph displays the estimated β_k coefficients, $k \in [-4, 4]$, from Eq (2), which correspond to the effect of recruiting a worker from a firm selling to buyer b on the probability to sell to buyer b, k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level. The sample excludes firms that recruit a sales manager from the same business group.
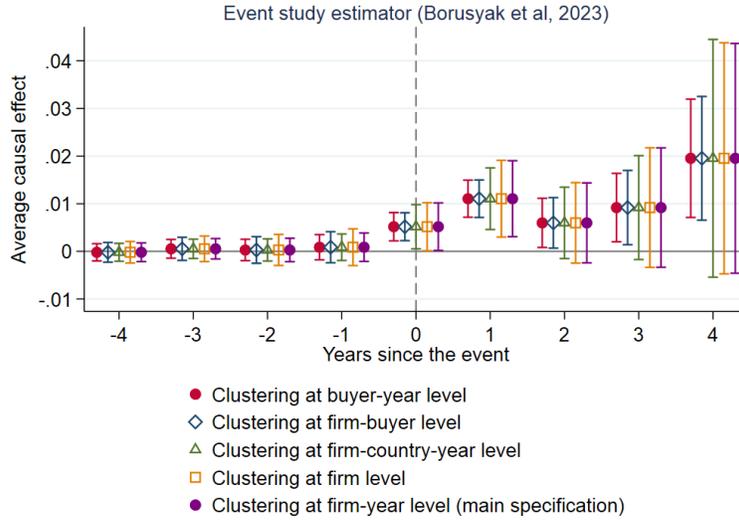
Figure G.8: The effect of recruiting a sales manager connected to a buyer on the probability to sell to this buyer - sales manager who remain sales manager after the recruitment

Notes: The graph displays the estimated β_k coefficients, $k \in [-4, 4]$, from Equation (2), which correspond to the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b, k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. We select sales managers who remain sales managers in their recruiting firm. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.

Figure G.9: The effect of recruiting a sales manager connected to a buyer on the probability to sell to this buyer - different levels of clustering of standard errors

Notes: The graph displays the estimated β_k coefficients, $k \in [-4, 4]$, from Equation (2), which correspond to the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b, k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm $\times$ foreign buyer pair. Firm $\times$ country $\times$ year, buyer $\times$ year and firm $\times$ buyer fixed effects are included. 95% confidence intervals are displayed. In the first set of estimates, standard errors are clustered at the firm-year level. In the second set they are clustered at the firm $\times$ buyer level. In the third set they are clustered at the buyer $\times$ year level. In the fourth set they are clustered at the firm $\times$ year and buyer $\times$ year level.
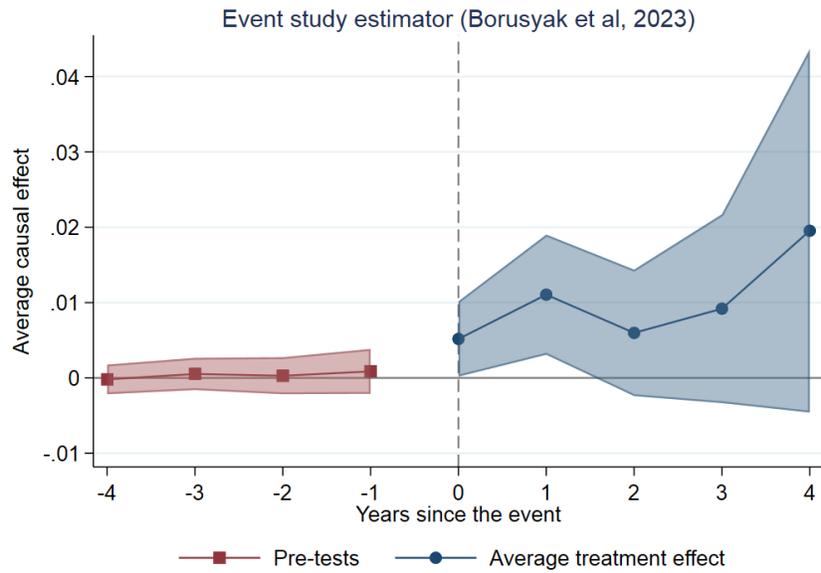
Figure G.10: The effect of recruiting on the probability to sell to a buyer - excluding advertising and marketing managers

Notes: The graph displays the estimated β_k coefficients, $k \in [-4, 4]$, from Equation (2), which correspond to the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.
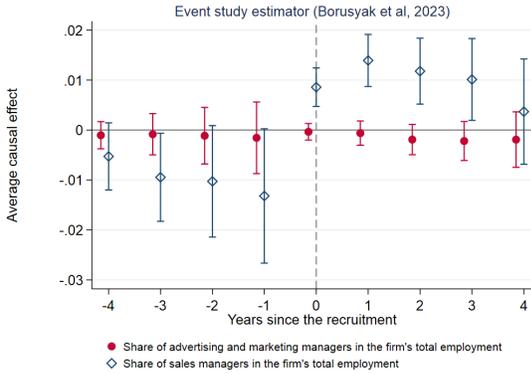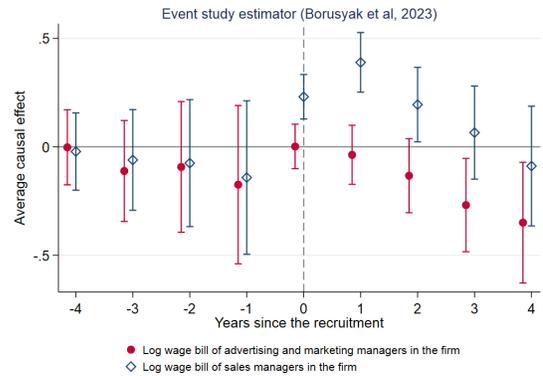
(a) Share of the firm's employment
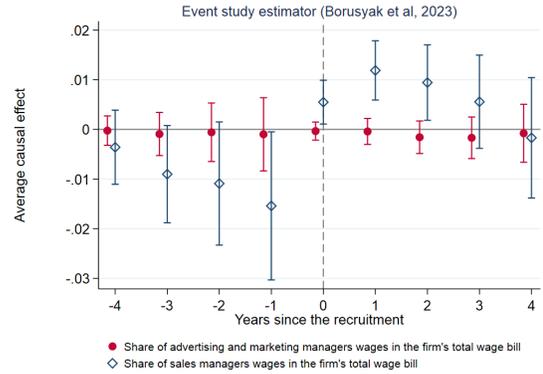
(b) Share of the firm's wage bill
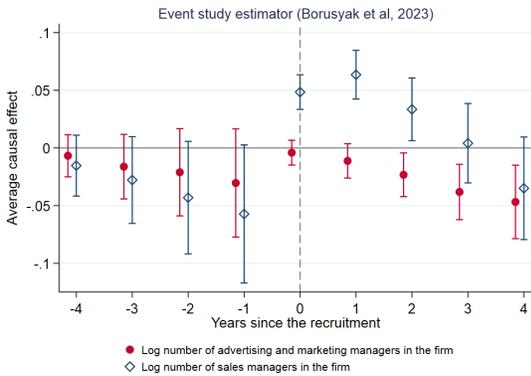
(c) Log number of workers

(d) Log wage bill

Figure G.11: Number of advertising and marketing managers, before and after the recruitment of sales managers

Notes: The graphs display the firms' evolution of number and wage bill of sales managers versus advertising and marketing managers, before and after the recruitment of a sales manager. We use here the narrow definition of sales managers, from which we exclude advertising and marketing managers. Aadvertising and marketing managers correspond to the four following occupations: 'Advertising, public relations (self-employed or salaried) assistants', 'Product managers, commercial buyers and other marketing executives', 'Public Relations and Communication Officers' and 'Advertising executives'. Each set of data points corresponds to an event-study estimation, using the estimator of Borusyak et al. (2022). We use firm and year fixed effects, and cluster the standard errors at the firm level. The top-left panel exhibits the evolution of the share of sales managers, versus advertising and marketing managers, in the firm's employment, before and after the recruitment of a sales manager. The top-right panel exhibits the evolution of the share of the total wage bill of these two types of managers. The bottom-left panel exhibits the evolution of the total number of employees of these two types of managers. The bottom-right panel exhibits the evolution of the total wage bill of these two types of managers. Confidence intervals at the 95% level are displayed.
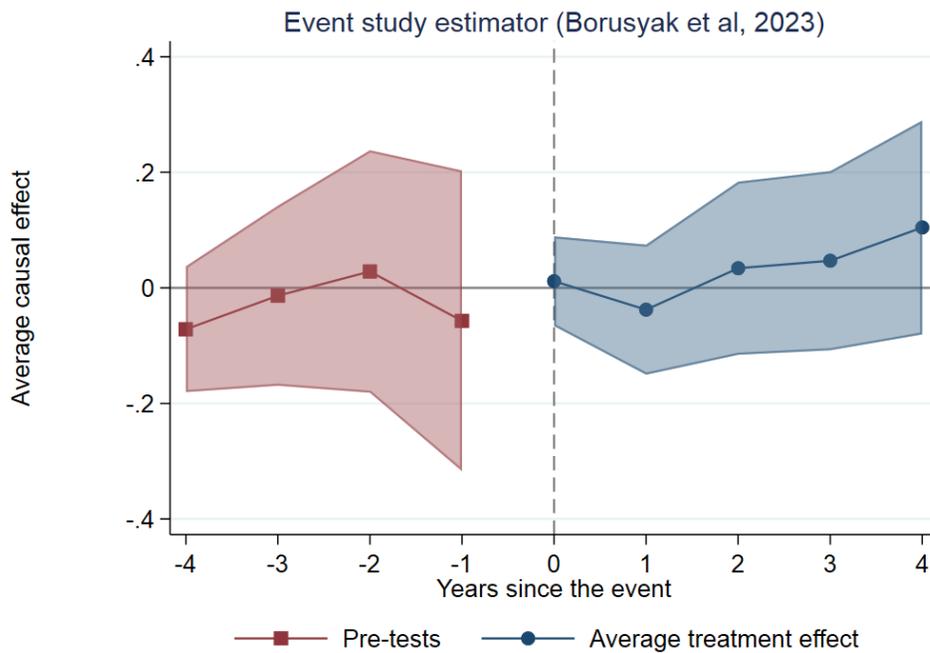
Figure G.12: Amount spent on advertising, publications and public relations, before and after the recruitment of sales managers

Notes: The graph displays the firms' evolution of advertising expenditures. The amount spent on advertising, publications and public relations is recorded over time in three French datasets: EAE (available until 2007), ESA-EAP (available from 2009 to 2011) and ESA (available from 2013 to 2017). The event-study estimation is performed using the estimator of Borusyak et al. (2022). We use firm and year fixed effects, and cluster the standard errors at the firm level. Confidence intervals at the 95% level are displayed.
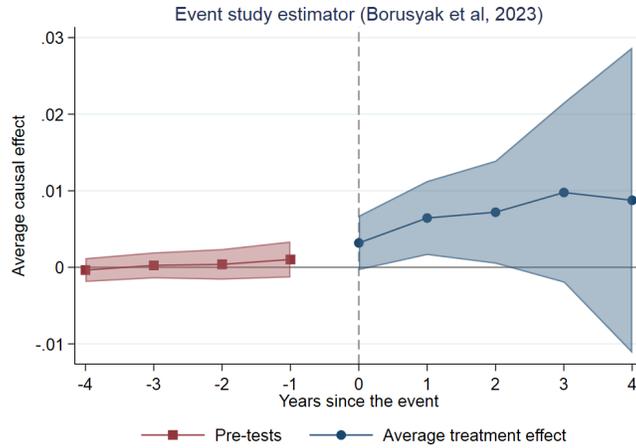
Figure G.13: The effect of recruiting a sales manager connected to a buyer on the probability to export to this buyer - with no restriction on job spells

Notes: This graph displays the estimated β_k coefficients, $k \in [-4, 4]$, from Equation (2), which correspond to the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b k years before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year and firm × buyer fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level. In our main estimation, which results are displayed in Figure 5, we restrict job-to-job transitions to job spells that were under 40 days apart. Job spells that are under 40 days apart constitute 63.1% of the total job-to-job transitions in 2012. As a robustness test, we reproduce here our main estimation including all types of transitions.
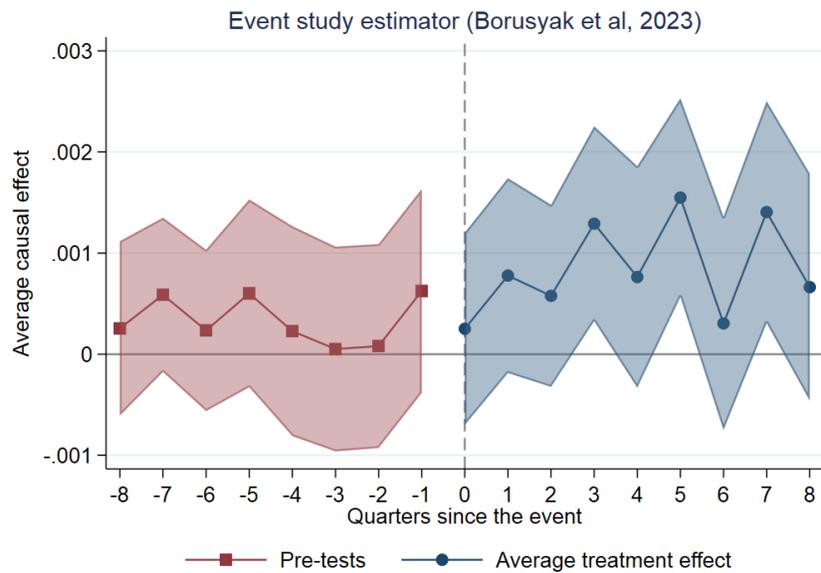
Figure G.14: The effect of recruiting on the probability to sell to a buyer - quarterly estimation

Notes: The graph displays the estimated β_k coefficients, $k \in [-4, 4]$, from Equation (2), which correspond to the effect of recruiting a sales manager from a firm selling to buyer b on the probability to sell to buyer b k quarters before/after the recruitment. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, buyer × year, firm × buyer and quarter fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.

H   Additional results on business stealing

Alternative sample For the business stealing analyses, whose results are depicted in Figures 9, 10 and 11, we restrict the analysis to foreign buyers of our main sample - i.e. sample of column (1) of Table 6- and which form at least one new relationship in the period with a French supplier recruiting a sales manager. The year of the new relationship is denoted as the treatment year, and we study the probability to sell to this buyer, before and after the treatment. Here we perform the business stealing analysis when not restricting the foreign buyers to those of our main sample, but still forming at least one new relationship in the period with a French supplier which recruits a sales manager.

We select French firms exporting to a given buyer at the beginning of the period, i.e. in 2005. We conduct an analysis at the French firm × foreign buyer × year level where the outcome variable is a dummy indicating whether the French firm sells to the buyer in a given year. We estimate for firm f, buyer b and year t the following linear probability model:

$$1(\text{sell to b in t} \mid \text{sell to b in 2005})_{fbt} = \sum_{k=-4}^{k=4} \beta_k 1\{t = t_{fb} + k\} + \gamma_{fb} + \gamma_{fct} + \gamma_{bt} + \epsilon_{fbt}$$

where t_{fb} is the year that buyer b, which imported from French firm f in 2005, forms a new relationship with another French supplier. As in our specification from Section 4, we include firm × country × year fixed effects γ_{fct} to control for unobserved shocks at the firm-country level that may shift both the probability of losing a sales manager and that of losing a foreign buyer. We also control for firm × buyer fixed effects γ_{fb} and buyer × year fixed effects γ_{bt}.

The results appear in Figure H.1a, and are qualitatively and quantitatively similar to the results exhibited in Figure 9.(a) using our main sample. When a sales manager leaves a firm and brings the buyer to her new firm, the probability that the former employer of the sales manager sell to the buyer falls by 11.3 percentage points one year after the departure. This estimate is very close to the 12.6 percentage points obtained for our main analysis. Figure H.1b show that the value of the exports to the buyer falls one year after the sales manager's departure, and stays relatively stable across the years post-departure. The pattern is quantitatively similar to the results exhibited in Figure 9.(b) using our main sample.

Heterogeneity analysis We perform the business stealing analysis, depicted in Figure 9, according to the number of foreign buyers of the French firm at the beginning of the period. We display in Figure H.2 the results for small exporters versus large exporters, as defined by the number of buyers at the beginning of the period. When a sales manager leaves a firm and brings the buyer to her new firm, the probability that the former employer of the sales manager sell to the buyer falls by 44.2 percentage points one year after the departure for small exporters. The effect is much smaller for large exporters, for which the probability to sell to the buyer falls by only 11.6 percentage points. These results indicate that large exporters have a much higher ability than small firms to retain their buyers after the departure of their sales managers. Customer capital spillovers may shape the ex-ante incentives of firms to invest in building personal relationships with possible customers, and
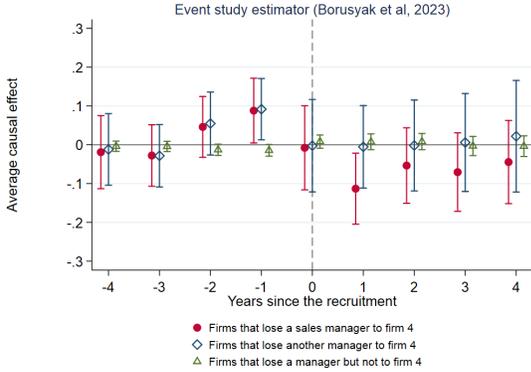
(a) Probability to sell to the buyer

(b) Log of exports toward this buyer

Figure H.1: Business-stealing: The effect of a sales manager's departure, conditional on this buyer starting to import from the recruiting firm

Notes: The graph displays the effect of a new relationship between a foreign buyer and a French firm on the buyer's other suppliers. We select French firms selling to the buyer in 2005 and calculate the effect of the new buyer-seller relationship k years before/after the departure. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). Panel (a) exhibits the result when the outcome variable is the probability to sell to buyer b each year. Panel (b) exhibits the result when the outcome variable is the log of exports to buyer b each year. We estimate the effect separately for three types of firms: (i) firms losing a sales manager to the new supplier of the buyer (in pink), (ii) firms losing another type of manager to the new supplier (in blue) and (iii) other former suppliers of the buyer (in green). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, firm × buyer and buyer × year fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.

even more so if the sales manager's initial firm loses its relationship with the buyer upon the sales manager's departure. Because business stealing effects are more important for small firms, this hold-up problem faced by firms is likely to be more acute for small firms, which might then be more prone to under-invest in their customer capital than large firms.

Clustering of standard errors Firms losing multiple sales managers appear multiple times in our dataset, which may create time-correlated shocks for a given firm. As a robustness test, we perform the business stealing analysis by clustering the standard errors at the firm level, instead of firm-year level. Figure H.3 shows that results are virtually unchanged, as compared to Figure 9.
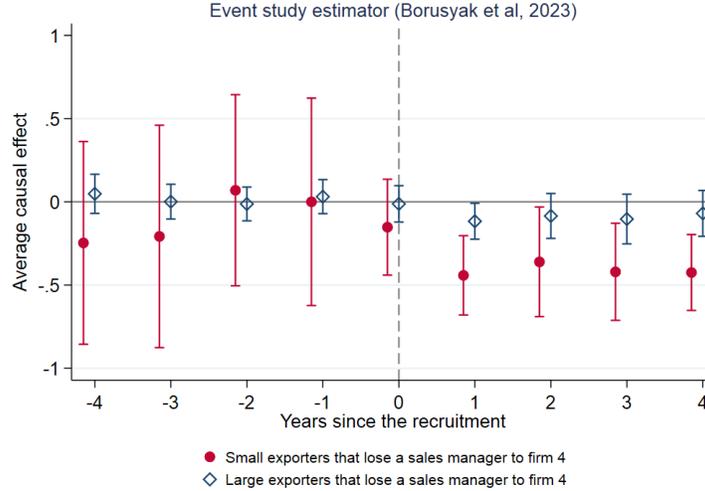
Figure H.2: Business-stealing: The effect of a sales manager's departure, conditional on this buyer starting to import from the recruiting firm

Notes: The graph displays the effect of a new relationship between a foreign buyer and a French firm on the buyer's other suppliers. We select French firms selling to the buyer in 2005 and calculate the effect of the new buyer-seller relationship k years before/after the departure. The outcome variable is the probability to sell to buyer b each year. We estimate the effect for firms losing a sales manager to the new supplier of the buyer. We display the results separately for small exporters in 2005, i.e. with a number of foreign European buyers lower than the median, and for large exporters. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). 95% confidence intervals are displayed. Standard errors are clustered at the firm-year level.
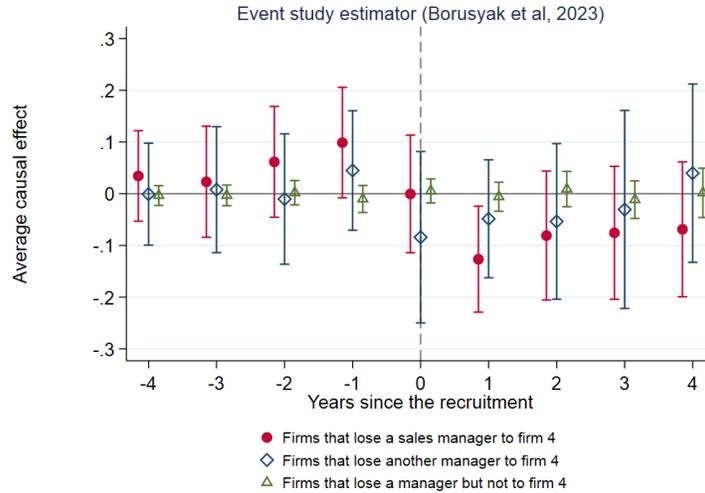

Figure H.3: Business-stealing: The effect of a sales manager's departure, conditional on this buyer starting to import from the recruiting firm - clustering at the firm level

Notes: The graph displays the effect of a new relationship between a foreign buyer and a French firm on the buyer's other suppliers. We select French firms selling to the buyer in 2005 and calculate the effect of the new buyer-seller relationship k years before/after the departure. The estimation is carried out using the event-study estimator devised by Borusyak et al. (2022). Panel (a) exhibits the result when the outcome variable is the probability to sell to buyer b each year. Panel (b) exhibits the result when the outcome variable is the log of exports to buyer b each year. We estimate the effect separately for three types of firms: (i) firms losing a sales manager to the new supplier of the buyer (in pink), (ii) firms losing another type of manager to the new supplier (in blue) and (iii) other former suppliers of the buyer (in green). The unit of analysis is the French firm × foreign buyer pair. Firm × country × year, firm × buyer and buyer × year fixed effects are included. 95% confidence intervals are displayed. Standard errors are clustered at the firm level.

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