# Foreign Ownership and Occupational Safety: Evidence from France

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#### Abstract

One in nine workers worldwide experiences a non-fatal occupational accident. In France alone, almost three-quarters of a million of workers missed multiple work days due to a work-related accident in 2003. As multinational firms pride themselves on superior management techniques and their ESG credentials, this study examines whether foreign ownership is associated with greater occupational safety. Using detailed plant-level data from France for 2003-2018, we show that foreign establishments have a lower work accident rate among blue collar workers. Applying recent event study techniques to a matched sample, we find that foreign acquisitions boost workers' safety as reflected in a reduction in the work-related accident rates and the resulting number of work days lost and worker impairment. These improvements are likely due to organisational changes taking place in the aftermath of foreign acquisition, such as an increase in the number of hours worked by technical supervisors relative to hours worked by blue collar workers, increased investment in machinery as well as automation of some tasks.

JEL classification: F23, F61, I10, J21 Keywords: MNEs, accident rate, organisational changes, event study

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### 1 Introduction

The rapid increase in global prominence of foreign direct investment and multinational enterprises (MNEs) over the last several decades has increased interest in understanding the implications of foreign ownership for recipient countries. One strand of this literature examined the effects of foreign acquisitions on the performance of acquired firms. It showed a positive impact on productivity, scale, investment and innovation (Harrison and Aitken, 1999; Arnold and Javorcik, 2009; Fons-Rosen, Kalemli-Ozcan, Sørensen, Villegas-Sanchez and Volosovych, 2021; Guadalupe, Kuzmina and Thomas, 2012). Further evidence has also pointed out that foreign ownership tend to be associated with better management practices, even in advanced economies (Bloom and Sadun, 2012). As most contributions have focused on the economic consequences associated with foreign acquisitions and the changes they brought about, non economic consequences have been overlooked. In particular, to the best of our knowledge, no study has investigated the impact on workers' safety.

Occupational health and safety is an understudied topic, particularly in the context of advanced economies. This is surprising given that work-related mortality is responsible for 5-7% of all global deaths and that 1 in 9 workers experiences a non-fatal occupational accident (ILO, 2019ab). In France alone, almost three-quarters of a million of workers missed multiple work days due to a work-related accident in 2003 and in 2021 the country ranked first in terms of incidence rate of non-fatal accidents at work (see Figure A1.2 in appendix). As multinational firms pride themselves on superior management techniques and their ESG credentials, it is reasonable to expect that foreign ownership should be associated with greater occupational safety. There is a limited but growing evidence on MNEs exhibiting greater social responsibility in the developing country context (see Harrison and Scorse (2010), Boudreau, Alfaro-Urena, Faber, Gaubert, Manelici and Vasquez (2022).

This paper aims to fill this gap in the existing literature. We investigate whether foreign ownership is associated with a greater occupational safety. We focus on detailed plantlevel data from France for the 2003-2018 period. The French context is an interesting one: in line with all European Union countries, French legislation on job safety is among the most stringent in the world. Hence, firms' compliance with the law requirements is quite high, and yet workers accidents still occur. Our analysis focuses on foreign acquisitions in manufacturing, and combines propensity score matching with the latest methods developed in the event study literature.

We posit that foreign acquisitions may affect occupational safety in the acquired firms through several channels. First, occupational safety is likely related to the organisational structure within the firm. Different organisational changes following a foreign acquisition may enhance workers safety. The acquisition could lead to a change in general managerial practices as well as to changes in the organizational structure, such as creation of new organisational layers or the expansion of existing ones, boosting of middle management and supervisory roles, or creation of requirements for a more detailed and frequent reporting on the plant activity, including health and safety practices.<sup>1</sup> All of these factors could have beneficial consequences in terms of improved worker safety. For instance, reorganisation of work practices could lead to a reduction in average working loads (a reduction in the use of overtime) and more favourable working conditions (a reduction in the use of shift work). This could help prevent workers from experiencing states of physical or emotional exhaustion and should avoid a decline in attention in the workplace. Second, as documented in the existing literature (Arnold and Javorcik, 2009; Guadalupe et al., 2012), foreign acquisitions are associated with higher capital investments and productivity, thus leading to change in composition of employment and tasks conducted. Finally, foreign acquisitions may result in outsourcing of the most hazardous tasks.

The core information used in our analysis comes from the AT-MP Database of Annual Workplace Accidents. Occupational Injuries data are transmitted to DARES (French Directorate for Research, Studies and Statistics) by the CNAM (Conservatoire National des Arts et Métiers). We use the claim database where each accident is linked to the firm and the plant where it has occurred. For each accident, the exact day and time of event is available as well as the number of days lost due to the accident and worker age, sex and occupation. We retain accidents occurring to workers aged 16-65 and focus on accidents with at least one day lost. We end up with a sample of 2,393,380 accidents 50% of which entail less that 14 days lost and, hence, can be considered as not severe. Accidents in the upper quartile of the distribution entail a much larger number of days lost ranging from around 50 to 365 days.

Our empirical strategy relies on the nearest-neighbor propensity score matching plants within 5-digit-industry-year cells. We model propensity score as related to the following firm and plant level variables measured one year prior to a foreign acquisition: plant employment, share of skilled workers at the plant, number of plants within the firm, firm sales and their growth, firm capital-labour ratio, firm size, the firm TFP and TFP growth, the export and import status. Importantly, we also include task composition of the plant in terms of hazardous tasks. We are able to match 510 acquired plants between 2004 and 2017 (more than 95% of foreign acquired plants over the period) with 487 control plants. Within the selected sample, 60% of firms are single plants, while 95% of them have less than 5 plants.

<sup>&</sup>lt;sup>1</sup>A case study conducted by the authors gives an example of a foreign acquisition of a French manufacturing resulting in big shifts in internal communications. No such change was registered in the aftermath of an earlier domestic acquisition of the same entity.

Our analysis is based on roughly 6,000 plant-year observations of treated and control plants that we can observe at least one year before and two years after the ownership change.

Our results can be summarized as follows. First, we show that in the unmatched sample, foreign ownership is associated with a lower accident incidence per 1,000 full-time equivalent workers when controlling for 5-digit-industry-year fixed effects, both with and without controlling for establishment size. This is true for all accidents, accidents with more than two weeks of work lost and accidents with more than 50 days of work lost. As one would anticipate, this is true for blue collar, but not for white collar, workers. A similar pattern is observed for the number of days lost due to work-related accidents.

Second, our event studies conducted on the matched sample confirm that plants undergoing foreign acquisitions see a decline in the total accident incidence as well as the incidence of severe accidents (those with more than 50 work days lost). The former effect is visible two years after a foreign acquisition, while the latter is visible already in the acquisition year.

Third, we find that the improved safety coincides with a decline in employment of blue collar workers, but it is not accompanied by a decline in the hazardous task intensity among blue collar workers. These suggest that our results are driven by *how* blue collar workers work, and not by *what* they do.

Fourth, we show that foreign acquisitions lead to organizational changes, such as an increase in the number of organizational layers and a higher ratio of hours worked by supervisors, middle managers and CEOs per blue-collar hour.

Finally, our results suggest that foreign acquisitions are associated with higher imports of capital goods (relative to total sales) and higher imports of automation equipment to total sales. There is little evidence of an increase in capital-labor ratio.

In sum, the reduction in the work-related accident rates and the resulting number of work days lost in the aftermath of foreign acquisitions seems to be driven by organisational changes, such as an increase in the number of hours worked by technical supervisors relative to hours worked by blue collar workers, increased investment in machinery as well as automation of some tasks.

Our paper is related to several strands of the existing literature. It contributes to an incipient stream of research on the impacts of MNCs on social compliance through their sourcing practices. Harrison and Scorse (2010) show that anti-sweatshop campaigns against Nike, Adidas, and Reebok led the Indonesian government to raise minimum wages, which caused large real wage increases with some costs for firms but no significant effects on employment. Amengual and Distelhorst (2019) analyzed over one thousand factories supplying the multinational retailer Gap and show that after the 2016 change in management practices that led to the alignment of the sourcing activity with the management of social respon-

sibility, failing an audit caused factory compliance to improve and reduced the probability of future failure. Longer-term suppliers improved most, consistent with the hypothesis that committed commercial relationships enhance the credibility of demands to improve labor standards. Alfaro-Urena et al. (2022) study the incidence of private enforcement on firms and workers in sourcing origin countries in a general equilibrium model. They apply it to MNCs with affiliates in Costa Rica, finding that private enforcement negatively affected the sales and employment of exposed suppliers but positively affected the earnings of their workers, with net positive effects on domestic welfare. Boudreau provides experimental evidence on the effects of MNCs' enforcement of local labor laws in Bangladesh. Her findings MNCs' enforcement can improve compliance. In her study 29 multinational apparel buyers committed to enforce a local mandate for Ocupational Safety and Health (OSH) committees on their suppliers in Bangladesh. Over a year-long field experiment with 84 supplier factories her finidings show that buyers' intervention increased compliance with the OSH committee law and that stronger OSH committees had small, positive effects on objective measures of safety.

As mentioned above, our work is also related to the literature disclosing the need for a different work and knowledge organization when a firm has a multinational structure (Gumpert, Steimer and Antoni, 2023). We add to this evidence by showing that acquisition of foreign MNEs change the number of layers within the target plant, and especially increase the weight of work positions devoted to technical supervision of operations.

The work is organised as follows: Section 2 presents the institutional framework; Section 3 presents the data and the empirical strategy; Section presents the results; Section concludes the work.

### 2 Institutional Framework

By law, employers located in France have traditionally had a significant role in enduring occupational safety and health and important responsibilities in terms of i) general care duties, ii) occupational health services; iii) risk assessment and iv) consultation and training. i) Employers are expected to ensure the safety and protect the physical and mental health of their employees. This is a broad duty that covers aspects such as providing adequate training and safety equipment, maintaining a safe working environment, and managing risks that could lead to physical or psychological harm. ii) Employers are responsible for engaging the services of an occupational health physician to conduct regular health examinations and provide medical advice related to work. iii) Employers are expected to conduct regular risk assessments to identify workplace hazards and implement preventive measures to reduce those hazards. They are also responsible for documenting these risks in a single document ("Document Unique d'Evaluation des Risques"). iv) Employers are required to consult with employee representatives and provide appropriate training on health and safety issues.

In 2011, in line with trends in international labor law, French law has placed increasing emphasis on preventing workplace accidents rather than merely responding to them. This is reflected in legislation such as LOI n° 2011-867 du 20 juillet 2011, which requires employers to work with occupational health services to establish an annual program of preventive measures. More specifically, employers are required to work closely with occupational health services and are also required to provide information on exposure to risk factors (Article R.4412-110, Decree 2012-134). This places greater responsibility on employers to anticipate and mitigate the risks in their workplaces.<sup>2</sup> As the 2011 law has not substantially altered the already strict nature of the existing job safety legislation, it is unlikely that this change in the legislation may affect our analysis. However, it is important to understand to what extent foreign acquisition propensity may have been affected by the introduction of the law

#### 3 Empirical Strategy

#### 3.1 Data Sources

Liaisons Financières (LIFI) 2000-2020 - The LIFI database records firms' financial linkages and bilateral vote shares. Initially, up to 2011, the sample was based on a survey consisting of direct interviews of French companies in the private sector, whose portfolio of equity securities exceeds 1.2 million euros, whose turnover exceeds 60 million euros, or whose salaried workforce exceeds 500 people, regardless of the sector of activity. In addition, the group heads of the previous year or the companies held directly by a foreign company are questioned. Hence foreign owned firms were surveyed each year. Starting from 2012 the LIFI data records all financial linkages between firms active in France that exceed 1% of the firm assets. The data is compiled from data from the Banque de France and the General Directorate of Public Finances (DGFip) (new administrative sources which replace the Lifi survey), data from the Recme survey, Orbis commercial data and activity reports for certain groups that broadcast one.

From LIFI we define foreign ownership the share of votes pertaining to foreign firms being above 10% and we identify foreign acquisitions when firms are not foreign owned at all over

 $<sup>^{2}</sup>$ Additionally, the law of June 14, 2013, has increased companies' obligations to inform and consult with employee representatives on strategic decisions and their impact on employment, which may include health and safety aspects. This implies that also employees are increasingly involved in decisions related to their occupational health and safety.

three consecutive years (t-1, t-2 and t-3) and, after becoming foreign owned, they remain so for three consecutive years (t, t+1, t+3).

**AT-MP Database 2003-2018** Annual Workplace Accidents - Occupational Injuries data are transmitted to DARES (French Directorate for Research, Studies and Statistics) by the CNAM (Conservatoire National des Arts et Métiers). These are made up of two databases: the "claim" database, which includes claims and victims, and the "section" database, which includes employers (companies, establishments and sections of establishments). We use the claim database where each accident is recorded in a separate raw and is linked to the firm plant where it has occurred. For each accident, the exact day and time of event is available as well as he number of days lost due to the accident and the worker age, sex and occupation. We retain accidents occurring to workers aged 16-65 and, as starting from 2013 accidents with no days lost are not recorded in the claim database, we focus on accidents with at least one day lost. We end up with a sample of 2,393,380 accidents 50% of which entail less that 14 days lost and, hence, can be considered as not severe. Accidents in the upper quartile of the distribution entail a much larger number of days lost ranging from around 50 to 365.

FICUS-FARE - firm balance sheet information. As far as firm balance sheet information is concerned, we refer to the FICUS database for the 2002-2007 time span and to the FARE database for the 2008-2019 time span. The two databases contain information on the firm NAF 5-digit sector of activity (NAF Rev 1 for the 2002-2007 period and NAF Rev 1.1 for the 2008-2019 period) sales of produced goods and services, turnover, purchases of materials and services and effective employment. From this source we are then able to estimate firm TFP on the basis of traditional algorithms.

**REE Stock Etablissements 2003-2020.** From this source we retrieve information on the firm plants, on their industry at 5-digit NAF 2 level.

**DADS-Postes 2003-2020.** From this source we retrieve information on the firm-plant workers, on their occupation and contract typology, as well as their effective work load and some demographic characteristics. From this data source we are able to measure plants and firms' endowments of white and blue collars, as well as their task composition and organisational structure in terms of organisational layers (Caliendo, Monte and Rossi-Hansberg, 2015).

**Sample** To account for the different recording strategy of foreign firms before and after 2012 in the LIFI database, we focus on the sample of firms in the LIFI database in order to

be sure that firms that are not foreign owned are indeed so. Enlarging the sample to firms outside the LIFI database would leave us uncertain about the domestic/foreign nature of firms which in the 2003-2011 time span do not appear as foreign owned. On the contrary, for firms in the LIFI database we always know whether they are domestically or foreign owned. Hence, we match balance sheet information with information on foreign/domestic ownership from LIFI and we retain only plants of firms that appear in LIFI at least once and that have non missing information for two consecutive years. We drop public owned firms and their plants, French MNEs and their plants, plants owned by firms with less than 10 employees and plants reporting a different industry over the period. Our focus in on plants in the manufacturing sector over the period 2003-2018. However, by using lags of the variables we will lose yea 2003. Additionally, as a relevant share of accidents occurring in a year are usually recorded in the following year, we drop year 2018 from our sample as the reporting of accidents by firms is not complete.

**Measuring the accident incidence rate** For plants in this sample we measure the injury incidence rate as the number of accidents reported at a plant in a year over the number of effective workers scaled up to 1000. Our injury rate is therefore normalised per 1000 workers. By normalising on the number of effective workers we take into account the effective number of hours worked by an each individual within the plant and avoid that our injury risk measure is affected by lengthening or shortening of work schedules. We alternatively normalise injuries over working hours and as the number of injured workers over the number of workers at the plant. The AT-MP also informs on whether accidents at the plant caused disability and the disability rate in percentage. Hence, we also retrieve a measure of major accidents as the number of accidents with disability and the overall severity of the accident as the total disability rate normalised on working hours. As a further measure of severity of the accidents at the plant we consider the number of accidents with more than 50 days lost. For severe accidents we are able to measure an injury incidence rate for blue collar workers, who supposedly are more likely to undergo injuries on the job. To isolate blue collars' accidents we rest on the one digit ISCO occupational code and the qualification indicator variable both available in the AT-MP database. In principle blue collar workers are those classified in the ISCO codes 6 to 9 (6- Skilled Agricultural, Forestry and Fishery Workers; 7-Craft and Related Trades Workers; 8-Plant and Machine Operators and Assemblers; 9-Elementary Occupations) which can be subsumed in the categories of skilled and unskilled blue collars whose employment we can measure at the plant level using DADS.

#### 3.2 Preliminary Evidence

Before moving to the implementation of an event study analysis, we provide some preliminary evidence on the evolution of work related injuries in France and on the differences existing between foreign and domestic plants in terms of occupational safety. Figure 1 is based on AT-MP data and reveals that the total number of accidents is declining, nonetheless their severity is not. Especially the share of accidents with a high number of days lost is slightly increasing through time. Figure 3 focuses on our sample of manufacturing firms and compares the incidence rate of work injuries at domestic and foreign plants: foreign plants always record a lower accident incident rate.

By controlling for plant size and 5-digit industry-year fixed effects, we show that foreign plants record a lower accident rate per full time equivalent worker and this evidence is stronger for more severe accidents, that are defined as those resulting in more than 14 or 50 days of lost work. Moreover, when focusing on employees' occupation, it emerges that the superior occupational safety of foreign plants can be solely attributed to blue-collar workers (Table 1). Table 2 confirms the above evidence by examining the number of lost days per full time equivalent worker.

The higher occupational safety of foreign plants is also accompanied by differences displayed in the workforce composition and hierarchical structure. In terms of task intensity, their employees are more involved in non-routine than routine tasks compared to domestic plants. Differences also emerge when we consider the distribution of the workforce across the different layers. First of all, Table 3 points at a higher number of layers present in foreign than domestic plants. Moreover, when focusing on the upper echelons of the hierarchy, foreign plants display a larger number of hours worked by top managers CEOs and owners, middle-managers as well as supervisors per blue-collar hour. Finally, Table A1.1 in appendix shows that foreign owned plants are larger and present a higher skill share, after controlling for plant size.

In the following section, we implement a set of event studies in order to provide evidence on the causal nexus.

#### 4 Event Study on a Matched Sample

To isolate the causal nexus of foreign acquisitions on occupational safety and work organization, we implement an event study at plant level. As the probability of being acquired by a foreign MNEs is not random, we implement a propensity score matching approach in order to select an appropriate control group among plants staying domestic for the entire sample



Figure 1: Evolution of Accidents in France

Source: AT-MP, FICUS-FARE. Own computations. The Figure reports the evolution of serious accidents, that is those that imply at least four full days of absence from work.

The figure shows moving averages - including 2 lags and leads - of accidents over the 2003-2017 period.



Figure 2: Evolution of Accidents Incidence Rates in France

Figure 3: Accident Incidence Rates - Foreign vs Domestic Plants

Source: AT-MP, DADS, FICUS-FARE. Own computations. The figure shows moving averages - including 2 lags and leads - of aggregate accident rates of domestic and foreign plants over the 2003-2017 period.

			Accident	t incidence	per 1000 Fı	ull-Time Eq	uivalent Wo	orkers		
	Tot	$\operatorname{tal}$	with $> 14$	Lost Days			with $> 50 L$	ost Days		
					All We	orkers	Blue C	Jollars	White 4	Collars
Foreign	-6.502***	-7.542***	-3.088***	-3.426***	-1.434**	-1.518***	-1.839***	-1.842***	-0.598	-0.421
	[1.103]	[1.203]	[0.568]	[0.598]	[0.302]	[0.305]	[0.711]	[0.684]	[0.412]	[0.407]
$\operatorname{Size}_{t-1}$		$2.619^{***}$		$0.851^{**}$		0.213		0.006		$-0.495^{**}$
		[0.838]		[0.430]		[0.197]		[0.410]		[0.245]
Constant	$63.080^{***}$	$55.072^{***}$	$28.944^{***}$	$26.343^{***}$	$11.944^{***}$	$11.294^{***}$	$15.677^{***}$	$15.657^{***}$	$4.460^{***}$	$6.069^{***}$
	[0.078]	[2.551]	[0.040]	[1.313]	[0.021]	[0.606]	[0.048]	[1.307]	[0.031]	[0.801]
Observations	263,099	263,099	263,099	263,099	263,099	263,099	247, 291	247, 291	229,642	229,642
R-squared	0.021	0.021	0.02	0.02	0.02	0.02	0.023	0.023	0.008	0.008

Table 1: Plant level occupational safety and foreign ownership: accident rate

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Robust standard errors in brackets clustered at the level of the plant. Industry-5-digit-year fixed effects are included in each specification. Size measures the log of employees at a plant.

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	Lost Days per Full-Time Equivalent Worker							
	To	otal			with $> 50$	Lost Days		
			All W	orkers	Blue (	Collars	White	Collars
	0 (00****	0 10 1888	0.000****	0.010****		0.000*	0.4.00	0.1.10
Foreign	$-0.402^{***}$	-0.404***	-0.330***	$-0.319^{***}$	-1.227***	-0.288*	-0.166	-0.142
	[0.095]	[0.094]	[0.084]	[0.083]	[0.173]	[0.167]	[0.113]	[0.110]
$Size_{t-1}$		0.005		-0.028		$-2.183^{***}$		-0.067*
		[0.038]		[0.033]		[0.145]		[0.039]
Constant	$3.039^{***}$	3.024***	$2.233^{***}$	2.320***	$4.849^{***}$	12.837***	$0.884^{***}$	1.102***
	[0.007]	[0.118]	[0.006]	[0.101]	[0.013]	[0.535]	[0.009]	[0.129]
Observations	263,099	263,099	263,099	263,099	149,902	149,902	229,642	229,642
R-squared	0.019	0.019	0.016	0.016	0.016	0.019	0.008	0.008

Table 2: Plant level occupational safety and foreign ownership: lost days from accidents

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Robust standard errors in brackets clustered at the level of the plant. Industry-5-digit-year fixed effects are included in each specification.

Size measures the log of employees at a plant.

period and compare the latter group with the group of acquired plants. More specifically, for each target plant we identify the nearest neighbour on the basis of the propensity score estimated from a probit model of the probability of being acquired by a foreign MNEs. The estimate of the propensity score is based on the following firm and plant level variables measured at time t-1: log of plant employment, the plant skill share, the log of the firm number of plants, the log of firm real sales and growth of real sales, the firm capital-labour ratio and size, the firm TFP and TFP growth, the export and import status dummies. Also, we include the lag of the task composition of the plant in terms of hazard tasks <sup>3</sup>. To isolate the effects resulting from foreign acquisition, we only consider as target plants those belonging to firms that were under domestic ownership for at least the previous three years (and any further previous year available), that were then acquired by a foreign MNEs and that remain under foreign ownership for the subsequent three years following the acquisition year.

On the basis of the above estimated propensity score, we apply the matching procedure within each plant 5 digit industry-year cell and we select one nearest neighbour. Thus, we are able to match 510 acquired plants between 2004 and 2017 (more than 95% of foreign acquired plants over the period) with 487 control plants<sup>4</sup>. Within the selected sample, 60% of firms are single plants, 95% of them have less than 5 plants and 52 is the maximum number

<sup>&</sup>lt;sup>3</sup>We merge O\*Net task descriptors by occupation to employees working at the plant and we compute the hazard of the job of workers at the plant by averaging the scores of the following work context descriptors:  $cx_11$  "Diseases/Infections";  $cx_12$  "Hazardous Conditions";  $cx_13$  "Hazardous Equipment";  $cx_14$  "High Places";  $cx_57$  "Contaminants";  $cx_16$  "Radiation";  $cx_34$  "Pace Determined by Speed of Equipment";  $cx_18$  "Extremely Bright or Inadequate Lighting";  $cx_15$  "Hazardous Situations";  $cx_17$  "Whole Body Vibration";  $cx_52$ "Very Hot". Once we have the hazard of each job within the plant we average this score across workers working in the plant in a year. Alternatively, we weight each worker by its hours worked.

<sup>&</sup>lt;sup>4</sup>We allow a control plant to be used more than once in the same wave of matching but not in different waves.

	Number	of Layers			Hours w	orked per <u>k</u>	nour worked by bl	ue collars		
			Super	visors	Middle-I	Managers	CEOs and Owners		Technical S	bupervisors
Foreign	$0.411^{***}$	$0.188^{***}$	$0.399^{***}$	$0.210^{***}$	$0.514^{***}$	$0.323^{***}$	$0.663^{***}$	$0.552^{***}$	$0.055^{***}$	$0.043^{***}$
į	[0.014]	[0.007]	[0.018]	[0.018]	[0.020]	[0.016]	[0.017]	[0.016]	[0.005]	[0.005]
$\operatorname{Size}_{t-1}$		$0.562^{***}$		$0.417^{***}$		$0.423^{***}$		$0.244^{***}$		$0.025^{***}$
		[0.004]		[0.006]		[0.005]		[0.005]		[0.002]
Constant	$2.729^{***}$	$1.010^{***}$	-2.355 * * *	$-3.671^{***}$	$-3.172^{***}$	$-4.504^{***}$	-3.313***	$-4.084^{***}$	$0.200^{***}$	$0.120^{***}$
	[0.001]	[0.012]	[0.001]	[0.020]	[0.001]	[0.016]	[0.001]	[0.017]	[0.000]	[0.005]
Observations	263, 230	263, 230	247, 425	247,425	247,425	247,425	247, 425	247, 425	247, 425	247,425
R-squared	0.211	0.532	0.196	0.256	0.189	0.271	0.115	0.144	0.183	0.186
*** 5/001	** 5/005	* ~	Sobuet stands	di arona bue	hradzate ali	stored at th	o lovel of the alent	Inducting 5 di	init more five	d offorts are

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\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Robust standard errors in brackets clustered at the level of the plant. Industry-5-digit-year fixed effects are included in each specification. Size measures the log of employees at a plant.

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of plants for foreign firms.

Our analysis is based on roughly # 6000 plant-year observations of treated and control plants that we can observe at least in t - 1, t and t + 1.

We then run a set of event studies on this matched sample by using for controls the weights estimated at the time of the acquisition and controlling for plant fixed effects, as well as for plant and firm size in t - 1. We consider a 9 year time window from three years before the acquisition and till five years after the acquisition. As treatment (foreign acquisition) occurs at different times, we follow Sun and Abraham (2021) to allow for heterogeneous dynamic effects.

It is worth mentioning that as treated/controls can exit the sample over the period of our analysis, we drop plants when we can not observe the corresponding control/treated unit.

#### 5 Results

Figure 4 shows that foreign acquisitions reduce the incidence of accidents for target plants. This evidence is stronger the higher is the severity of accidents, as reflected by the number of lost days. The incidence of accidents also declines if we focus on accidents experienced by blue collar workers. Then, the beneficial effect we show is not explained by a reduction of the weight of blue collars within the plant workforce. It is worth highlighting that accidents and especially the most severe ones mostly involve blue collars.

Figure 5 further shows that foreign acquisition also involves a lower rate of impairment per hour worked at the plant. This suggests that foreign acquisitions lead to internal changes in the organisation of the work and the production processes which affect not only minor accidents, but also accidents causing severe consequences for workers' health. The reduction in the incidence of impairment once again occurs within the group of blue-collar workers.

A similar picture emerges if we focus on lost days from an accident. Indeed, Figure 6 shows that the number of lost days, and especially from serious accidents, per full-time equivalent worker declines. This is particularly evident for blue-collar workers, with the effect being observed since the year of acquisition.

Figure 4: Event study: Plant-level accident incidence rate per 1000 full-time equivalent workers





Figure 5: Event study: Impairment incidence per million hours worked

Figure 6: Event study: Lost Days per 1000 full-time equivalent workers





Figure 7: Event study: Organisational changes at the plant I

#### 6 Mechanisms

The above evidence confirms that foreign acquisitions have beneficial effects on workers' occupational safety, and they help reduce a blue-collar worker's likelihood of experiencing a work-related accident. We now want to provide some evidence on the potential channels explaining such an effect. In particular, resting on the existing literature, we expect that foreign acquisition would lead to a reorganization process within the plant, affecting workforce composition, hierarchical structure, and work procedures. The most important changes occurring in the plant organizational structure are displayed in Figure 8. Foreign acquisition increases the number of layers in the organization structure and, more interestingly, there is an increase in the role of occupations with supervision, control and managerial tasks. Indeed, we find a rise in the number of hours worked by technical supervisors, middle managers and CEOs and owners per blue-collar hour.

Figure 9 explores whether relevant changes in the tasks performed by employees at the target plants could explain the decline in the workers' accident rate. Even if there is some evidence suggesting that blue collars are engaged more in non-routine interactive tasks following a foreign acquisition, this does not seem to be the driving force leading to the improved occupational safety. Blue-collar workers, also do not experience a significant and robust reduction on the harzard content of the tasks they perform, even if some evidence in this



Figure 8: Event study: Organisational changes at the plant

respect seem to emerge at time t + 5.

A further potential channel behind the nexus between foreign acquisition and occupational safety is represented by investments in capital goods. As mentioned in the introduction, existing literature has shown a positive impact of foreign acquisition on investments. Some of these investments, especially those in machinery and automation-related capital goods, could have beneficial effects on occupational safety, by substituting workers in more hazardous activities or mitigating the risks associated with their tasks. Sub figures (a) and (b) in Figure 10 rule out this possibility. A further competing explanation could be related to MNEs offshoring hazardous tasks abroad, sub figure (c) shows no significant effect of acquisition on the evolution of the hazard intensity of imports at the firm. Finally, after the acquision a tiny reduction in the share of overwork hours is observed.

To Be Continued



Figure 9: Event study: Tasks at the plant



Figure 10: Event study: Other Mechanisms

## 7 Conclusion

To Be Drafted

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Figure A1.1: Non-negligible work accident rates across Europe, particularly in France

Figure A1.2: Non Fatal (Serious) Accidents

 $Source: \ Eurostat. \ https://ec.europa.eu/eurostat/statistics-explained/index.php? title = Accidents_at_work_statisticsstable = 0 redirect = work_statistics + accidents_at_work_statistics + accidents_at_work_statis$ 

## A1 Additional Figures

## A2 Additional Tables

	on-Routinary	*** 0.016*** 0] [0.001]	$-0.003^{***}$	*** 0.353***	00] [0.001]	52 $262,852$	0.228	e included in each
	No	*** 0.015 <sup>°</sup> 1] [0.00	** [C	** 0.345	1] [0.00	52 262,8	0.22	ed effects are
t Intensity	outinary	** -0.031 <sup>*</sup>	*600.0]	** 0.579*	[0.00]	2 262,85	0.27	igit-year fixe
Task	R	* -0.028*: [0.001	*	* 0.607**	0000	262,85	0.256	ndustry-5-di
	lazard	* -0.025** [0.001]	$0.009^{**}$	. 0.318**	[0.001]	262,854	0.282	the plant. I
	Ξ	$-0.021^{**}$		$0.344^{***}$	[000.0]	262,854	0.268	t the level of
l Share		$0.069^{***}$	$-0.028^{***}$ $[0.001]$	$0.299^{***}$	[0.004]	263, 230	0.23	s clustered a
Skil		$0.058^{**}$		$0.213^{***}$	[000.0]	263, 230	0.208	s in brackets
	Collars	-0.157*** [0.008]	$0.918^{***}$ [0.003]	$-0.159^{***}$	[600.0]	263, 230	0.829	andard error
loyment	Blue	$0.207^{**}$ [0.019]		$2.650^{***}$	[0.001]	263, 230	0.248	I. Robust st
Emp	otal	$0.006^{*}$	$0.976^{***}$ [0.001]	$0.073^{***}$	[0.003]	263, 230	0.961	0.05, * p < 0.1
		$0.393^{**}$ [0.021]		3.056***	[0.001]	263, 230	0.235	0.01, ** p<(
		Foreign	$\operatorname{Size}_{t-1}$	Constant				>d ***

ownership
foreign
and
workforce
level
Plant
A1.1:
Table

specification. Size measures the log of employees at a plant.