

Paper 4

Is it cold outside?

Firm performance effects of employers' association affiliation

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Abstract

Employers' associations (EAs) deliver several important services to their members, including collective bargaining. However, the economic effects of EAs on the firms' performance are still poorly understood. This paper considers the case of the metalwork sector in two large regions of Spain, drawing on comprehensive firm-level panel data matched with time-varying information on EA affiliation. Our identification strategy exploits the decision of joining a representative EA to analyze its impact on several economic outcomes such as employment, productivity, profitability and wages. We estimate a difference-in-differences model based on the date of EA affiliation over 2005-2020 to explore its causal impact. Our preliminary results indicate that becoming an EA member may have a significant impact on the firms' profitability and wages while no significant impacts on productivity or employment can be found.

Keywords: Employers' Associations, Social Dialogue, Collective Bargaining, Differences in Differences.

JEL Codes: J50, J23, L22.



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1 Introduction

Social partners play important roles on the functioning of industrial relations and the setting of wages in many countries, especially in Europe. Unions and their contributions to workers' conditions and labour market outcomes are well documented in the literature. This contrasts with the scarce interest on employers' associations (EAs) and their effects on firms' performance, labour conditions and other important economic outcomes.

Apart from their role on collective bargaining as firms' representatives, EAs provide many tasks orientated to firm functioning that can influence thier activity, as training, legal advice, international representation, coordinating social security and labour inspectorates (Boeri 2012, Behrens & Helfen 2016, OECD 2019, Visser 2019). As they represent firms in collective bargaining, their objectives and they way they implement their representation as social agents might have also strong effects on the way wages are set, or other particular labour conditions in a sector or region, with many consequences to economic outcomes such as employment, sales, productivity or wages (Martins 2020). This is specially relevant in those countries in which, additionally, collective bargaining covers an extensive part of the firms and workers in the labour market (i.e. Spain).

In this paper we aim to study the effects of belonging to an EA on firms' performance. We address this issue by studying the causal impact of joining an EA on a set of firms' economic outcomes exploiting a difference in difference (DID) approach. We are able to do so by comparing firms' economic outcomes before and after joining an EA and we compare these differences with firms never affiliated as a control group. We provide an application using newly data from metalwork industry in two regions, Barcelona and Vizcaya, that represent a high portion of this sector in Spain. Our preliminary results show that belonging to an EA is significant and has a positive impact on the outcomes of the firm.

Studying the potential effects of becoming affiliated to employers' association might be important for several reasons. First of all, it is more likely that the preferences of EAs reflect those of the firms affiliated in the product of collective bargaining. Only a part of firms are affiliated to EAs, but labour conditions and wages that result from collective agreements that they negotiate are generally universal and applied to the whole population of firms competing in that sector or region, including firms that are not affiliated and even sometimes being extended to other potential sectors. If EAs are not well represented, their preferences in the social dialogue might be more aligned towards affiliated firms (Martins & Martínez-Matute 2021), which might produce additional positive outcomes for these firms as their preferences are better represented than those of non-affiliated firms.

Secondly, previous evidence has shown that affiliated firms exhibit better outcomes in terms of sales, employment and wages, but less with respect to productivity. (Bernardo Fanfani 2021) show that affiliated firms are larger and older, it is more likely that they belong to richer regions, they are more orientated to international markets and invest more in innovation, and it is more likely that they provide training activities. Similarly to (Martins 2020), they prove that affiliated firms experience faster employment growth, but without significant differences in productivity dynamics.

Our contribution to the previous evidence is that we can exploit the date of affiliation to determine how becoming an affiliated firms repercutes on firms' activity for a large panel of data during the period of analysis, 2005-2020. Implementing this design permits us to isolate the change in the firms' outcomes *as a result of* becoming a member of an EA and that are not due to the previous differences in the selection of firms. We can also distinguish this effect from other external factors that might be correlated with the decision of the firm to join the

EA.

Two potential mechanisms might operate here. On one hand, the direct channel, the service that the EA provides to the firm helps in the firm's specific activity. This is related to what (Martins 2020) refers as *information and training activities*. Receiving these services from an EA, specially in the cases that these services are very orientated to the industry level, will make firms more efficient compared to the potential alternative in which each firm should conduct these activities individually. In the same way, the firms will benefit from external representation and coordination not only in collective bargaining but also when dealing with other potential institutions or stakeholders (suppliers, clients, credit institutions). On the other hand, the indirect channel, once the firm joins an EA, the firm gains a channel to raise its voice (and preferences) in the social dialogue by its proper representation of the EA. As the firms preferences might be in this case better aligned with that of the EA, then the result of collective agreements (i.e. the increase in wages or the labour conditions) might also be more favorable for the the firms' activity.

Despite these benefits, there are also some costs in the decision of joining an EA, as also mentioned by (Martins 2020). Apart from the pay of a membership fee, some firms might think that the preferences, even in the case they are members of the EA, might not keep aligned with the interests that the EA defend in collective bargaining. This fact depends a lot on the characteristics of affiliated firms, the type of sector in which they operate and the specific EA. It could also explain why there are still many firms not affiliated in many countries (OECD 2019)¹.

2 Empirical strategy

2.1 Data

We construct a unique firm-level data with financial and economic information of both affiliated and non-affiliated firms in metalwork sector in two important regions of Spain. We do this by matching the complete list of all firms affiliated to the representative EA (and non-affiliated) in each region between the period 1975 to 2020 to firm-level establishment data from SABI. The SABI database provides information on Spanish and Portuguese active companies in 2020 that have information in the Business Registry from 1994². It covers a large number of companies, representing more than 90% of the companies presenting their accounts officially. For those companies, we have yearly information on the number of employees, international presence, sector, intangible assets, profit, costs, sales and research and development investment, among other variables.

We focus on metalwork sector in Spain for several reasons. First of all, metalwork sector is a tradable sector, not linked to internal specialization of the Spanish economy and highly unionized with collective agreements that are already well defined and available, with potential possibilities for further research (Villanueva & Adamopoulou 2020). Secondly, it represents a significant part of the manufacturing sector in Spain, around a 7% in terms of production and around a 8% in terms of exports. In terms of employment, it generally represents around a 14% of total employment in the secondary sector, despite the fact that it has a low labour

¹In Spain, using data from the European Company Survey, the affiliation rate to EAs is around a 51% in 2019.

²It is important to remark that we do not have information on those firms that leave this sector before 2020, which is a limitation of the study that can affect the representation of firms

intensity with respect to others manufacturer firms.

On the other hand, these two regions in which we explore our analysis are traditionally well represented in this sector. The sector is specially well represented in these two regions. Additionally, they only have one single EA. that has permitted to share the complete list of firms affiliated, which permits to identify in parallel all the specific companies not affiliated but operating in these regions by the fiscal identification available in SABI, as the latter database covers all the companies operating in this sector.

In our final data, we have observed 4597 firms during 2005-2020. Among these firms, there are 115 firms that decided to join an EA in the period of analysis, for which we also know the specific date of affiliation. There are also 4229 firms never affiliated to any EA during the whole period of analysis. Additionally, we also have information for 158 firms that were affiliated anytime before 2005 but are not still affiliated during the period of analysis. Finally, we also have 95 firms of the whole sample that leave an EA during the period of analysis.

Figures 1 provide some descriptives statistics of the main variables considered in the analysis for both affiliated and non-affiliated firms, and for the full sample of firms. In Figure 2 we can check the mean differences in the main outcomes between firms affiliated (*treated*) before and after becoming members of an EA and compared to those firms never affiliated to an EA (*control*). We observe that, in general, affiliated firms are larger (27.6 employees compared to 26 employees of non-affiliated), slightly older (around 100 days older on average), and they are more orientated to external markets (the export share is around 56% of affiliated whereas it is around 44% of non-affiliated). In terms of the outcome variables, affiliated firms are also more profitable and present a lower employment growth and a slightly lower wage per worker. Their productivity is slower, but we cannot see a significant difference in terms of productivity.

We can also provide some graphic evidence on these differences in Figures 3, 4, 5 and 6. We have illustrated here the evolution of the main outcome variables (employment growth, log of wages per worker, productivity and profitability, respectively) between affiliated and non-affiliated firms. We define affiliated firms as those firms that in each year are affiliated to an EA³. We can observe that, in general, the employment rate evolved differently in affiliated firms with respect to the latter ones, as it is shown in Figure 1. In the case of affiliated firms, they present a higher wages per worker, higher productivity and also higher profitability (measuring the three variables in logarithms) during practically the whole period of analysis (2005-2020).

2.2 Identification Strategy

The main goal of this paper is to study the causal impact of becoming member of an EA on firms' performance. The main challenge we have in our identification strategy is the possibility that those firms affiliated to EAs perform differently to those firms not affiliated. To overcome this limitation, we combine matching techniques with a difference-in-differences strategy. We first implement a matching strategy between our sample of affiliated firms identifying a relevant control group among those non-affiliated firms. Following (Lara-Ibarra et al. 2019), we use a nearest neighbor algorithm propensity score matching approach to find the most similar

³We only consider as affiliated firm those years in which the firm was active as a member of the EA. We do not consider an affiliated firm the whole period if the firm that has been affiliated in a part of the period. This implies that the sample of firms that are affiliated and non-affiliated changes in every year of the Figures. For example, the outcome of a firm that is affiliated in 2010 is shown as non-affiliated before 2010 but as affiliated since 2010 onwards.

non-affiliated firm for every affiliated firm in between 2005 and 2020.

Once the sample of treatment and matched firms is built, the next step is to estimate a difference-in-differences regression. Following (Machin & Sandi 2020), all the waves of treatment-control districts are pooled and the following difference-in-differences analysis is estimated over the matched sample of firms:

$$Y_{it} = \beta \text{Affiliation} \times \text{POST}_{it} + \text{Year}_t + X_i + u_{it} \quad (1)$$

where Y is a set of outcome variables measuring the performance of the firm. $Year$ is a set of dummies indicating the year in which the outcome is observed. X is a vector of dummies for each firm in the sample. The variable of interest is the interaction between $Affiliation \times POST$, that is equal to 1 if the firm i in year t has join the EA. β yields therefore the effect of joining the EA on the outcome of interest.

In the analysis we assume that, if the treated firm would have not decided to joining the EA, then the evolution of the outcomes would have been the same in treated and control firms. We assess the feasibility of this parallel trends condition through examining the evolution of the outcome variables in both group of firms before the date in which the treated firms decided to join the EA. If the outcomes of interest followed the same trend in treated and control firms, then it would be reasonable to expect that they would have followed the same trend over the following years if the treated firm would have never joined the EA. To examine the existence of parallel trends we estimate a leads and lags regression (Autor 2003), which yields information on the dynamic of the effect and on whether differential trends between treatment and control firms could have pre-existed the decision to join an EA.

3 Preliminary results and conclusions

Figure 7 and 8 show the results of the estimation of the basic model for all the firms of the database.⁴ Figure 7 reports the coefficient representing the causal impact of becoming a member of an EA ($Affiliation \times POST$) on the firms' outcomes shown in each column. We can see that the profitability ratio increases by 16.5% as firms become affiliated. However, the wage per worker decreases following affiliation. We cannot find significant effects of affiliation on productivity, employment or wage growth.

In Figure 8, we can compare the coefficient of the key variable (being affiliated, in the periods after the decision) with the affiliation coefficient. We can see again that becoming an affiliated firm reduces the wage per worker. Productivity, employment and wage growth are still not significant.

These results are preliminary as they suffer from some limitations and have to be taken cautiously. Indeed, the sample of firms used in the analysis contains the whole population of firms of the database. A more detailed analysis, which is currently in progress, is based on a comparison of affiliated firms with those never affiliated firms that are most similar in terms of pre-trends previous to the affiliation of treated firms.

⁴We do not consider here the matching strategy of affiliated with similar non-affiliated firms.

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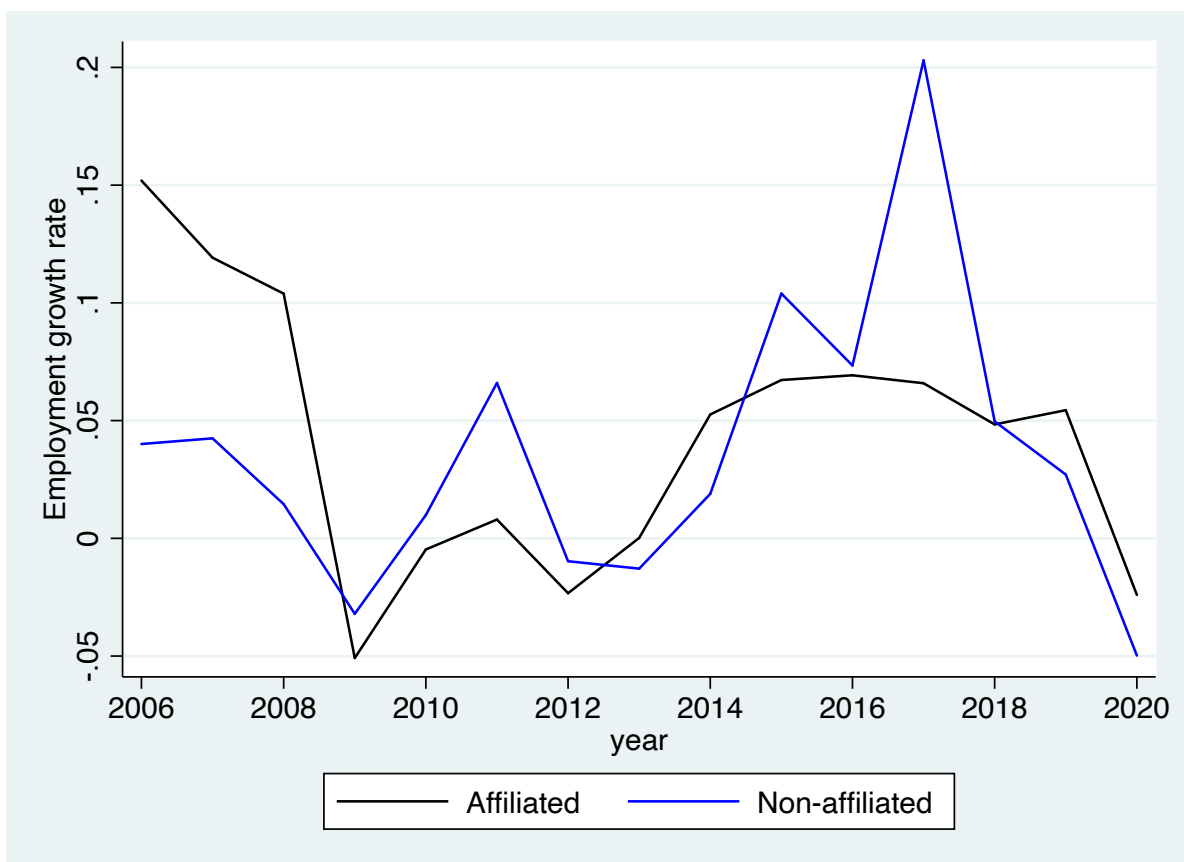
Figure 1: Descriptive statistics: affiliated and non-affiliated firms)

	Affiliated	Non-affiliated	All
Numbr of employees	39.63	24.42	26.03
Employment growth (%)	3.69	4.22	4.17
Profitability ratio	2090.70	892.98	1015.47
Log of profitability ratio	7.96	7.85	7.86
Log of productivity (net turnover per worker)	15.64	15.78	15.76
Log of productivity (sales per worker)	15.77	15.91	15.90
Log of wage per worker	13.57	14.08	14.01
Observations	7,522	66,030	73,552

Figure 2: Descriptive statistics: treated (before and after) and control firms)

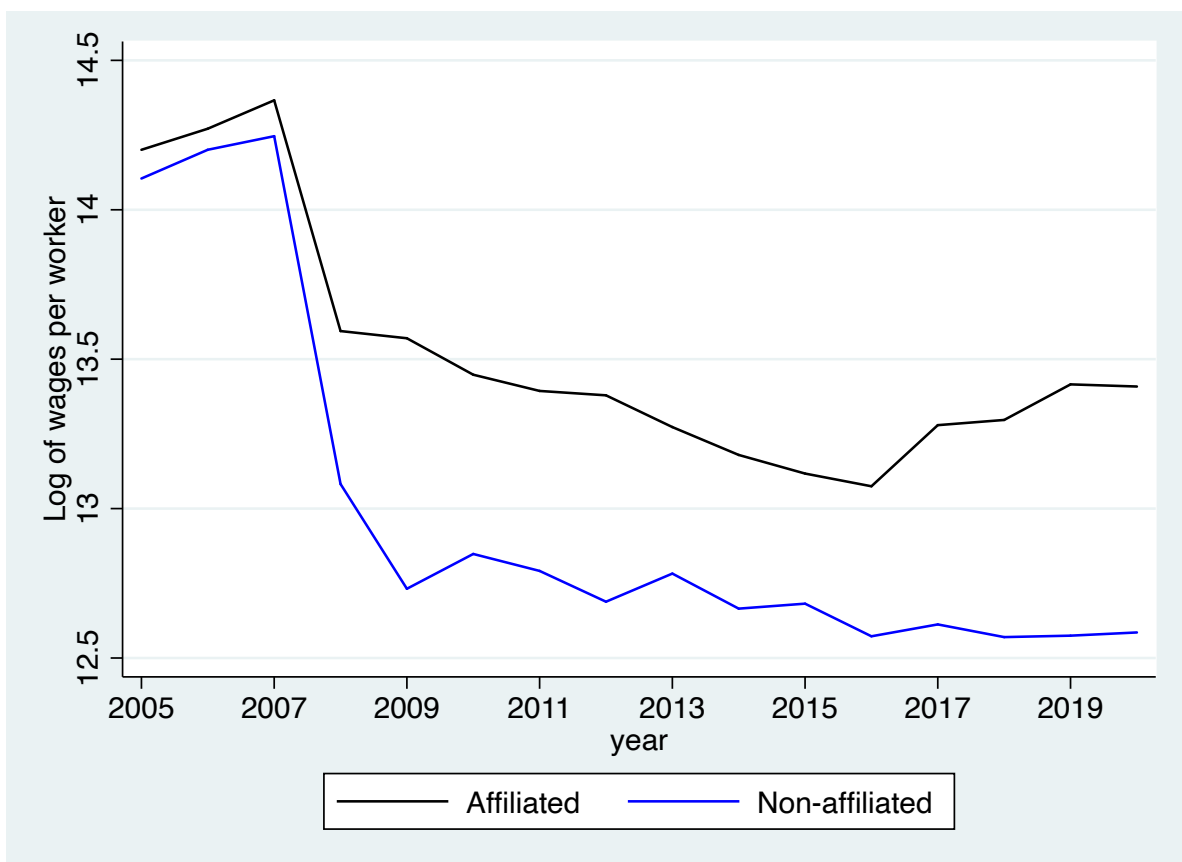
Affiliated firms (treated)				
		Mean	Std. Dev.	Obs
Characteristics	Size (number of workers)	27.65	44.33	1840
	Age (number of days since founding)	10258.93	4343.48	1840
	Export share	55.71	26.51	1840
Treated before				
Outcomes	Employment growth (%)	12.92	1.21	558
	Log of productivity (net turnover per worker)	15.61	1.55	659
	Log of productivity (sales per worker)	15.78	1.67	659
	Profitability ratio	8.13	1.54	554
	Log of wage per worker	14.06	1.60	315
	Wage growth rate (%)	2.53	12.69	227
Treated after				
	Employment growth (%)	2.81	0.24	1052
	Log of productivity (net turnover per worker)	15.70	1.46	1095
	Log of productivity (sales per worker)	15.82	1.59	1095
	Profitability ratio	7.98	1.51	918
	Log of wage per worker	12.83	2.24	194
	Wage growth rate (%)	9.43	107.17	174
Non-affiliated firms (control)				
		Mean	Std. Dev.	Obs
Characteristics	Size (number of workers)	25.98	249.29	71712
	Age (number of days since founding)	10168.33	3482.92	71712
	Export share	43.93	31.67	71712
Outcomes	Employment growth (%)	4.11	0.74	62205
	Log of productivity (net turnover per worker)	15.76	1.33	67299
	Log of productivity (sales per worker)	15.90	1.43	67426
	Profitability ratio	7.85	1.63	54318
	Log of wage per worker	14.02	1.58	16467
	Wage growth rate (%)	4.97	128.33	12458

Figure 3: Employment growth rate (affiliated vs non-affiliated firms)



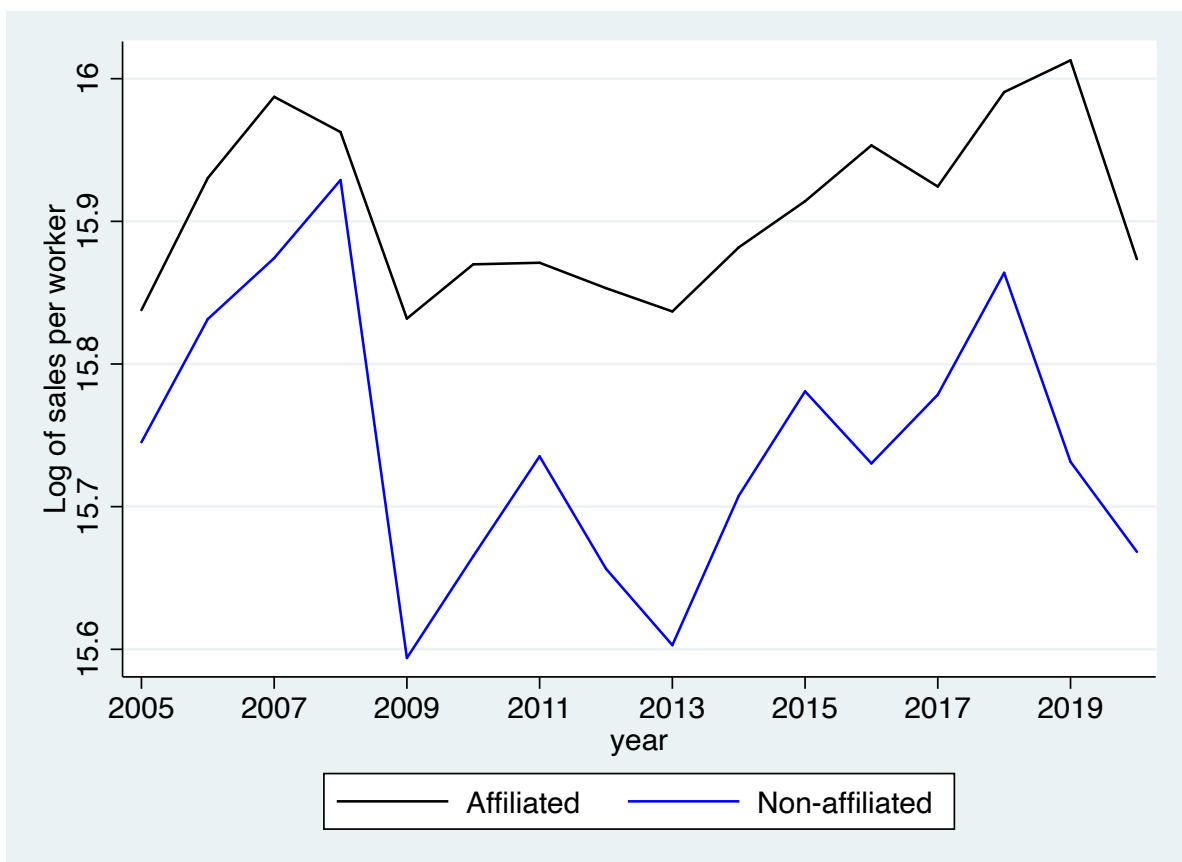
Source: own elaboration using SABI and EAs data.

Figure 4: Log of wages per worker (affiliated vs non-affiliated firms)



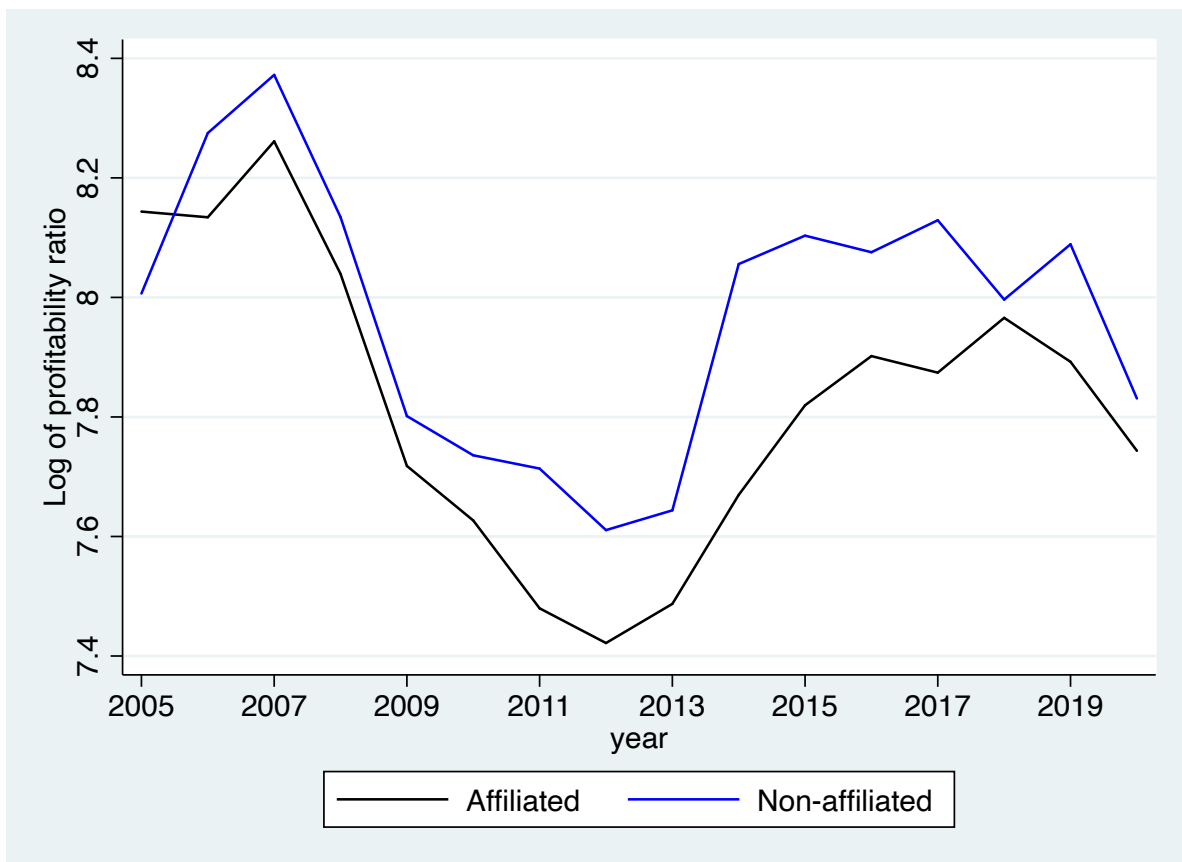
Source: own elaboration using SABI and EAs data.

Figure 5: Log of productivity as sales per worker (affiliated vs non-affiliated firms)



Source: own elaboration using SABI and EAs data.

Figure 6: Log of profitability ratio (affiliated vs non-affiliated firms)



Source: own elaboration using SABI and EAs data.

Figure 7: Effects of becoming member of an EA on firm's outcomes)

	Employment growth	Productivity (net turnover per worker)	Productivity (sales per worker)	Profitability ratio	Wage per worker	Wage growth
<i>Affiliated firm x POST</i>	-0.00810 (0.00906)	-0.0319 (0.0442)	-0.0446 (0.0479)	0.165*** (0.0501)	-0.771*** (0.140)	5.692 (5.979)
Year FE	YES	YES	YES	YES	YES	YES
Sector FE	YES	YES	YES	YES	YES	YES
Observations	63,815	69,053	69,180	55,790	16,976	12,859
R-squared	0.006	0.058	0.057	0.042	0.166	0.005

Note: regression has been estimated using OLS methods, as the outcome is either a share or a continuous outcome with decimal numbers. The analysis includes age of the firm as a control variable. Productivity and wage per worker are estimated in logs. In all regressions, standard errors are clustered at the firm level. ***p<0.01;**p<0.05;*p<0.1

Figure 8: Effects of becoming member of an EA on firm's outcomes (II)

	Employment growth	Productivity (net turnover per worker)	Productivity (sales per worker)	Profitability ratio	Wage per worker	Wage growth
<i>Affiliated firm x POST</i>	-0.0824 (0.0515)	0.0814 (0.0736)	0.0182 (0.0797)	-0.0252 (0.0816)	-0.827*** (0.162)	7.366 (5.977)
<i>Affiliated firm</i>	0.0754 (0.0513)	-0.115* (0.0599)	-0.0638 (0.0647)	0.194*** (0.0656)	0.0578 (0.0852)	-1.735 (1.268)
Year FE	YES	YES	YES	YES	YES	YES
Sector FE	YES	YES	YES	YES	YES	YES
Observations	63,815	69,053	69,180	55,790	16,976	12,859
R-squared	0.000	0.000	0.000	0.000	0.006	0.000

Note: regression has been estimated using OLS methods, as the outcome is either a share or a continuous outcome with decimal numbers. The analysis includes age of the firm as a control variable. Productivity and wage per worker are estimated in logs. In all regressions, standard errors are clustered at the firm level. ***p<0.01;**p<0.05;*p<0.1