What Do Employers' Associations Do?*

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Abstract

While trade unions have been studied in detail, there is virtually no economics research on employer associations (EAs), trade unions' counterparts in many countries. Here we argue that EAs are important economic agents as they provide *sectoral public goods* such as collective bargaining, training, and representation. We also study the contributions of EAs by comparing affiliated and non-affiliated firms in terms of sales, employment, productivity, and wages. Using matched employer-employee data for Portugal, we find an affiliation premium along most of these dimensions, even when drawing on changes in affiliation status over time; and that this premium tends to increase with EA coverage (defined as the percentage of workers in the relevant industry/region domain employed by affiliated firms). Sectors as a whole also appear to benefit from EA coverage, even if non-affiliated firms do worse.

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JEL Codes: J50, J23, L22.

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1 Introduction

Almost 40 years ago, Freeman & Medoff (1984) famously asked 'What do unions do?'. Since then, a voluminous amount of research in economics and other fields analysed the different contributions of trade unions (and other forms of worker representation) for workers, firms, labour markets and economies. This paper asks the same question but of employers' associations, the organisations that represent firms that operate in a given industry and or region and that are trade unions' counterparts in sectoral collective bargaining in many countries.

While trade unions have received considerable attention in the academic literature, there is no research so far in economics about employers' associations. This is a very important gap: as we argue in this paper, employers' associations provide important 'sectoral public goods' that can also influence several economic outcomes. These public goods include collective bargaining (OECD 2019) but also the provision of business information and training, domestic and international representation, shaping regulations and standards, and overall coordination. Some of these activities involve both the product and input (labour and non-labour) markets, possibly with a view to increasing the buying or selling power of affiliated firms.

The cases of training and collusion illustrate the potentially conflictual effects of employers' associations from a sectoral or economy-wide perspective, despite the positive effects to affiliated firms. This mirrors the analysis in Freeman & Medoff (1984) regarding the positive and negative contributions of (workers') trade unionism. Indeed, employers' organisations may improve economic and social outcomes, most notably when they facilitate (sectoral) collective bargaining.[1] On the other hand, employers' associations may also potentially promote collusion by their members, with negative social effects. Such collusion can involve obstacles regarding the entry and survival of non-affiliated firms and diminished job and wage opportunities for workers in non-affiliated firms. Overall, the net social effects from associations may not be positive even if affiliated firms do better than their non-affiliated counterparts.

Motivated by the multiple potential impacts and uncertain net contributions of employers' associations, this paper studies their potential effects from a quantitative perspective and at both the firm- and sectoral-levels. Again, this paper is, to the best of our knowledge, the

[1]For instance, the greater predictability that can follow from collective agreements may lead to higher investment, productivity and wages in the participating firms. In the absence of employers' organisations, collective bargaining may be limited to a smaller number of mostly large firms. Economic and social outcomes may also benefit from employers' associations investment in industry-wide public goods, such as training or better regulations and product standards that may eventually spillover to non-affiliated firms.

first to research employers' associations in the economics literature.[2] Moreover, our empirical contributions are based on three complementary approaches. First, we construct measures of employers' association coverage using a new method that we propose here. These measures also seek to address the challenge that '[c]ompared with union density, much less is known about the membership and representativeness of [employer] organisations across OECD countries' (OECD 2019).[3] Second, we estimate the size and robustness of the firm-level employers' association affiliation premium as well as the role of the association coverage. We consider multiple outcome variables, including productivity, sales, employment and wages. Third, we move beyond the firm-level to consider a sectoral perspective and the net effects of employers' association on both affiliated and non-affiliated firms.

Our analysis is based on rich matched employer-employee panel data for Portugal. Critically for our purposes, the data includes the employers' association in which each firm is affiliated (if any) in each year. Moreover, the data set covers all firms in the country, which allows us to compute accurate measures of coverage. Portugal is also an interesting case study as employers' associations there play an important role in collective bargaining and several additional dimensions as discussed above, similarly to several other countries in Europe.

We find that affiliated firms exhibit better outcomes in terms of sales, employment, and wages, but less so in terms of productivity. These results hold even when drawing on variation from firms that change their affiliation status over time and controlling for time-invariant (observed and unobserved) confounders. Moreover, these affiliation premiums tends to increase with association coverage (the percentage of workers employed by affiliated firms across all workers in the relevant industry/county domain of each employers' association) reaching a peak value of around 7%. Finally, we also examine aggregate effects by considering economic sectors instead of firms. Here we find that sectors exhibit higher levels of performance as employers' association coverage increases, even if non-affiliated firms tend to do worse. In conclusion, our results indicate that employers' associations can be an important positive tool towards improving economic outcomes through the provision of sectoral public goods - even if their net effects may not be very large. Our findings also indicate that employers' associations

[2]See Demougin et al. (2019) for an overview of the non-economics literature and challenges faced by employers' associations.

[3]For instance, the comprehensive and widely used data base by Visser (2019) includes 31 indicators on 'Number and membership of unions and confederations', 19 indicators on 'Total union membership, bargaining coverage, employment, union density and bargaining coverage rates' and 15 indicators on 'Membership shares, conflicts and divisions between and within trade union confederations'. In contrast, the data base includes only four indicators on 'Sectoral institutions and employer organization'.

deserve more attention from both economics and policy perspectives.

The remaining of the paper is structured as follows: The next section discusses the economics of employer associations and the context of Portugal. Section 3 describes the data set used in this paper and several descriptive statistics. Section 4 presents our empirical results. Finally, Section 5 concludes.

2 Some economics of employers' associations

Employers that operate in the same industry or sector typically have a number of interests in common despite their relationship as competitors. These common interests may include several diverse dimensions such as the representation of the sector before trade unions or the government, matters regarding vocational education and training or occupational safety and health, or coordination in firm's relationships with buyers and supplies. These firms may therefore see benefits in some forms of collaboration and coordination in employment and other matters, namely through the joint provision of 'sectoral public goods' conducted by employers' associations.

Indeed, these goods will exhibit some degree of non-rivalry or non-excludability. For instance, when an employers' association concludes a collective agreement with a trade union and the agreement comes into force, the adoption of that agreement by a firm does not preclude its adoption by another firm. When an employer association contributes to the shaping of regulations or vocational education in the sector, it cannot prevent any specific firms from benefiting from the improvements in the skills of the workforce that will presumably follow from that. Moreover, these benefits have a strict sectoral dimension, as they apply exclusively to firms that operate in a specific set of industries.[4]

Given the dispersion in firms' profiles within specific industries, questions can be raised about the suitability of such sectoral public goods for all potential members of a given employers' association. For instance, the wage levels set in collective bargaining may be appropriate for larger, more productive firms but too high for smaller, younger businesses. Similarly, firms may have different preferences regarding vocational education or other regulations. This heterogeneity in preferences may lead to the emergence of multiple employers' associations within

[4]Of course, as some employers' associations are focused on specific regions, a local dimension may apply too but this is typically not the key dimension of the operation of these associations. Also note that the provision of public goods by employers' associations may be funded partly by public funds, in particular in the area of training.

industries and competition across associations, in a way that is analogous to the case of local public goods (Tiebout 1956).

An additional consequence of the heterogeneity of firm profiles in an industry may involve the non-affiliation of those firms that do not share the preferences of the existing employers' association(s). Note, however, that such non-affiliation can also follow from free-riding behaviours from some firms (Bramoulle & Kranton 2007). These firms may value the public goods provided by employers' associations but also understand that they do not need to join these associations (and pay the resulting membership fees) to benefit from them. Such free riding may be more likely in large and fragmented industries (Olson 1965). This free-riding can also lead to the underprovision of the sectoral public goods above, given the more limited funding available.

One final element of the economics of employers' associations is the scope of these organisations to promote coordination or even collusion in either their product or input markets. As associations draw together firms that compete in the same product and input markets, their regular meetings and discussions of common interests may facilitate a coordinated approach to external stakeholders, including buyers, sellers and workers. For instance, by agreeing not to hire workers from other firms that are also affiliated by the employers' association, each and all firms may be able to reduce worker turnover and salary costs. Depending on the country, some of these practices may be unlawful.

2.1 Main activities

After proposing some theoretical remarks regarding employers' associations, in this subsection we present a classification of their 'sectoral public goods' along three main dimensions: 1) collective bargaining, 2) representation and training, and 3) coordination. All dimensions can have important economic effects, as we discuss below. Note that the latter two dimensions can also be pursued separately by trade or business organisations, which have an exclusive focus on the product market and are not involved in collective bargaining.[5]

On the first dimension, *collective bargaining*, we start by noting that, while it can be conducted at the firm-level (the exclusive or main level of bargaining in several countries, including

[5]However, in this paper, we consider only either 'pure' employers' associations, focused exclusively on labour market and industrial relations issues, or 'dual' associations (Behrens & Traxler 2004), which conduct activities on both labour and product market areas. See Kirby (1988) and Levine et al. (2019) for industrial organisation studies of trade associations. In any case, much of what we discuss can also apply to trade organisations.

the U.S.), a sectoral approach can have several advantages for participating firms. These include the stronger bargaining power from conducting the negotiations with trade unions when representing several firms, leading to lower costs (from wages and or other amenities) compared to firm-level bargaining. Bargaining costs may also fall, as the (largely fixed) costs from conducting the negotiations, including the costs of legal experts, can be shared by the multiple members of the employers' association.[6] All these factors may also increase the coverage of collective bargaining, which can then lead to other positive effects for the participating firms, including better industrial relations (fewer industrial disputes and strikes), and possibly more capital investment, namely if the scope for hold-up by workers is diminished.

Second, *representation and training* activities can again benefit from employers' associations provision. Firms in a sector can benefit from a more articulated and regular interaction with public agencies such as public employment services, vocational education and training providers (including apprenticeships), occupational safety and health agencies, and regulators in general. Employers' association may be well positioned to conduct this type of intermediation or to deliver some of these services directly, creating sectoral public goods. Firms in the same industry may have similar needs in terms of the training of their staff. Part of this training may involve keeping abreast of the latest developments in their industry, in terms of regulations, standards, procurement, products, inputs, events, etc, as well as the representation of the sector in events (including fairs). Effective training provision may require detailed information about firms needs that cannot be sourced easily by individual training firms. Joint provision of training may also address training inefficiencies driven by poaching externalities. Pooling resources to provide (sectoral) public goods in these areas, possibly operating at a larger and more efficient scale, may make firms more efficient compared to an alternative in which each firm is conducting these activities individually.

Third, *coordination* involves all activities when dealing with other stakeholders than trade unions, including possibly suppliers of inputs and buyers of products. For instance, some employers' associations establish deals with key suppliers so that the latter deliver lower prices to affiliated firms. Some forms of coordination may potentially involve non-competitive prac-

[6] Moreover, in a context of administrative extensions, employers' associations can use collective bargaining to increase the costs to be incurred by non-affiliated firms and become more competitive (Williamson 1968, Salop & Scheffman 1987, Haucap et al. 2001, Hijzen & Martins 2020, Martins 2020*a*). Furthermore, by defining minimum wages for the key occupations in their industry, affiliated firms can reduce the wage competition between them (as it will be less likely that workers will be paid higher wages at other affiliated firms). Affiliated firms may thus simultaneously reduce their wagebills and staff turnover costs compared to a counterfactual case of firm-level bargaining.

tices, namely when leading to higher prices for customers or lower wages (or job opportunities) for workers. For instance, Krueger & Ashenfelter (2018) finds evidence of non-poaching agreements in the US. This type of coordination may arise not only across establishments of the same firm but also across different firms of the same industry. The latter case can potentially be facilitated by employers' associations. A particular form of coordination may involve the usage of employers' associations to legitimise the views of a single firm or a very small group of firms that are presented as the views of a wider industry.

2.2 Implications

One important question that arises following the discussion above concerns the drivers of the affiliation decision. Empirically, it is known that in many cases the majority of firms are not affiliated in employers' associations, even when sectoral collective bargaining is common (OECD 2019). While there are significant potential benefits from employers' associations, as discussed above, many of those can be accrued through free-riding. Indeed, some of the sectoral public goods are non-excludable, including several dimensions of representation and even training (the latter through subsequent poaching). There are also costs to be incurred, including the payment of a membership fee (and potentially following specific standards or requirements set by employer associations).

Perhaps equally importantly, the benefits from membership will not be uniform across firms and may potentially be very small in some cases. Some firms (in particular the smallest but perhaps in some cases also the largest) may believe that their interests will not be appropriately supported by the employers' association. For instance, smaller firms may believe that the minimum wages that will be set in collective bargaining may be too high given their productivity. Coordination activities may again be geared towards a specific subset of firms within employers' associations, namely those that take up leadership positions in organisation. These cases of negligible or even negative net benefits may also reflect mismatches between the core business of a firm, in terms of industry, product range and or region, and that of the key members of the relevant association. These concerns may be particularly relevant in industries where a large number of firms operate (Olson 1965, Trumbull 2012, Valtat 2019). Similarly, large firms that may have better chances of gaining positions of power in the employers' association will be more interested in being affiliated in their industry's employers'

association.

Given the discussion above, employers' association affiliation status will not vary randomly across firms. Factors that influence a firm's choice towards joining or leaving an association may also have a direct influence on economic outcomes such as the firm's productivity, employment or sales. In the absence of a randomised trial assigning affiliation status across firms (or a quasi-experimental alternative), the most rigorous analysis of the contribution or 'premium' of affiliation along any outcome variable will require a comparison of firms as similar as possible but affiliated or not in the a given employers' association. As discussed below, we will compare affiliated and non-affiliated firms within the same industry, county and employer association domain. We will also compare the same firms in different periods of time, when their affiliation status may switch. These changes in status may be driven by possibly random events prompting an affiliation or de-affiliation decision.

Another point that follows from our discussion above concerns the relevance of scale. Larger employer associations may be in a better position to offer cost-effective local public goods to their affiliates. The value added from their training activities, the magnitude of the concessions secured from trade unions in collective bargaining, the quality of their advocacy are all likely to depend positively on the scale at which they operate. Such scale will depend in turn on their number of members (and or the number of their employees), in either absolute or relative terms. In this context, the affiliation premium may depend positively on the coverage of employers' associations. However, the relationship may be non-linear: if a large share of firms is affiliated, affiliation may provide limited benefits as the interests of the affiliated firms that are pursued by the association may not be sufficiently specific and distinctive from those of non-affiliated firms. Non-affiliated firms may easily free-ride on their affiliated courterparts.[7]

Finally, the discussion above also highlights a potential 'market stealing' dimension of employers' associations, towards non-affiliated firms, that can explain any positive premium of the former. For instance, through the use of collective bargaining extensions, employers' associations can impose wages that are too high for smaller firms, a group where unaffiliated firms may be over-represented, drive the latter out of business and increase the market share of affiliated firms. More generally, through their advocacy roles with external organisations,

[7]Behrens & Helfen (2016) finds that association coverage in Germany is positively related to the engagement of associations with trade unions. See Calmfors & Driffill (1988) for another non-linear relationship with economic performance, in this case involving collective bargaining and its degree of centralisation.

in particular with the government, employers' associations may support the growth of their affiliated firms by creating obstacles and reducing the size of their non-affiliated competitors. In other words, the actions of employers' associations may correspond to sectoral public goods from the perspective of affiliated firms but have negative effects upon non-affiliated firms.

In a nutshell, the discussion in this section leads to three empirically testable predictions concerning the economic effects of employers' associations. First, employers' associations may have a positive effect on different economic variables of the affiliated firms when compared to similar non-affiliated counterparts. Second, the magnitude of these positive effects may depend positively but non-linearly on the size of the association. Third, part of the overall effects from employers' associations may come at the expense of non-affiliated firms, implying net effects of associations below those that would result from their firm-level premiums. These are the predictions that we test next.

3 Data

The main data set in our study is Personnel Records ('Quadros de Pessoal', QP), a compulsory survey of all firms in Portugal with at least one employee, conducted by the Ministry of Employment. This census includes a number of variables about firms and their workers, such as identifiers, geographical location (county), industry (five-digit code), sales, employee headcount, and the individual wages of each employee. Critically for the purposes of this study, we were also able to access information, reported by each firm, on the employer association in which the firm is affiliated, if any (see Appendix A for a description of employers' associations in Portugal). This variable is available in our data set for the years of 2006, 2007, 2008 and 2009.

Using the employers' association affiliation variable, together with information on the industry and county of each firm, we create a new variable that defines the economic and geographic domain of each employers' association (see Appendix B for a description of our methodology). The creation of this variable is important so that we can identify as closely as possible the non-affiliated firms in the domain of each employer association. Our new methodology, described below, also allows us to construct rigorous measures of coverage (or representativeness) of each employer association, in another contribution of this paper. As discussed above, while in some cases employers' associations pursue their activities across the

entire country, in many other cases they are focused on particular regions in the country. While this geographical dimension (on top of the sectoral dimension) already matters in a country with ten million inhabitants like Portugal, it is likely to be even more important in larger countries where sectoral collective bargaining is also relevant, including France, Germany, Italy or Spain, for instance.

Finally, we also use two additional firm-level census data sets, both made available by INE (Statistics Portugal), for robustness purposes. The first data set (SCIE) provides accounting information (gross added value, profits) and the second data set (CI) provides international trade (exports) information.

3.1 Descriptive statistics

Our analysis of the QP data described above (and in Appendix B) led to the identification of 502 employer associations. Table 1 (Panel A) presents (unweighted) descriptive statistics of these associations. On average, each association domain covers 20,543 workers (over a period of four years, or little above 5,000 workers per year) and 2,289 firms (or nearly 560 firms per year). These figures include: 1) firms affiliated in the employer association of the corresponding domain, 2) firms not affiliated in any association (but operating in the county-industry pairs of the employer association), and, in a small number of cases, 3) firms operating in the same county-industry pairs but affiliated in other associations. Coverage is then defined as the ratio between the number of workers of (the firms affiliated in) the employer association in the relevant domain and all workers (of the firms operating in the same domain).

We find that the average coverage across all associations is 43.2%. When considering this coverage indicator in terms of firms, i.e. the ratio between the number of firms affiliated in the employer association of the domain and all firms operating in that domain, the resulting average coverage is lower, at 30.2%. This reflects the over-representation of large firms (in terms of employees) in associations. Finally, each association is found to be present on average over 66 industry-county cells, typically involving multiple industries and multiple counties. Figure 1 presents a scatterplot of the coverage and number of (industry-county) cells of each employers' association, with circles proportional to the total number of workers in the underlying employers' association domain. We find a significant dispersion of coverage ratios across a large number of small associations with fewer than 100 industry-county pairs

but also a considerable number of large associations with coverage ratios of 40% or more.[8]

Finally, Table 1 (Panel B) presents descriptive statistics of the over one million firm-years that we analyse in our main results below (corresponding to over 400,000 different firms).[9] We find that, on average, each firm-year considered employs 9.4 workers, sells 1.1 million euros, and has a monthly total wage bill (excluding social security and other costs) of 7.2 thousand euros. 11.5% of the firms exit the market in the following year (for firms observed between 2006 and 2008). 39.5% of the firms are affiliated with an employer association, while 28.9% of them are affiliated in the employer association of the cell (county-industry pair) in which they operate (the difference corresponds to firms affiliated in other associations). Finally, the average coverage level of each firm's employer association domain is 42.6% (workers' level approach, weighting each firm by its size). Considering a two-standard-deviation range, the coverage rate of most employers' associations is between 14.2% and 71%.[10]

4 Results

4.1 Firm-level analysis

Our main empirical goal in this paper is to understand the relationship between employers' association affiliation and different dimensions of firm performance, including sales, employment, productivity, and wages. To do so, we begin by estimating simple models of the variables above, in which we compare affiliated and non-affiliated firms. In some cases, we control for several variables that may influence such outcomes, such as the industry in which the firm is operating and the particular region in which the firm is located. In other cases, we conduct longitudinal analysis, to compare the outcomes of the same firms over time, namely when they are and when they are not affiliated, using firms that do not switch status as a comparison group.

[8] See also Figure C.2 for a scatterplot of the number of industries and counties in which each association operates. While some associations operate under a restricted number of units under both dimensions, others focus along the regional or sectoral dimensions.

[9] This figure already excludes firms that operate in industry-county cells in which no employer association operates (i.e. in which all firms are not affiliated in any association), as they would not contribute to our main analysis.

[10] Table D.1 presents the mean characteristics of affiliated and non-affiliated firms separately. We find that affiliated firms are larger and have higher sales (in total and per worker), wagebills, profit margins and gross value added. They are more likely to export and are are located in employers' association domains with higher coverage ratios. We also find that, out of the 276,000 firms that are observed over two or more years, about 22,000 undergo a change in affiliation status. Approximately half of them change by becoming affiliated while the other half changes their affiliation status in the opposite direction.

In this context, our first specification is as follows:

$$y_{i,t} = \beta Affiliated_{i,t} + \gamma_{c(i)} + \lambda_{s(i)} + \phi_{a(i)} + \alpha_i + \tau_t + e_{i,t}, \tag{1}$$

in which the dependent variable, y_{it}, corresponds to one of multiple outcomes of interest for firm i in year t. These outcomes include sales, employment, productivity (sales per worker), the wagebill, the average wage (wage bill per worker), profitability, and exports, all measured in logs, and firm exit, defined as a dummy variable equal to one if the firm is not present in our census data in the following year. $Affiliated_{i,t}$ is the key regressor of interest, a dummy variable equal to one if firm i is affiliated in year t (in association a, the association of the industry-county where firm i operates; note that firms affiliated in other associations will have this variable switched off). $\gamma_{c(i)}$ corresponds to the (309) county ('concelho') fixed effects, $\lambda_{s(i)}$ the (831) industry (5-digit definition) fixed effects, and $\phi_{a(i)}$ are the (502) employer association (county-industry) domain fixed effects (a time-invariant set of county-industry pairs specific to each association). Furthermore, α_i denotes the (up to 400,000) firm fixed effects and τ_t the (four) year fixed effects. All models consider standard errors clustered at the firm level.

We also pay particular attention to the role of employer association coverage, which we define here as the share of employment in the set of industry-county pairs in which each employer association is found to be operating. According to our discussion above, the gains from affiliation may vary depending on this degree of coverage. Larger associations may be in a better position to provide local public goods to their affiliates, with a stronger positive effect on their outcomes. Our second specification therefore extends the model of equation 1 above to consider this view, by including the coverage of the domain of each employer association ($Coverage_{a(i),t}$) and its interaction with the affiliation status of each firm ($Affiliated_{i,t} * Coverage_{a(i),t}$):

$$\begin{aligned} y_{i,t} =& \beta_1 Affiliated_{i,t} + \beta_2 Coverage_{a(i),t} + \beta_3 Affiliated_{i,t} * Coverage_{a(i),t} + \\ &+ \gamma_{c(i)} + \lambda_{s(i)} + \phi_{a(i)} + \alpha_i + \tau_t + e_{i,t}. \end{aligned} \tag{2}$$

Finally, our third specification extends the model of equation 2 above to consider non-linearities in the role of the coverage of the domain of each association ($Coverage_{a(i),t}$). As discussed before, the effect of affiliation may not vary linearly with coverage. It may instead

be small if very few other firms are affiliated (as the value of their sectoral public goods will be limited in that case). The the effect of affiliation may then grow for intermediate levels of coverage and eventually decline beyond some critical point, when a large percentage of firms are already affiliated (and free riding ensures that the small group of non-affiliated firms also benefits from the sectoral public goods). We test this hypothesis by introducing an interaction of the affiliation status of each firm also with the coverage square ($Affiliated_{it} * Coverage^2_{a(i),t}$) while controlling for its direct effect ($Coverage^2_{a(i),t}$):

$$\begin{aligned} y_{i,t} =& \beta_1 Affiliated_{i,t} + \beta_2 Coverage_{a(i),t} + \beta_3 Affiliated_{i,t} * Coverage_{a(i),t} + \\ &+ \beta_4 coverage^2_{a(i),t} + \beta_5 Affiliated_{i,t} * coverage^2_{a(i),t} + \\ &+ \gamma_{c(i)} + \lambda_{s(i)} + \phi_{a(i)} + \alpha_i + \tau_t + e_{i,t}, \end{aligned} \tag{3}$$

Our main results follow the specifications above, separately for each outcome of interest and either controlling for country, industry and employer association effects or controlling instead for firm fixed effects. (Due to the stability of a firm's and association's geographical and sectoral location, each firm fixed effect corresponds to a linear combination of the country, industry and employer association domain fixed effects.)

Our first outcome is productivity, measured by the log of sales per worker (next we consider its two components separately). Table 2 presents the results, in which the first two columns correspond to specification 1, columns 3 and 4 to specification 2 and the final two columns to specification 3. We find that the average difference (after controlling for industry, county and association) between affiliated and non-affiliated firms is large (0.118) and significant. However, when controlling instead for firm fixed effects, which rely on the (limited) within-firm variability in employer association status, the point estimate drops considerably (to 0.006) and is no longer statistically significant at conventional levels.

When considering equation 2 instead, including an interaction between affiliation status and employer association domain coverage (the percentage of workers in affiliated firms), we find that the direct affiliation effects are similar. We obtain positive and significant effects (0.024) when not controlling for firm effects and insignificant effects when controlling for firm heterogeneity. On the other hand, the role of coverage changes from negative to positive depending on the specification. Moreover, the role of the interaction between coverage and affiliation is again either positive and significant (when controlling for county, industry and

association fixed effects) or insignificant when controlling for firm fixed effects.

Finally, we consider our more flexible and preferred model, equation 3, in which we allow for nonlinear effects of affiliation with respect to coverage. We find that, when controlling for county, industry and association fixed effects, only the linear interaction is significant (0.270). However, in our preferred specification controlling instead for firm fixed effects, while the linear interaction has a similar coefficient (0.277), the quadratic interaction is now significant and negative (-0.244). This latter specification is consistent with the hypothesis that the affiliation premium depends nonlinearly on the coverage level of the market, increasing at low levels of coverage and eventually decreasing when coverage is high. However, the resulting affiliation premium is very small. Under these coefficients, it is positive for coverage rates between 33% and 80%, reaching its highest value at a coverage of 57%, when the affiliation premium is 1.4%.

We now turn our attention to our second outcome variable of interest: sales. Table 3 presents the results, which indicate significant and large positive differences of affiliated firms compared to non-affiliated firms. In this case, these positive differences arise not only when controlling for the first three sets of fixed effects but also when considering firm fixed effects. However, the latter coefficient is much smaller (0.601 and 0.041, respectively). Similarly, when introducing the role of coverage, the interactions with affiliation are always positive and significant, in both sets of fixed effects (1.416 and 0.153, respectively). Finally, these positive coefficients remain large and significant when controlling as well for non-linear relationships (0.984 and 0.551). In the most demanding specification, with firm fixed effects, the affiliation premium remains positive for all coverage levels above 26%, reaching a peak at 69% coverage, with an effect of 7.2%. This effect is considerably larger than the one we documented above for the case of productivity.

These results are largely repeated in the cases of employment and the wagebill - Tables 4 and 5. Affiliation is almost always associated with larger firm sizes, even when controlling for firm fixed effects. In the most demanding specifications of columns 6, the affiliation premium is negative only for coverage ranges below 22% (21%) in the case of employment (wagebill). It increases above that reaching a peak at 87% (80%) coverage, when the premiums are between 6% and 7%. The similarity between the effects for sales and employment also explains the small effects found in the case of productivity.

The only cases in which we do not find robustly significant results are those of average wages and firm exit - Tables 6 and 7, respectively. While these results are suggestive of higher wages and lower firm exit probabilities in affiliated firms, the key coefficients tend to become insignificant in the most demanding specifications of columns 4, 5 and 6 of each table. Similarly, when considering the additional outcomes available from the SCIE and CI data sets - two different measures of profitability (log profits and the profit margin), another measure of productivity (gross added value per worker), and exports -, we also do not find statistically significant differences in the specifications with firm fixed effects - Tables D.2, D.3, D.4 and D.5.

For the sake of robustness, we also redo our main analysis considering a broader definition of the domains of each employer association - regions at the 'NUTS3' level (corresponding to 30 different units, instead of 309 counties as in our main analysis) and industries at the four-digit level (corresponding to 599 different units, instead of 831 as in the case of the five-digit classification). We find that our results are robust to this alternative definition, with very similar affiliation premiums, except in the case of productivity, when they are stronger on average although statistically less precise - Tables D.6, D.7, D.8, D.9 and D.10.

Overall, we conclude from our firm-level analysis that there is a strong relationship between employers' association affiliation and different dimensions of firm performance - namely sales, employment, wagebills and, to a lesser extent, productivity (sales per worker). These relationships hold even when considering within-firm longitudinal variation. On the other hand, our evidence also indicates that these premiums are influenced by the degree of employer-association coverage in their relevant domain of influence. The premiums tend to be positive only when affiliated firms account for at least 25% of the total employment in the sectoral/geographic pairs in which the association operates, while the size of the premiums tends to peak at around 70% of such coverage measure. At these higher coverage levels, the affiliation premiums can be as high as 7%, even in models with firm fixed effects. However, for lower (and, in some cases, higher) coverage levels, the premiums can also be substantially smaller.

Our earlier discussion in Section 2 about the potential interaction between affiliation and coverage in the magnitude of the premiums suggests that these premiums are driven not only by the (positive) effects of associations on affiliated firms. The premiums may also be driven by

(negative) effects of associations on non-affiliated firms. To investigate this question further, we now conduct an analysis of the aggregate effect of associations, at the sectoral/geographic domains in which they operate.

4.2 Domain-level analysis

This second part of our study replicates the analysis of the previous subsection by aggregating the value of each variable of interest across all affiliated and non-affiliated firms in each association domain and year. Table 8 presents descriptive statistics of the resulting data set of 1,994 observations. We find that the average coverage is 42.8% and each domain in each year corresponds to an average of 6,356 workers and 705 (affiliated and unaffiliated) firms. By considering both types of firms together, we can investigate to what extent the affiliation premiums uncovered above are obtained at least in part from negative (indirect) effects on non-affiliated firms on top of the (direct) positive increments amongst their affiliated counterparts.

Our first analysis is based on the simple model as follows:

$$Y_{a,t} = \beta_1 Coverage_{a,t} + \beta_2 Coverage_{a,t}^2 + \alpha_a + \tau_t + e_{a,t}, \tag{4}$$

in which $Y_{a,t}$ denotes the productivity (log of the ratio of total sales by total employment), total sales, total employment, total wagebills or average wage, of all firms (affiliated or not) in the domain (the set of counties and industries) of association a in year t. As before, $coverage_{a,t}$ indicates the percentage of workers in domain a that are employed by affiliated firms, while α_a are (502) association fixed effects and τ_t are (four) year fixed effects.

Table 9 presents the results for the different outcome variables that we consider and for two specifications, one excluding the squared term (Panel A) and the other as in equation 4 (Panel B). In the first case, we fail to find statistically significant relationships between coverage and the different outcomes, with the exception of the wage variables (in which the coefficients are positive). In the second case, we find statistically significant non-linear, inverted U-shaped relationships in three of the five variables considered, namely sales, employment and the wage bill. Moreover, the point estimates of the linear and quadratic terms are very similar in absolute value.[11] This indicates that, similarly to the case of the firm-level analysis, the

[11] The results do not change if the sample excludes the residual category of the non-affiliated domain, i.e. the

'optimal' level of employer association coverage, in this case, in terms of the maximisation of the sector-level values of those variables, is at around 50%. Lower and higher coverage levels than this value are associated with lower total (domain-wide) sales, employment and wagebills. However, Again, as the impacts on employment appear to be similar to those on sales and the wagebill, sales per worker (our measure of productivity) are not affected by employer association coverage. The same applies to the average wage.

We therefore do not find evidence that employer association coverage has an overall negative effect at the domain level on any of the five dimensions of economic performance considered in this study. On the contrary, higher levels of coverage (or representativeness) tend to be associated with higher levels of most such variables in a manner consistent with our firm-level results. This evidence can be interpreted to mean that the performance premium of affiliated firms, and its increase with coverage, are not driven by negative effects on non-affiliated firms.

To test this potential interpretation more closely, we now repeat the analysis of equation 4 but considering the same indicators of productivity and the other outcome variables for non-affiliated firms only. In other words, we aggregate from the firm-level to the employer association domain level as before but considering only those firms (in the relevant association domains) that are not affiliated,. Our new equation is as follows:

$$Y_{a,t}^{NA} = \beta_1 Coverage_{a,t} + \beta_2 Coverage_{a,t}^2 + \alpha_a + \tau_t + e_{a,t}, \tag{5}$$

in which $Y_{a,t}^{NA}$ denotes the aggregation of each variable across all non-affiliated firms in association domain a and year t.

Table 10 presents the results, again considering both a linear specification (Panel A) and a quadratic specification (Panel B). In the first case, we find statistically significant and economically large negative coefficients in all outcomes except productivity. In the case of Panel B, we find insignificant results in the case of productivity. However, in the remaining cases, the coefficients of the quadratic term are negative, large and precise. They are counterbalanced by statistically significant positive linear coefficients in the cases of employment and the wagebill, when the effect of coverage can be extrapolated to be positive only up to low levels of coverage, of 15% (1.035/(2*3.584)), in the case of employment - column 3) or less.

set of county-industry pairs in which there are no employer associations, as coverage there is constant (zero) in all four years.

This would imply that, in most cases, the effect of associations and their increasing coverage on non-affiliated firms is negative.

However, part of these last results on non-affiliated firms may reflect a mechanical effect if changes in coverage over time are driven mostly by changes in affiliation status (as opposed to differential growth rates of affiliated and not affiliated firms). For instance, when non-affiliated firms join employer associations, the coverage level of the employer association will necessarily increase. At the same time, the value of the outcome of interest (e.g. the sum of employment) for the non-affiliated group will fall. To investigate this question further, we now examine the outcomes of non-affiliated firms as a function of the absolute size of affiliated firms (and not the coverage of the association). Specifically, we regress (the log of) the aggregation of each of the five outcomes of interest considered so far, considering again non-affiliated firms only, on the (log of) the sum of the employment of affiliated firms:

$$Y_{a,t}^{NA} = \beta Employment_{a,t}^{A} + \alpha_a + \tau_t + e_{a,t}. \tag{6}$$

Table 11 (Panel A) presents the results from this analysis. We find statistically significant and negative elasticities in non-affiliated sales, employment and wagebills and negative but not significant elasticities in the remaining two variables. These results indicate that, as the employment of affiliated firms grows, the employment (and sales and wagebills) of non-affiliated firms decreases. Moreover, when considering the (log of) sales of affiliated firms instead of their employment as the key regressor (Panel B), we again find negative elasticities, significant in four of the five cases, even if only at the 10% level (and smaller point estimates) in two of them. Again, we find similar results when adopting our alternative, more aggregated definition of employer association domains - Tables D.12, D.13, and D.14.

Overall, our results indicate that, while the growth of employers' association's coverage tends to be associated with the economic growth of the underlying sectors as a whole, the non-affiliated component of those sectors suffers. This result applies when considering coverage in both relative and absolute terms.

5 Conclusions

Employers' associations are key institutions of the labour markets of many countries. However, in striking contrast with the case of trade unions, their counterparts in (sectoral) collective bargaining, employers' associations have not been studied before in economics as far as we know. Given their multiple and significant activities (including training, representation and coordination), employers' associations have the potential to shape key economic outcomes, including employment, wages, and productivity. At the same time, the overall economic contributions of employers' associations can be affected by several factors, including the scale at which they operate, and the extent to which any benefits they provide to their members are in excess of any costs that they may impose on non-affiliated firms.

In this paper, we examined the role of employers' associations using rich matched employer-employee panel data including information on the affiliation status of each firm. We consider the case of Portugal between 2006 and 2009. This is an interesting country in this context given the predominance of sectoral bargaining and the resulting relevance of employers' associations, notwithstanding the fact that they also tend to deliver many other services to their members on top of collective bargaining.

We found that affiliated firms exhibit statistically significantly better outcomes in terms of sales, employment and total wages, compared to their non-affiliated counterparts. The differences are, however, not very large (and negligible in the case of labour productivity). This result holds even when drawing on variation from firms that change their affiliation status over time. To the extent that this time variation may be largely random then our positive estimates will indicate a causal effect. If not, they should be interpreted as a 'premium' that may pick up the role of other time-varying variables that are not controlled for in our analysis. While of course not definitive, our estimates are in any case supportive of the view that affiliation contributes to the improvement of a number of economic outcomes at the firm level.

Moreover, we also found that the affiliation premium tends to increase with the coverage of the employers' association. We define coverage as the percentage of all workers, in the relevant industries and regions, that are employed by affiliated firms. This indicator is computed using a new data analysis method that we propose here. Our result about the positive interaction between the premium and association coverage highlights our point about the importance of

scale for employers' associations to deliver benefits to their affiliates.

Finally, we also conducted a sector-level analysis (including both affiliated and non-affiliated firms) of the relationship between coverage and our key economic outcomes. We found that these sectors again appear to benefit from employers' association coverage, even if non-affiliated firms tend to do worse. This result suggests that part of the positive contributions of associations towards their affiliates comes from negative effects amongst the remaining firms, even if the net, sector-wide effect of associations is still positive.

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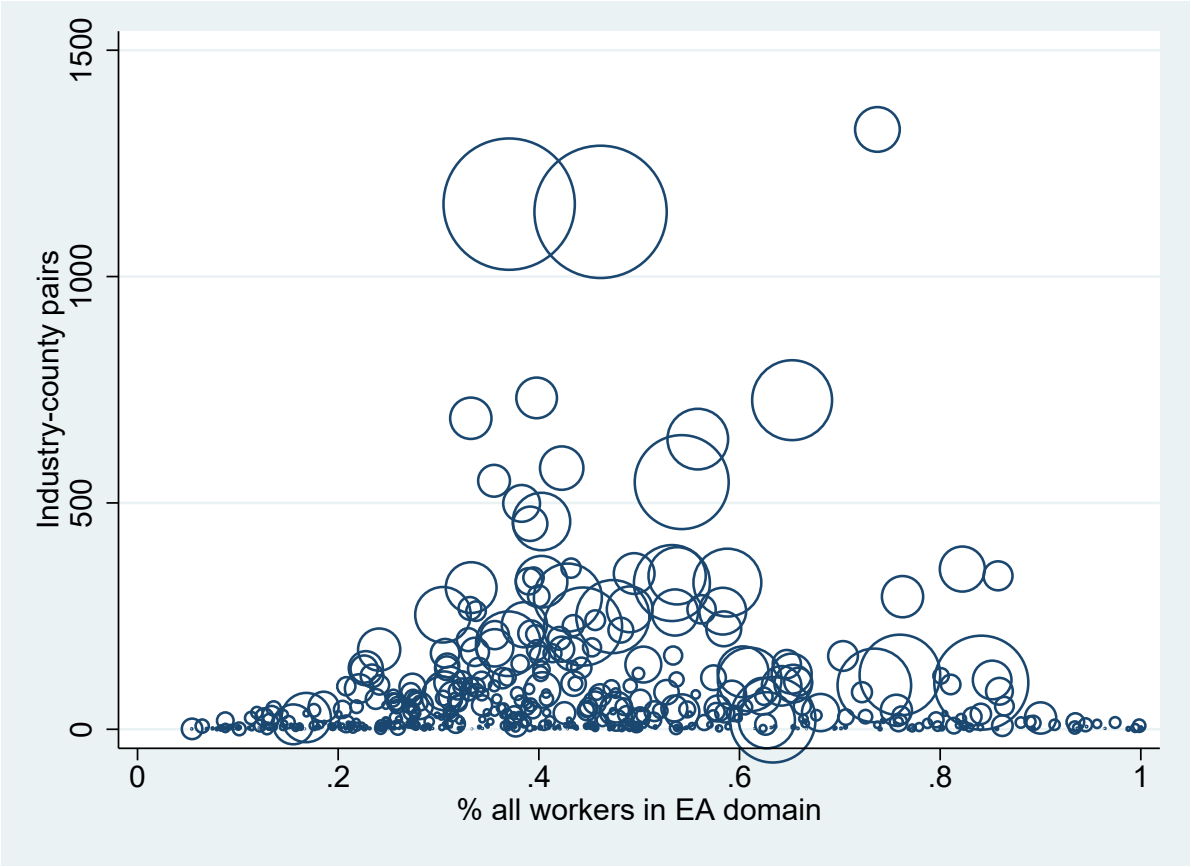
Figure 1: **Associations size and coverage**



Notes: The horizontal variable indicates the coverage of the employers' association (percentage of workers in affiliated firms). The vertical variable indicates the number of industry-region pairs covered in the employers' association domain. The size of each circle is proportional to the number of workers in the employers' association domain. Source: Authors' calculations based on QP data.

Table 1: **Descriptive statistics: association domains and firms, 2006-2009**

Variable	Mean	Std. Dev.	Min.	Max.	Obs.
Panel A - Associations					
Workers	20543.0	60958.8	2	700970	502
Firms	2289.1	6907.7	1	87318	502
Coverage rate (workers)	0.432	0.228	0.054	1	502
Coverage rate (firms)	0.302	0.191	0.009	1	502
Association cells	66.8	138.3	1	1325	502
Panel B - Firms					
Workers	9.467	87.065	1	19967	1009369
Sales	1150.0	36695.5	100	14134622	1009369
Wagebill	7.2	102.4	0	26.3	1009270
Exit	0.115	0.319	0	1	757613
Affiliated	0.395	0.489	0	1	1009369
Affiliated (cell)	0.289	0.453	0	1	1009369
Coverage rate	0.426	0.142	0	1	1009369
Year	2007.508	1.112	2006	2009	1009369

Notes: Panel A: Each observation corresponds to a different employer association (and its industry/county domain). Workers (firms) denotes the number of employees (firms) in the employer association domain. Coverage rate (workers, firms) is the percentage of workers (firms) affiliated in the employer association of the employer association domain. Association cells indicates the number of county-industry pairs that are part of the employer association domain. Panel B: Each observation corresponds to one firm observed in one year. Workers denotes the number of employees of the firm. Sales (full year) and Wagebills (October) in thousands of euros. Exit is equal to one if the firm is not present in the data set in the following year (variable defined only for 2006-2009) and zero otherwise. Affiliated is equal to one if the firm is affiliated with an employer association and zero otherwise. Affiliated (cell) is equal to one if the firm is affiliated with the employer association of the cell where the firm is located and zero otherwise. Coverage rate is the percentage of workers affiliated in the employer association of the domain where the firm is located.

Table 2: **Log productivity (sales per worker) effects**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.118	0.006	0.024	-0.008	0.012	-0.065
	(0.003)***	(0.004)	(0.011)**	(0.012)	(0.026)	(0.025)***
Coverage			-0.042	0.039	-0.016	0.031
			(0.018)**	(0.015)***	(0.043)	(0.035)
Coverage*Aff			0.214	0.030	0.270	0.277
			(0.023)***	(0.026)	(0.110)**	(0.101)***
Coverage^2					-0.038	0.012
					(0.064)	(0.048)
Coverage^2*Aff					-0.056	-0.244
					(0.113)	(0.100)**
N	1009354	942076	1009354	942076	1009354	942076
adj. R^2	0.336	0.792	0.336	0.792	0.336	0.792
F	1,471	2.245	511.8	4.41	308.1	4.124
Year FEs	1	1	1	1	1	1
Industry FEs	1	0	1	0	1	0
County FEs	1	0	1	0	1	0
EA Domain FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Cov^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table 3: **Log sales effects**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.601	0.041	-0.018	-0.027	0.076	-0.117
	(0.005)***	(0.004)***	(0.018)	(0.011)**	(0.045)*	(0.023)***
Coverage			-0.436	0.027	-0.028	-0.025
			(0.024)***	(0.014)**	(0.059)	(0.032)
Coverage*Aff			1.416	0.153	0.984	0.551
			(0.042)***	(0.024)***	(0.194)***	(0.093)***
$Coverage^2$					-0.619	0.074
					(0.090)***	(0.046)
$Coverage^2$*Aff					0.454	-0.402
					(0.201)**	(0.091)***
N	1009354	942076	1009354	942076	1009354	942076
adj. R^2	0.332	0.917	0.335	0.917	0.335	0.917
F	12,803	108.1	4,419	52.84	2,654	35.09
Year FEs	1	1	1	1	1	1
Industry FEs	1	0	1	0	1	0
County FEs	1	0	1	0	1	0
EA Domain FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Cov^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table 4: **Log employment effects**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.483	0.035	-0.043	-0.019	0.064	-0.052
	(0.004)***	(0.003)***	(0.014)***	(0.008)**	(0.035)*	(0.016)***
Coverage			-0.394	-0.012	-0.012	-0.057
			(0.018)***	(0.009)	(0.044)	(0.022)***
Coverage*Aff			1.202	0.123	0.714	0.274
			(0.033)***	(0.017)***	(0.153)***	(0.062)***
Coverage^2					-0.581	0.063
					(0.066)***	(0.030)**
Coverage^2*Aff					0.510	-0.158
					(0.159)***	(0.061)***
N	1009354	942076	1009354	942076	1009354	942076
adj. R^2	0.271	0.935	0.275	0.935	0.276	0.935
F	14,194	162.2	4,851	69.23	2,915	42.83
Year FEs	1	1	1	1	1	1
Industry FEs	1	0	1	0	1	0
County FEs	1	0	1	0	1	0
EA Domain FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Cov^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table 5: **Log wagebill effects**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.559	0.035	-0.075	-0.013	0.008	-0.053
	(0.005)***	(0.003)***	(0.018)***	(0.010)	(0.043)	(0.020)***
Coverage			-0.521	-0.023	-0.039	-0.049
			(0.023)***	(0.012)*	(0.056)	(0.029)*
Coverage*Aff			1.447	0.110	1.065	0.288
			(0.040)***	(0.020)***	(0.185)***	(0.078)***
Coverage^2					-0.725	0.036
					(0.082)***	(0.039)
Coverage^2*Aff					0.404	-0.179
					(0.191)**	(0.075)**
N	904246	839774	904246	839774	904246	839774
adj. R^2	0.300	0.933	0.304	0.933	0.304	0.933
F	12,399	99.95	4,295	42.64	2,582	26.16
Year FEs	1	1	1	1	1	1
Industry FEs	1	0	1	0	1	0
County FEs	1	0	1	0	1	0
EA Domain FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Cov^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table 6: **Log average wage effects**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.093	0.004	-0.022	0.009	-0.015	0.001
	(0.002)***	(0.002)	(0.006)***	(0.006)	(0.016)	(0.014)
Coverage			-0.116	-0.016	-0.041	-0.014
			(0.011)***	(0.008)*	(0.026)	(0.020)
Coverage*Aff			0.262	-0.010	0.228	0.023
			(0.014)***	(0.013)	(0.065)***	(0.053)
Coverage^2					-0.113	-0.002
					(0.035)***	(0.025)
Coverage^2*Aff					0.038	-0.032
					(0.063)	(0.049)
N	904246	839774	904246	839774	904246	839774
adj. R^2	0.198	0.810	0.199	0.810	0.199	0.810
F	2,476	2.638	973.2	2.712	584	1.863
Year FEs	1	1	1	1	1	1
Industry FEs	1	0	1	0	1	0
County FEs	1	0	1	0	1	0
EA Domain FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Cov^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table 7: **Firm exit effects**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	-0.038	-0.010	-0.032	-0.020	-0.041	-0.004
	(0.001)***	(0.002)***	(0.003)***	(0.007)***	(0.007)***	(0.015)
Coverage			-0.005	-0.017	-0.011	-0.020
			(0.011)	(0.009)*	(0.025)	(0.023)
Coverage*Aff			-0.012	0.023	0.028	-0.044
			(0.006)**	(0.014)*	(0.029)	(0.057)
Coverage^2					0.010	0.004
					(0.032)	(0.029)
Coverage^2*Aff					-0.041	0.063
					(0.029)	(0.054)
N	757597	690343	757597	690343	757597	690343
adj. R^2	0.013	0.154	0.013	0.154	0.013	0.154
F	2,119	17.48	709.3	6.988	426.6	4.552
Year FEs	1	1	1	1	1	1
Industry FEs	1	0	1	0	1	0
County FEs	1	0	1	0	1	0
EA Domain FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Cov^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table 8: **Descriptive statistics, by employer association domain/year**

Variable	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**N**
Coverage	0.428	0.255	0	1	1994
Log sales per worker	11.158	0.957	5.11	15.318	1975
Log workers	6.444	2.422	0	13.324	1994
Log sales	17.645	2.699	8.666	25.11	1975
Log wagebills	12.947	2.536	5.521	20.208	1980
Log average wage	6.46	0.465	4.548	8.152	1980
Sales	724087.5	3896433.5	0	80357128.0	1994
Workers	6355.694	30334.336	1	611696	1994
Wagebills	5061.7	27663.6	0	597155.6	1994
Year	2007.502	1.118	2006	2009	1994
Number of firms	705.070	3333.03	1	65741	1994

Notes: Sales and wagebills in thousands of euros.

Table 9: **Employer association domain effects**

	(1) Productivity	(2) Sales	(3) Employment	(4) Wagebill	(5) Average Wage
Panel A					
Coverage	0.106	0.274	0.155	0.253	0.097
	(0.116)	(0.183)	(0.128)	(0.129)**	(0.053)*
Constant	11.112	17.522	6.369	12.833	6.418
	(0.050)***	(0.078)***	(0.055)***	(0.055)***	(0.023)***
N	1968	1968	1988	1973	1973
adj. R^2	0.923	0.986	0.992	0.990	0.938
Panel B					
Coverage	0.404	1.666	1.337	1.175	0.158
	(0.324)	(0.521)***	(0.354)***	(0.415)***	(0.169)
Coverage^2	-0.345	-1.617	-1.357	-1.070	-0.070
	(0.354)	(0.483)***	(0.353)***	(0.392)***	(0.159)
Constant	11.070	17.324	6.199	12.703	6.410
	(0.066)***	(0.116)***	(0.074)***	(0.087)***	(0.036)***
N	1968	1968	1988	1973	1973
adj. R^2	0.923	0.986	0.992	0.990	0.938

Notes: Each observation corresponds to the sum of all affiliated and non-affiliated firms in a given employer association domain and year. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. The specifications include (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs) and year fixed effects. All models consider standard errors clustered at the domain level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table 10: **Employer association domain effects: non-affiliated firms**

	(1)	(2)	(3)	(4)	(5)
Not affiliated:	Productivity	Sales	Employment	Wagebill	Average Wage
Panel A					
Coverage	0.226	-1.386	-1.700	-2.027	-0.239
	(0.166)	(0.320)***	(0.236)***	(0.276)***	(0.099)**
Constant	10.972	17.607	6.622	13.194	6.493
	(0.068)***	(0.131)***	(0.096)***	(0.112)***	(0.040)***
N	1887	1887	1910	1895	1895
adj. R^2	0.847	0.970	0.988	0.983	0.890
Panel B					
Coverage	-0.339	0.651	1.035	1.120	0.244
	(0.421)	(0.625)	(0.379)***	(0.472)**	(0.216)
Coverage^2	0.750	-2.701	-3.584	-4.123	-0.633
	(0.550)	(0.712)***	(0.465)***	(0.562)***	(0.257)**
Constant	11.038	17.368	6.296	12.815	6.434
	(0.077)***	(0.139)***	(0.083)***	(0.101)***	(0.045)***
N	1887	1887	1910	1895	1895
adj. R^2	0.847	0.971	0.991	0.986	0.891

Notes: Each observation corresponds to the sum of all non-affiliated firms in a given employer association domain and year. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. The specifications include (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs) and year fixed effects. All models consider standard errors clustered at the domain level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table 11: **Employer association employment and sales effects: non-affiliated firms**

Non-affiliated:	(1) Productivity	(2) Sales	(3) Employment	(4) Wagebill	(5) Average Wage
Panel A					
Log Employment (Aff)	-0.029	-0.142	-0.125	-0.141	-0.015
	(0.037)	(0.052)***	(0.042)***	(0.057)**	(0.022)
Constant	11.248	18.026	6.833	13.351	6.492
	(0.217)***	(0.301)***	(0.242)***	(0.329)***	(0.129)***
N	1787	1787	1794	1787	1787
adj. R^2	0.848	0.973	0.989	0.983	0.904
Panel B					
Log Sales (Aff)	-0.060	-0.097	-0.038	-0.057	-0.019
	(0.025)**	(0.034)***	(0.023)*	(0.030)*	(0.012)
Constant	12.103	18.866	6.772	13.507	6.719
	(0.434)***	(0.583)***	(0.386)***	(0.517)***	(0.208)***
N	1774	1774	1781	1774	1774
adj. R^2	0.848	0.973	0.989	0.983	0.906

Notes: Each dependent variable corresponds to the sum of all non-affiliated firms in a given employer association domain and year. The key regressor in Panel A (B) is the log of the employment (sales) in all affiliated firms in the same EA domain and year. The specifications include (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs) and year fixed effects. All models consider standard errors clustered at the domain level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

A Appendix: Employers' associations in Portugal

Here we provide background information on employers' associations in Portugal and their labour market context. Most collective agreements in Portugal are bargained at the sectoral level. As of 2006, the first year of our empirical study, 76.8% of all employees had their working conditions regulated by a total of 333 different sectoral collective agreements (own calculations based on 'Quadros de Pessoal' data described in the main text). As such, employers' associations play a key role in the country's industrial relations and social dialogue, notwithstanding the role played by administrative extensions (Cardoso & Portugal 2005).

Note that the country's Labour Code indicates that conducting collective bargaining is the first right of both employers' associations and trade unions (article 443). The list of rights also includes delivering social and economic services to their members, participating in the drafting of labour law, participating in legal matters involving their members, and establishing relations with other similar associations. At the same time, it is important to bear in mind that collective agreements innovate relatively little with respect to statutory labour law (other than through minimum wages) (Martins & Saraiva 2020).

According to a survey conducted by Statistics Portugal (INE), there were 388 employer associations in the country in 2007. Moreover, these associations indicated that they represented a total of 232,810 organisations, most of which will be firms but also including self-employed individuals, without employees. However, INE does not present information about the number of employees of the firms affiliated with employers' associations, as we do our main analysis.

According to INE's survey, most of these employer associations operated in the retail and wholesale sectors (46.8%), followed by construction; transport and storage; and farming and fishing, each representing shares of 6% to 8%, and manufacturing, with a share of 5%. INE also reports information about training activities: in 2007, employer associations provided training to 76,564 individuals, 51,600 of them receiving training in business and professional themes (while 12,000 individuals received training in health, safety and related themes and 13,000 in other areas). Some of these training activities will have been funded by the European Union (Martins 2020*b*).

Of the 388 associations surveyed in 2007, only 25 operated at a higher level, that of 'associations of associations', corresponding to employers' 'unions' (two or more associations from the same region), 'federations' (two or more associations from the same industry) or 'confederations' (two or more associations from multiple industries and or regions). In the latter group, only four employer confederations currently participate officially in the national-level tripartite dialogue. These are CIP, CCP, CAP and CTP, which are focused on manufacturing, retail and other services, farming, and tourism sectors, respectively. These four 'national employer peak associations' are members of a specific body where the tripartite discussions take place (CPCS, the permanent commission of tripartite dialogue), which includes the government and two national-level trade union confederations. There are also employers' associations at the European level, including BusinessEurope.

Figure C.1 depicts the time trend of employer associations and their affiliated firms, covering the period 2007-2018, again from the surveys conducted by INE in multiple years. We observe a clear downward trend in both variables over this period, as the number of associations dropped by 18%, from 388 to 320, and the number of affiliated organisations dropped by even more, 35%, from 232,810 to 151,416. The average number of affiliates per association consequently fell over the period, from 600 in 2007 to 473 in 2018. Moreover, the total staff size of associations also dropped: according to INE, employer associations employed a total of 2,914 and 2,040 employees in 2007 and 2018, respectively, which corresponds to a drop of 30%. This employment trend may suggest a reduction in the range of services delivered by associations, even if it is proportional to the decline in affiliated organisations. However,

several of the activities conducted by associations may also rely on services purchased from external organisations (training providers, legal experts, events organisers, etc) and on the part-time work conducted by the typically five to ten individuals elected to the boards of these associations, many of which will be senior managers or even CEOs of some of the firms represented by the associations. The declining number of associations and their membership over the last ten years may reflect a number of factors, including the economic crises of 2008-09 and 2011-13 and a potentially high level of fragmentation in the scope of associations at the beginning of the period covered in the data.

B Appendix: Determination of the scope of each employers' association

Our method to determine the economic and geographic scope of each employers' association was based first in considering all pairs of a five-digit industry (831 different values) and a county ('concelho', 309 different values) in which firms are present in at least one of the four years of our data set.[12] However, we also considered a more aggregate definition of both industries and counties in our robustness checks. (Also note that a small number of firms also reports a second employers' association in which they are affiliated, as firms may be affiliated in more than one association. This information was not used in the paper.)

We then identified the employer association that represented the largest number of employees in each industry-county cell. We do this by taking into account the association's affiliation of the firms where the employees work. We also impose a 5% threshold in association representativeness: if the largest employer association does not represent more than 5% of employment in the cell, then that cell and their firms are also assigned to the residual group. Furthermore, we eliminate a small number of cases in which the (typically two) largest employer associations in a given cell have exactly the same (and typically very small) number of workers.

Finally, we grouped together all industry-county pairs in which each given association represented the largest percentage of employees. This generated a sometimes diverse set of industry-county pairs, that do not necessarily overlap closely with simple, two-digit industry codes and or major regions, highlighting the complexity and idiosyncrasy of production processes.[13]

We conduct this analysis by pooling the data from the four years which include information on employers' association affiliation (2006-2009). This implies that our definition of the county-industry domain of each employers' association is constant over that four-year window. This approach reduces the sensitivity of the results to any particular, one-off factors, including potential measurement error in the affiliation variable. This also ensures that our results presented in the main text, based on time variation in firm affiliations, are not influenced by potentially spurious changes in the domains of the associations, as these domains are held constant over time by construction. On the other hand, a drawback from this approach is that one cannot examine changes over time in coverage. This can however be addressed by considering longer period of time (if available) or dropping the pooling procedure and constructing coverage on a year by year basis instead.

[12] As industry codes change between 2006 and 2007, we adopted the 2007 code for 2006 data as follows: For firms that are present in the data in both years, we consider their 2007 code in 2006. For firms that are only present in 2006, we compute and then assign the 2007 mode of their 2006 code, using the 2006-2007 correspondences all firms that are present in both years.

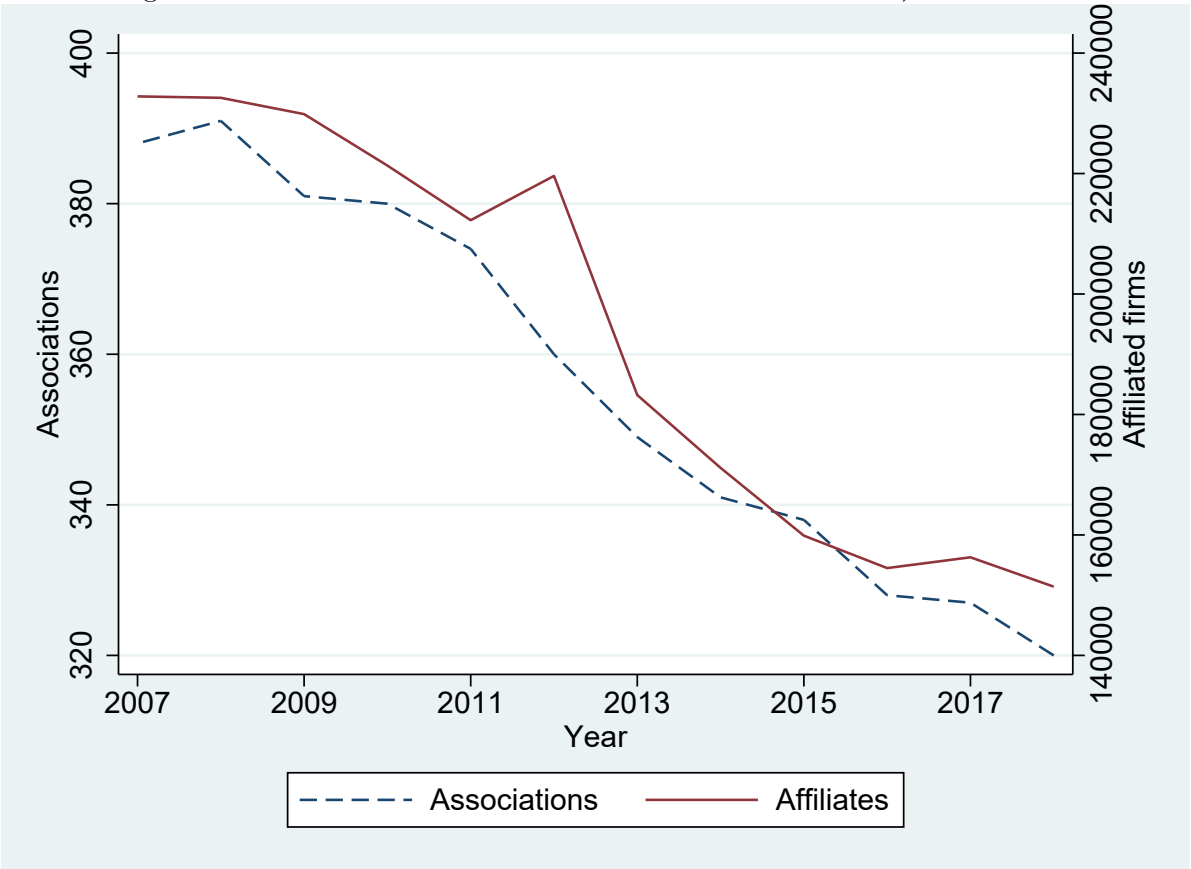
[13] In contrast, industry-county pairs in which there is not any affiliated firm are placed in a residual category of non-affiliated cells, which are not examined in the main part of this paper. Firms that report being affiliated to an employers' association but that do not indicate their employer association are considered as not affiliated.

Note that the 502 associations which we find in our data exceed the 388 employer associations documented by Statistics Portugal (INE) as discussed above. This gap may be driven by associations that did not respond to the survey conducted by INE and or mistakes by firms when selecting their employer association in the survey. (Incidentally, we find 540 firms in QP with the 94110 industry code, corresponding to both trade and employer associations, and that report affiliation to an employer association. There are 545 associations in the list in QP from which firms are required to select their association.)

On the other hand, INE identifies 232,810 organisations affiliated with employer associations, while we identify only 142,981 firms with employees in QP that also indicated to be affiliated with associations. This gap in the number of affiliated firms may be explained by the wider coverage of the INE survey, which also includes self-employed individuals and firms without employees that are excluded from QP. It may also be that some employer associations indicate an inflated (and outdated) number of members when responding to the INE survey.

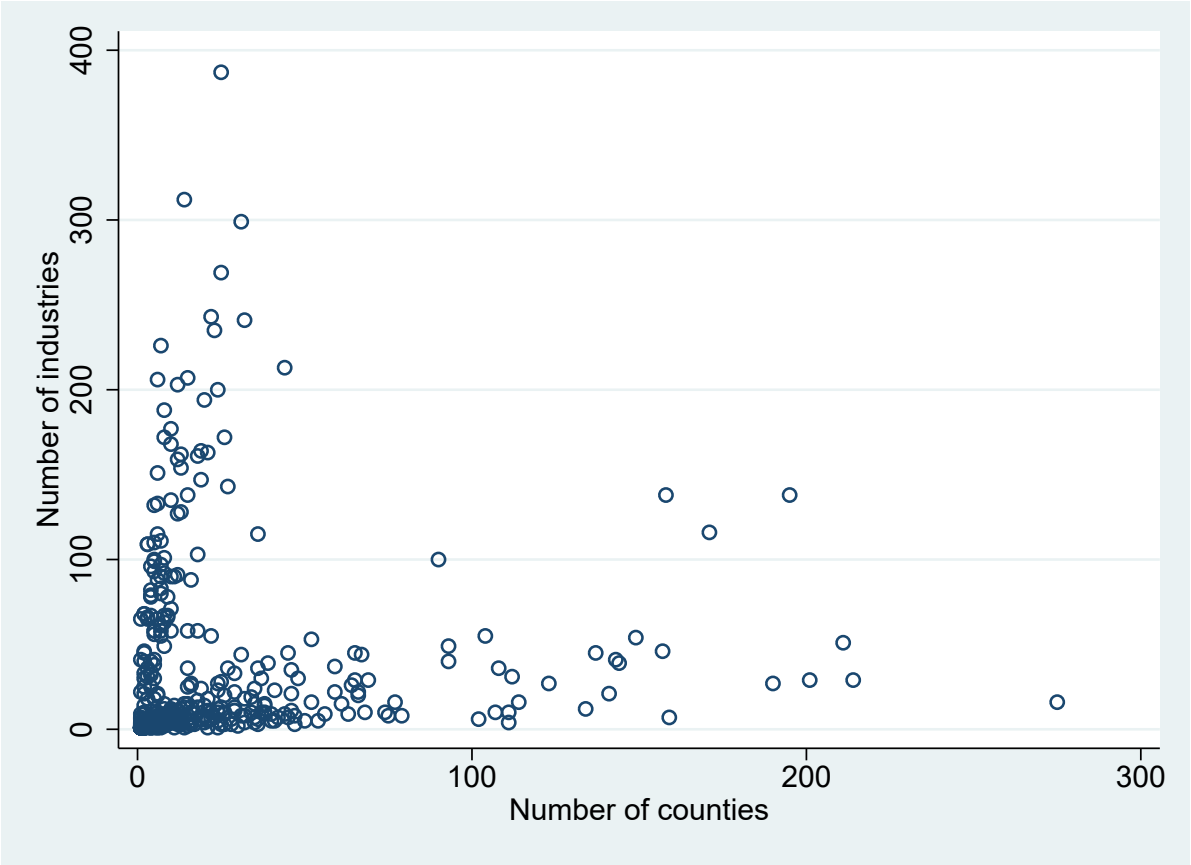
C Appendix: Figures

Figure C.1: **Number of associations and affiliated firms, 2007-2018**



Notes: Total number of surveyed employer associations and their affiliated firms. Source: INE (Statistics Portugal).

Figure C.2: **Associations counties and industries**



Notes: The horizontal (vertical) variable indicates the number of counties (industries) in which the employer association operates. Source: Authors' calculations based on QP data.

D Appendix: Tables

Table D.1: **Descriptive statistics, by affiliation status**

	(1) Affiliated		(2) Not affiliated		(3) Difference	
	mean	sd	mean	sd	b	t
Employment	16.43	144.45	6.16	38.16	-10.27***	(-39.36)
Sales (QP)	2117.64	50738.66	592.89	25651.47	-1524.74***	(-16.09)
Sales per worker	88.23	489.16	77.18	1074.44	-11.05***	(-7.55)
Wagebill	13754.53	163073.73	4235.73	54455.24	-9518.79***	(-32.07)
Profits/Sales	-0.03	2.08	-0.04	4.27	-0.02*	(-2.03)
Gross value added	484.49	4316.36	161.95	1422.47	-322.54***	(-35.82)
Exporter	0.07	0.26	0.04	0.19	-0.03***	(-63.70)
Coverage	0.47	0.15	0.41	0.14	-0.06***	(-181.40)
Observations	314474		834694		1149168	

Notes: Each observation corresponds to one firm observed in one year. Employment denotes the number of employees of the firm. Sales (full year) and Wagebills (October) in thousands of euros. Coverage rate is the percentage of workers affiliated in the employer association of the domain where the firm is located.

Table D.2: **Log productivity (gross added value per worker) effects**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.099	0.001	-0.048	-0.035	0.029	-0.052
	(0.003)***	(0.005)	(0.011)***	(0.014)***	(0.026)	(0.029)*
Coverage			-0.037	0.049	0.029	0.029
			(0.024)	(0.019)***	(0.058)	(0.049)
Coverage*Aff			0.331	0.079	-0.015	0.156
			(0.023)***	(0.028)***	(0.110)	(0.117)
$Coverage^2$					-0.101	0.027
					(0.080)	(0.065)
$Coverage^2$*Aff					0.359	-0.081
					(0.112)***	(0.113)
Constant	9.500	9.554	9.513	9.533	9.505	9.536
	(0.002)***	(0.001)***	(0.010)***	(0.008)***	(0.012)***	(0.010)***
N	696380	654631	696380	654631	696380	654631
adj. R^2	0.189	0.683	0.189	0.683	0.189	0.683
F	1,062	.1013	445.4	7.107	268.4	4.269
Year FEs	1	1	1	1	1	1
Industry (5d) FEs	1	0	1	0	1	0
County FEs	1	0	1	0	1	0
Assoc Domains FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Cov^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table D.3: **Log profitability effects**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.386	0.001	-0.230	-0.036	0.207	-0.111
	(0.008)***	(0.013)	(0.030)***	(0.039)	(0.073)***	(0.089)
Coverage			-0.308	0.215	0.318	0.057
			(0.064)***	(0.052)***	(0.153)**	(0.137)
Coverage*Aff			1.386	0.067	-0.576	0.423
			(0.067)***	(0.081)	(0.316)*	(0.351)
Coverage^2					-0.925	0.212
					(0.207)***	(0.168)
Coverage^2*Aff					2.030	-0.378
					(0.331)***	(0.336)
Constant	8.697	8.872	8.820	8.780	8.739	8.805
	(0.004)***	(0.004)***	(0.028)***	(0.023)***	(0.033)***	(0.030)***
N	489368	437581	489368	437581	489368	437581
adj. R^2	0.165	0.686	0.167	0.686	0.167	0.686
F	2,113	.006498	799.8	7.044	480.7	4.652
Year FEs	1	1	1	1	1	1
Industry (5d) FEs	1	0	1	0	1	0
County FEs	1	0	1	0	1	0
Assoc Domains FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Coverage^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table D.4: **Profitability rate (profits by sales) effects**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.017	-0.015	-0.002	0.045	0.103	0.049
	(0.007)**	(0.015)	(0.021)	(0.074)	(0.037)***	(0.101)
Coverage			-0.101	0.021	0.046	-0.014
			(0.098)	(0.060)	(0.124)	(0.082)
Coverage*Aff			0.043	-0.136	-0.431	-0.145
			(0.042)	(0.161)	(0.164)***	(0.368)
Coverage^2					-0.223	0.049
					(0.249)	(0.140)
Coverage^2*Aff					0.492	0.002
					(0.178)***	(0.335)
N	739147	697847	739147	697847	739147	697847
adj. R^2	0.000	0.246	0.000	0.246	0.000	0.246
F	6.273	.9924	3.109	.7386	3.473	.5749
Year FEs	1	1	1	1	1	1
Industry (5d) FEs	1	0	1	0	1	0
County FEs	1	0	1	0	1	0
Assoc Domains FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Coverage^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table D.5: **Exports (extensive margin) effects**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.035	0.002	-0.048	-0.004	-0.054	-0.000
	(0.001)***	(0.001)**	(0.003)***	(0.003)	(0.007)***	(0.006)
Coverage			-0.042	0.003	0.002	-0.010
			(0.004)***	(0.004)	(0.008)	(0.007)
Coverage*Aff			0.189	0.015	0.212	-0.000
			(0.007)***	(0.007)**	(0.028)***	(0.026)
Coverage^2					-0.067	0.019
					(0.015)***	(0.012)
Coverage^2*Aff					-0.021	0.011
					(0.029)	(0.025)
Constant	0.041	0.053	0.057	0.051	0.052	0.053
	(0.000)***	(0.000)***	(0.002)***	(0.001)***	(0.001)***	(0.001)***
N	1009354	942076	1009354	942076	1009354	942076
adj. R^2	0.174	0.688	0.177	0.688	0.177	0.688
F	1,768	4.682	675.4	3.174	407.9	2.263
Year FEs	1	1	1	1	1	1
Industry (5d) FEs	1	0	1	0	1	0
County FEs	1	0	1	0	1	0
Assoc Domains FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Coverage^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table D.6: **Log productivity (sales per worker) effects (alternative association definition)**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.132	0.013	0.056	-0.007	0.085	-0.038
	(0.003)***	(0.005)***	(0.010)***	(0.011)	(0.022)***	(0.022)*
Coverage			-0.039	0.015	0.042	0.124
			(0.024)	(0.017)	(0.049)	(0.039)***
Coverage*Aff			0.207	0.054	0.042	0.192
			(0.025)***	(0.029)*	(0.113)	(0.105)*
Coverage^2					-0.134	-0.157
					(0.074)*	(0.055)***
Coverage^2*Aff					0.204	-0.135
					(0.140)	(0.117)
Constant	10.609	10.662	10.621	10.657	10.612	10.641
	(0.002)***	(0.001)***	(0.008)***	(0.006)***	(0.010)***	(0.007)***
N	1108452	1035035	1108452	1035035	1108452	1035035
adj. R^2	0.325	0.793	0.325	0.793	0.325	0.793
F	1,578	7.027	537.8	3.966	323	5.417
Year FEs	1	1	1	1	1	1
Industry(2) FEs	1	0	1	0	1	0
County(2) FEs	1	0	1	0	1	0
Assoc Domains FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Coverage^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table D.7: **Log sales effects (alternative association definition)**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.669	0.047	0.222	-0.016	0.260	-0.100
	(0.006)***	(0.005)***	(0.017)***	(0.011)	(0.038)***	(0.021)***
Coverage			-0.429	0.006	-0.234	0.043
			(0.032)***	(0.016)	(0.067)***	(0.037)
Coverage*Aff			1.218	0.172	1.003	0.597
			(0.047)***	(0.027)***	(0.200)***	(0.101)***
Coverage^2					-0.316	-0.047
					(0.106)***	(0.053)
Coverage^2*Aff					0.269	-0.475
					(0.248)	(0.112)***
Constant	11.739	11.935	11.881	11.932	11.858	11.926
	(0.002)***	(0.001)***	(0.011)***	(0.005)***	(0.012)***	(0.007)***
N	1108452	1035035	1108452	1035035	1108452	1035035
adj. R^2	0.299	0.916	0.300	0.917	0.300	0.917
F	12,643	103.6	4,281	45.77	2,573	31.56
Year FEs	1	1	1	1	1	1
Industry(2) FEs	1	0	1	0	1	0
County(2) FEs	1	0	1	0	1	0
Assoc Domains FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Coverage^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table D.8: **Log employment effects (alternative association definition)**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.537	0.034	0.166	-0.009	0.175	-0.062
	(0.005)***	(0.003)***	(0.014)***	(0.007)	(0.029)***	(0.014)***
Coverage			-0.391	-0.010	-0.275	-0.081
			(0.023)***	(0.011)	(0.049)***	(0.025)***
Coverage*Aff			1.012	0.119	0.961	0.405
			(0.037)***	(0.018)***	(0.153)***	(0.063)***
Coverage^2					-0.182	0.110
					(0.076)**	(0.033)***
Coverage^2*Aff					0.065	-0.341
					(0.190)	(0.068)***
Constant	1.131	1.273	1.260	1.276	1.246	1.285
	(0.002)***	(0.001)***	(0.008)***	(0.004)***	(0.009)***	(0.005)***
N	1108452	1035035	1108452	1035035	1108452	1035035
adj. R^2	0.236	0.934	0.238	0.934	0.238	0.934
F	13,607	116.5	4,595	50.28	2,767	33
Year FEs	1	1	1	1	1	1
Industry(2) FEs	1	0	1	0	1	0
County(2) FEs	1	0	1	0	1	0
Assoc Domains FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Coverage^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table D.9: **Log wagebill effects (alternative association definition)**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.636	0.033	0.185	0.002	0.202	-0.047
	(0.006)***	(0.004)***	(0.017)***	(0.009)	(0.036)***	(0.018)***
Coverage			-0.537	-0.026	-0.373	-0.109
			(0.030)***	(0.014)*	(0.063)***	(0.033)***
Coverage*Aff			1.231	0.087	1.132	0.356
			(0.045)***	(0.023)***	(0.185)***	(0.083)***
Coverage^2					-0.258	0.125
					(0.096)***	(0.044)***
Coverage^2*Aff					0.126	-0.322
					(0.227)	(0.088)***
Constant	7.362	7.543	7.541	7.551	7.520	7.562
	(0.002)***	(0.001)***	(0.010)***	(0.005)***	(0.012)***	(0.006)***
N	991157	920805	991157	920805	991157	920805
adj. R^2	0.262	0.932	0.264	0.932	0.264	0.932
F	12,618	68.97	4,289	27.49	2,581	18.37
Year FEs	1	1	1	1	1	1
Industry(2) FEs	1	0	1	0	1	0
County(2) FEs	1	0	1	0	1	0
Assoc Domains FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Coverage^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table D.10: **Log average wage effects (alternative association definition)**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.115	0.001	0.038	0.011	0.054	0.016
	(0.002)***	(0.003)	(0.006)***	(0.006)*	(0.013)***	(0.013)
Coverage			-0.125	-0.017	-0.083	-0.040
			(0.014)***	(0.009)*	(0.030)***	(0.023)*
Coverage*Aff			0.210	-0.027	0.121	-0.047
			(0.015)***	(0.015)*	(0.064)*	(0.055)
Coverage^2					-0.070	0.033
					(0.041)*	(0.029)
Coverage^2*Aff					0.110	0.018
					(0.075)	(0.057)
Constant	6.116	6.149	6.158	6.155	6.153	6.159
	(0.001)***	(0.001)***	(0.005)***	(0.003)***	(0.006)***	(0.004)***
N	991157	920805	991157	920805	991157	920805
adj. R^2	0.177	0.807	0.177	0.807	0.177	0.807
F	3,314	.2103	1,195	3.158	717.1	2.08
Year FEs	1	1	1	1	1	1
Industry(2) FEs	1	0	1	0	1	0
County(2) FEs	1	0	1	0	1	0
Assoc Domains FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Coverage^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table D.11: **Log productivity (gross added value per worker) effects (alternative association definition)**

	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.114	0.006	0.018	-0.019	0.097	-0.012
	(0.003)***	(0.005)	(0.010)*	(0.013)	(0.021)***	(0.026)
Coverage			0.004	0.040	0.110	0.149
			(0.030)	(0.021)*	(0.068)	(0.054)***
Coverage*Aff			0.257	0.065	-0.184	0.007
			(0.024)***	(0.031)**	(0.108)*	(0.123)
Coverage^2					-0.180	-0.162
					(0.099)*	(0.074)**
Coverage^2*Aff					0.546	0.085
					(0.130)***	(0.137)
Constant	9.505	9.555	9.502	9.540	9.491	9.525
	(0.002)***	(0.001)***	(0.011)***	(0.007)***	(0.013)***	(0.010)***
N	760862	715731	760862	715731	760862	715731
adj. R^2	0.176	0.681	0.176	0.681	0.176	0.681
F	1,297	1.203	494.2	4.104	298.9	3.56
Year FEs	1	1	1	1	1	1
Industry(2) FEs	1	0	1	0	1	0
County(2) FEs	1	0	1	0	1	0
Assoc Domains FEs	1	0	1	0	1	0
Firm FEs	0	1	0	1	0	1

Notes: 'Affiliated' ('Aff') is a dummy variable equal to one if firm i is affiliated in year t in an employer association. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. 'Coverage^2' is the square of the coverage rate. As indicated at the bottom of each table, the specifications in odd columns include (309) county ('concelho') fixed effects, (831) industry (5-digit definition) fixed effects, (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs), while the specifications in even columns include firm fixed effects. All specifications include τ_t year fixed effects. All models present standard errors clustered at the firm level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table D.12: **Employer association domain effects (alternative association definition)**

	(1) Productivity	(2) Employment	(3) Profits	(4) Exports
Panel A				
Coverage	0.184	0.103	0.147	0.314
	(0.088)**	(0.087)	(0.296)	(0.406)
Constant	9.823	6.249	14.094	14.713
	(0.038)***	(0.037)***	(0.132)***	(0.188)***
N	1897	1951	1168	1318
adj. R^2	0.848	0.991	0.877	0.917
Panel B				
Coverage	0.067	1.053	-2.219	-1.641
	(0.310)	(0.346)***	(1.156)*	(1.505)
Coverage^2	0.134	-1.086	2.590	2.089
	(0.338)	(0.352)***	(1.223)**	(1.413)
Constant	9.841	6.109	14.471	15.061
	(0.058)***	(0.066)***	(0.219)***	(0.344)***
N	1897	1951	1168	1318
adj. R^2	0.848	0.991	0.878	0.917

Notes: Each observation corresponds to the sum of all affiliated and non-affiliated firms in a given employer association domain and year. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. The specifications include (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs) and year fixed effects. All models consider standard errors clustered at the domain level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table D.13: **Employer association domain effects (alternative association definition): non-affiliated firms**

	(1)	(2)	(3)	(4)
Not affiliated:	Productivity	Employment	Profits	Exports
Panel A				
Coverage	-0.344	-1.695	-2.180	-4.389
	(0.151)**	(0.241)***	(0.599)***	(0.773)***
Constant	9.946	6.468	14.368	16.100
	(0.061)***	(0.098)***	(0.253)***	(0.340)***
N	1804	1862	1049	1176
adj. R^2	0.743	0.985	0.850	0.861
Panel B				
Coverage	0.582	0.417	0.512	-1.400
	(0.486)	(0.468)	(1.227)	(2.320)
Coverage^2	-1.201	-2.768	-3.297	-3.440
	(0.596)**	(0.636)***	(1.803)*	(2.850)
Constant	9.829	6.212	13.995	15.606
	(0.084)***	(0.087)***	(0.191)***	(0.434)***
N	1804	1862	1049	1176
adj. R^2	0.745	0.986	0.852	0.861

Notes: Each observation corresponds to the sum of all non-affiliated firms in a given employer association domain and year. 'Coverage' is the percentage of employment in affiliated firms in the total employment of the (county-industry) domain of each employer association. The specifications include (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs) and year fixed effects. All models consider standard errors clustered at the domain level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.

Table D.14: **Employer association employment and sales effects (alternative association definition): non-affiliated firms**

Non-affiliated:	(1) Productivity	(2) Employment	(3) Profits	(4) Exports
Panel A				
Log Employment (Aff)	-0.087	-0.097	-0.123	-0.825
	(0.043)**	(0.040)**	(0.141)	(0.228)***
Constant	10.330	6.487	14.307	19.781
	(0.256)***	(0.232)***	(0.850)***	(1.546)***
N	1709	1762	994	1150
adj. R^2	0.749	0.986	0.837	0.856
Panel B				
Log Sales (Aff)	-0.077	-0.032	-0.065	-0.649
	(0.048)	(0.024)	(0.118)	(0.174)***
Constant	11.133	6.481	14.712	26.013
	(0.828)***	(0.417)***	(2.055)***	(3.169)***
N	1697	1749	987	1144
adj. R^2	0.746	0.986	0.835	0.857

Notes: Each dependent variable corresponds to the sum of all non-affiliated firms in a given employer association domain and year. The key regressor in Panel A (B) is the log of the employment (sales) in all affiliated firms in the same EA domain and year. The specifications include (500) employer association (county-industry) domain fixed effects (a set of county-industry pairs) and year fixed effects. All models consider standard errors clustered at the domain level. Significance levels: *: 0.10; **: 0.05; ***: 0.01.