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Ownership Structure over the Business Cycle:
Evidence from France.

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OWNERSHIP STRUCTURE OVER THE BUSINESS CYCLE: EVIDENCE FROM FRANCE

Abstract

This paper provides new evidence on the comparative behavior of the third sector and the for-profit sector over the business cycle. Third sector organizations, typically made up of non-profit organizations and cooperatives, have an ownership structure distinct from for-profit firms. However, very little is known about the third sector sensitivity to economic fluctuations. Using a novel French dataset over the 2000-2019 period that allows us to differentiate the two sectors, we examine their respective behavior in terms of number of establishments and employment. Our results show that the cyclical sensitivity of the third sector and its two main subgroups are systematically lower than the for-profit sector. These patterns are independent of the business cycle and the sector size variable used. Our analysis essentially shows that organizations with democratic governance and a limited profit distribution constraint have a lower sensitivity to changes in economic conditions.

Keywords:

Ownership structure, third sector, business cycle.

JEL classification:

D23, E32, L21, P13, R11.

1. Introduction

The literature studying ownership structure has paid close attention to the behavior of worker-managed firms. Following the work of Craig and Pencavel (1992), this literature has focused on the comparative behavior of capitalist and labor-owned firms. Depending on the ownership structure, sensitivity to variations in macro-economic conditions has been shown to differ. However, very little is known on the cyclical behavior of non-profit and cooperative organizations.

Third sector organizations differentiate themselves from for-profit organizations in terms of ownership structure (Gui 1991). While for-profit firms could be owned by outside shareholders who benefit from the organization surplus, third sector organizations benefit their members or users. On one hand, non-profit organizations naturally do not distribute any profit. On the other, cooperatives are democratically governed by their consumers or producers. Both types of organizations would most likely pursue objectives in the mutual or general interest, which could translate into a more diversified objective than profit maximization alone. In addition, democratic governance and the constraint of limited profit distribution are features common to all French third sector organizations. This increases not only the unity of the sector but also its difference from the for-profit one, making France a particularly interesting case for comparative analysis.

Our paper contributes to the existing scholarship by addressing the relationship between ownership structure and business cyclical sensitivity. Unlike our study, which analyzes the third sector as a whole, the scant existing literature focuses predominantly on labor-owned organizations. Although the latter only represent a small portion of the third sector, they prove to be very helpful to understand how organizations democratically controlled by their workers adjust to their economic environment differently from standard for-profit firms. A series of empirical studies carried out in Uruguay conclude that labor-owned cooperatives exhibit lower sensitivity to macroeconomic shocks, lower volatility on employment, and higher survival rates than for-profit organizations (Burdín and Dean 2009; 2012; Burdín 2014; Alves et al. 2016). Other studies confirm the lower cyclical behavior of labor-owned firms compared to that of for-profit firms (Pérotin 2006; Garcia-Louzao 2021).

To our knowledge, this is the first paper to address the relationship between business cycles and the third sector. The existing gap in this area can be attributed to a combination of factors, including a more developed theoretical literature for labor-owned organizations and a lack of data on the third sector. However, studying the whole third sector is of great importance given its distinct differences from the for-profit sector and its significant weight in the economy.

The following study uses a novel French administrative dataset that distinguishes between two groups, i.e. the for-profit sector and the third sector. The data is provided by URSSAF[1] and allows to examine the number of establishments, levels of employment and payroll at regional level between 2000 and 2019. The main findings indicate that the third sector and its subgroups are always less cyclical than the for-profit sector.

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1   URSSAF being the French organization collecting social security contribution from employees and employers.

These results are consistent regardless of the proxies used for the size of the sectors or for business cycles. These findings reveal the differences in behavior between the two sectors, and call for further research to deepen our understanding of the relationship between ownership structure and cyclical sensitivity.

The remainder of this paper is organized as follows. Section 2 presents the related literature. Section 3 provides the key background information regarding the French third sector. Section 4 introduces the data and gives the preliminary analysis. Section 5 describes the empirical framework and discusses the results and the robustness checks. Section 6 concludes.

2. Related literature

Following (Gui 1991), we define the third sector as being made up of non-profit organizations and cooperatives. Due to their unique characteristics, these organizations have long been considered as part of a 'third sector', situated between the for-profit and the public sector (Anheier and Seibel 1990). A detailed examination of their ownership structure provides a better understanding of the potential difference in objectives between these organizations and for-profit organizations (Hansmann 1988). Non-profit organizations are controlled by either members or external donors who do not benefit from the organization's surplus. Cooperatives are controlled by their members—workers, suppliers, or consumers—who can benefit from the organization's surplus. In contrast, for-profit organizations could be controlled by external investors with no other interaction with the firm. As a result, third sector organizations are more likely to pursue mutual or general interest goals rather than profit maximization as the standard economic theory assumes for for-profit organizations. Because of these differences, it is plausible to expect dissimilar behaviors between the third sector and the for-profit sector, in particular during business cycles when profits are generally impacted.

Previous research comparing ownership structures over business cycles has largely focused on labor-owned cooperatives. Since Ward's (1958) model, the theoretical literature has made significant progress in this comparative undertaking and now acknowledges the diversity of objectives and behaviors between the two types of firm (i.e. labor-owned firms and for-profit firms). Empirical studies have confirmed the diversity of objectives (Craig and Pencavel 1993; Burdín and Dean 2012) and behaviors (Burdín 2014; Alves et al. 2016). Other empirical studies, closer to our subject, have sought to compare the behavior of the two types of firm when economic conditions change.

Craig and Pencavel (1992) examine the response of labor-owned and for-profit organizations to changes in environmental economic conditions. Using data collected from the plywood industry between 1968 and 1986, the authors find that labor-owned organizations adjust their employment levels to variations in output and input prices to a lesser extent than for-profit firms.

Pérotin (2006) scrutinizes the patterns of entry and exit over the business cycle of labor-owned and for-profit organizations. By estimating separate equations for each type of organization, she finds that for-profit organizations exhibit a pro-cyclical entry behavior, while labor-owned organizations behave countercyclically. However, she finds no difference in exit behavior between the two types of organization.

Burdín and Dean (2009) analyze the comparative behavior of labor-owned and for-profit firms using Uruguayan data going from 1996 to 2005. Their estimates suggest that the two types of organization have distinct adjustment mechanisms to idiosyncratic price changes and macroeconomic shocks. Specifically, the authors find that employment and wages are negatively affected by the crisis, however, the adjustments are greater for for-profit organizations than for labor-owned organizations.

Garcia-Louzao (2021) estimates the employment and wages of organizations over the business cycle based on a Spanish dataset from 2005 to 2016. The author finds that labor-owned firms do not adjust employment as much as conventional firms. In addition,

no difference in wage and working-time adjustments between the two types of firm is found. This could be explained by the Spanish regulation, which applies equally to all types of firm.

Only recently researchers have started to carry out comparative analyses between some subgroups composing the third sector and conventional firms during economic turmoil. In this respect, Borzaga et al. (2021) indicate that all types of cooperatives—and not only labor-owned organizations—are susceptible to better adapt to difficult economic conditions and ensure stable employment levels. The authors rationalize their findings in two ways. First, cooperatives can be seen as better problem solvers, since they satisfy the needs of their main members and do not seek to maximize only profit. Second, cooperatives can be more resilient thanks to their democratic governance, which enables more inclusive decision-making and leads to greater adaptability and flexibility in dealing with production problems. Overall, the authors conclude that cooperatives provide more appropriate responses to crises and ensure more stabilized employment than conventional firms. This scarcity of theoretical and empirical work on the specific behavior of cooperatives and third sector organizations can be explained by the mixed objectives of these organizations, which are difficult to rationalize (Defourny and Nyssens 2017).

In sum, previous research provides important information on the behavior of labor-owned organizations. First, their objectives could differ greatly from the profit-maximizing objective of conventional firms. Second, their behavior could be less cyclical than that of for-profit organizations. However, all preceding studies focus only on labor-owned organizations. More general theoretical and empirical research on the behavior of the entire third sector behavior over the business cycle is extremely rare.

3. The French context

The French law[2] widens the gap between for-profit and third sector organizations in four ways. First, it explicitly states that third sector organizations must pursue an objective other than solely profit maximization. Second, it requires a democratic governance designed to inform members and enable them to participate in the organization's operations. As a result, members' participation is independent of their invested capital or financial contribution, unlike conventional firms. Third, it limits the surplus distribution, which implies that the majority of the surplus is used to maintain and develop the organization's activity. Fourth, it stipulates that collectively owned capital is indivisible and cannot be sold in the event of a takeover. Under these specific conditions, only two types of organizations can be considered part of the French third sector: non-profit organizations and cooperatives.

The characteristics of the French third sector amplify its unity and increase its difference from the for-profit sector. Unlike the US, Canada, or the UK, democratic governance and indivisible reserves are common to all types of third sector organizations. This means that the principle of democratic governance also applies to non-profit organizations, which could lead to more inclusive governance and more appropriate means of achieving shared objectives. In addition, indivisible reserves encourage the reinvestment of profits in the organization for its own benefit, and, reduce the incentives for for-profit organizations to take control, which raises the barriers between the two sectors.

Previous research on the behavior of the French third sector and its two main subgroups—non-profit and cooperatives—relied mainly on descriptive or qualitative approaches. A valuable work has been done to trace the origins of the third sector (Archambault 2001) and to understand the contemporary image of the third sector (Tchernonog and Prouteau 2019; Archambault 2014). This scholarship has highlighted the importance of the third sector[3] and emphasized its difference from the for-profit sector. At the same time, another strand of studies analyzing their governance has helped gain a better understanding of the rules and procedures put in place to meet their objectives.

Despite its unity and pronounced difference with the for-profit sector, the overall behavior of the third sector has rarely been studied. As previously said, French third sector organizations have different goals than the pure profit maximization that is assumed for for-profit organizations. To keep away from profit maximizing behavior, third sector organizations abide by distinctive rules and principles, such as limited profit distribution, democratic governance and indivisible reserves. Yet, there is a dearth of theoretical and, above all, empirical research on the third sector versus the for-profit sector when it comes to comparatively examining the effects induced by their respective ownership structure over business cycles. In this respect, our study complements the existing scholarship, which relies mainly on descriptive statistics and qualitative approaches (Duverger 2016).

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2   Law n° 2014-856 of the 31st of July, 2014 relative to the French third sector "économie sociale et solidaire"

3   The third sector represented 10% to 12% of the employment of the private sector according to URSSAF data between 1998 to 2019

4. Data and descriptive statistics

4.1. Data

To proxy the size of the sectors under scrutiny, we use a French annual database for the 2000-2019 period provided by *Union de recouvrement des cotisations de sécurité sociale et d'allocations familiales* (URSSAF). This is the only open-source database that enables researchers to conduct comparative analyses between the two sectors and was made available in January 2022. URSSAF is the major social security system provider of private organizations. In France, each person legally working belongs to a social security system. All fully private organizations must use URSSAF's social security system except agriculture organizations and independent workers. These last two special cases have their own social security system. Consequently, URSSAF databases have complete coverage of France's private sector outside the two aforementioned exceptions. Based on this data source, we use two variables to proxy sector size and compare behaviors: (i) the number of establishments, computed as the quarterly average of the number of establishments having at least one employee; and (ii) the level of employment, which is the average of quarterly mean headcounts.

In our study, we are interested in the comparison between the for-profit sector and the third sector. The identification process of the two sectors is based on the legal status of organizations. Within the URSSAF dataset, four types of third sector organizations are identified: *association*, *coopérative*, *mutuelle* and *fondation*. To be in line with the international literature, we gather together *associations* and *fondations* under the banner of non-profit organizations and *coopératives* and *mutuelles* under the banner of cooperatives. Mutuals can be indeed viewed as a specific type of consumer cooperative that provides insurances (Hansmann 1985), and foundations, generally fall under the category of non-profit organizations. The resulting panel dataset with two sectors and two subgroups in the third sector is balanced.

Since we observe great territorial variability in the size of the third sector, we choose to conduct our analysis at the regional NUTS 3 level, which is the smallest level available. The NUTS 3 level corresponds to the French *départements*, which is sufficiently low to observe heterogeneous behaviors across regions and at the same time not be plagued by statistical confidentiality. As the majority of standard French studies conducted on a regional basis, we limit our analysis to continental regions.

The data concerning business cycle variables also comes from open sources. The nominal regional NUTS3 GDP is provided for the 2000-2019 period by Eurostat. In order to obtain real GDP, we divide nominal GDP by the CPI. The rest of the paper will refer only to real GDP. In addition, unemployment-related data is issued by *Pole emploi* (PE) which is the French national organization for unemployment benefit distribution. PE provides regional NUTS3 monthly data for the same period. PE considers a person as a 'job seeker' as long as he/she is registered in PE and declares being in search of a job[4]. We consider unemployment as the average annual number of jobseekers according to the PE definition.

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4   PE requires registered unemployed individuals to more or less actively research jobs depending on the number of hours worked during the past month

Previous scholarship shows that industries could be subject to different cyclicities (Konon et al. 2018). However, the shares of the various industries within the third and the for-profit sector are missing from the data due to statistical confidentiality. Such additional information is of great importance since each industry's cyclicity could influence the cyclicity of the third and for-profit sectors. To limit this bias, we proceed in two steps. First, we control for the total regional share of structural activities, i.e. services, construction, and industry. Specifically, we use an URSSAF dataset that provides the annual employment per industry and per region over the 2000-2019 period. Second, we run an additional regression at the aggregate French level with fixed effects per field of activity. To do so, we use another URSSAF dataset at the aggregate French level that provides the sector size information per industry and per sector.

4.2. Descriptive statistics

Table 1 provides summary statistics on sector size and sector size growth over the 2000-2019 period. Panel A describes the number of establishments and the employment per sector. The for-profit sector is the largest sector with an overall mean of 23.54 establishments per 1,000 inhabitants, whereas the third sector has an average of 2.79 establishments per 1,000 inhabitants. Even with a smaller number of establishments, the third sector has a significant weight in the whole private sector with an average share of 10.60%. Furthermore, the distribution of employment is similar across the two sectors. For-profit organizations have the largest number of employees in the private sector. Here again, despite its lower average, the third sector has a significant share with an average share of 12.22% of the employment in the whole private sector. There exist important size variations across the two sectors. The large standard deviation (SD) between regions testifies to the great heterogeneity across French regions.

Panel B describes the growth rates per sector, which are computed as the difference in logarithm between year t and $t-1$. Each sector shows important standard deviations between regions relative to the mean either for the number of establishments or for the employment, implying that there are potential fixed growth effects across regions that should be accounted for in the analysis. The data indicates variations across regions with important standard deviations relative to the mean, which raises the question of the pattern of the sector size growth over time.

Table 1. Descriptive statistics for sector sizes.

Variable	Mean	SD overall	SD between	SD within	N
Panel (A). Size					
Number of establishment - For-profit sector	23.541	5.626	5.616	0.658	1 880
Number of establishment - Third sector	2.789	0.691	0.682	0.128	1 880
Employment - For-profit sector	216.859	60.763	60.335	9.417	1 880
Employment - Third sector	30.181	8.237	8.086	1.771	1 880
Panel (B). Size growth					
Number of establishment - For-profit sector - growth (percent)	0.234	0.916	0.263	0.877	1 786
Number of establishment - Third sector - growth (percent)	-0.230	2.058	0.450	2.009	1 786
Employment - For-profit sector - growth (percent)	0.172	1.541	0.462	1.471	1 786
Employment - Third sector - growth (percent)	0.718	1.944	0.475	1.886	1 786
Panel (C). Business cycle					
Agregated GDP	31.274	1.063	-	1.063	1 880
Regional GDP	26.906	10.213	10.168	1.400	1 880
Agregated GDP - growth (percent)	0.688	1.350	-	1.350	1 880
Regional GDP - growth (percent)	0.419	2.309	0.394	2.276	1 880

Notes: Number of establishments and employment are per 1,000 inhabitants. Aggregated GDP is real aggregated GDP per capita given in €. Regional GDP is real regional GDP per capita calculated in €. All years are included between 2000 and 2019. All 94 continental NUTS 3 French regions are included The standard deviation between (SD between) computation is based on the mean per region $\bar{x}_i$. The standard deviation within (SD within) is based on the difference with the region mean $(x_{it} - \bar{x}_i)$, i refers to NUTS 3 regions and t to years. Growth rates are computed as the annual difference in logarithm of between t and $t-1$.

The Figure 1 examines the aggregated growth rates of the number of establishments and the employment of both sectors over time. The evolution differs markedly between the for-profit and the third sector. While the for-profit sector size evolution generally follows the general economic conditions, the third sector seems to evolve less cyclically or even countercyclically. After the 2001 crisis, for-profit establishments decreased by 0.53% in 2002, whereas third sector establishments grew by 1.10%. Similarly, after the 2008 crisis for-profit establishments decreased by 0.68%, whereas third sector grew by 1.18%. These differences are even more striking for employment figures. After the 2001 crisis, for-profit employment decreased by 0.15% in 2002, whereas third sector employment increased by 2.73%. Likewise, after the 2008 crisis for-profit employment decreased by 3.38% in 2009, whereas third sector employment increased by 1.00%. In sum, up or down peaks in growth rates are rarely synchronized in the same direction between the two sectors regardless of the proxy considered, i.e. the number of establishments or the employment.

Figure 1. Aggregated growth rates of the number of establishments and employment per sector and per year.

Number of establishments growth per sector (percent)

Employment growth rate per sector (percent)


——— For-profit sector   - - - Third sector

Notes: Growth rates are based on the number of establishments and employment per 1,000 inhabitants and shown in percent. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included. Growth rates are computed as the annual difference in the logarithm between t and $t-1$.

Figure 2 maps the average sector size growth rates during recessions per region. A year is considered in recession if the aggregated GDP growth is negative. Sector size growth rates are computed 'within region'[5] to account for regional growth heterogeneity across regions (as observed in Table 1). The corresponding average 'within region' growth rate illustrated in Figure 2 is computed over recession years. The difference between the two sectors is noticeable. The growth rate of the number of for-profit establishments is negative in most regions, whereas it is positive in most regions for third sector. The difference appears even greater when focusing on the employment growth. For-profit employment decreases in all regions while third sector employment increases in most regions. Conclusions are similar when we analyze years in expansion. The for-profit sector shows signs of cyclical behavior with a negative growth in most regions during recessions. In contrast, the third sector shows signs of less cyclical or even countercyclical behavior with a positive growth in most regions.

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5   Within region growth rates are computed based on the difference with the region growth mean $(g_{it} - \bar{g}_i)$, i refers to the region, t to the year and $\bar{g}_i$ is the mean growth rate of region i over the studied period.

Figure 2. Number of establishments and employment growth rates during aggregated GDP recessions per sector.
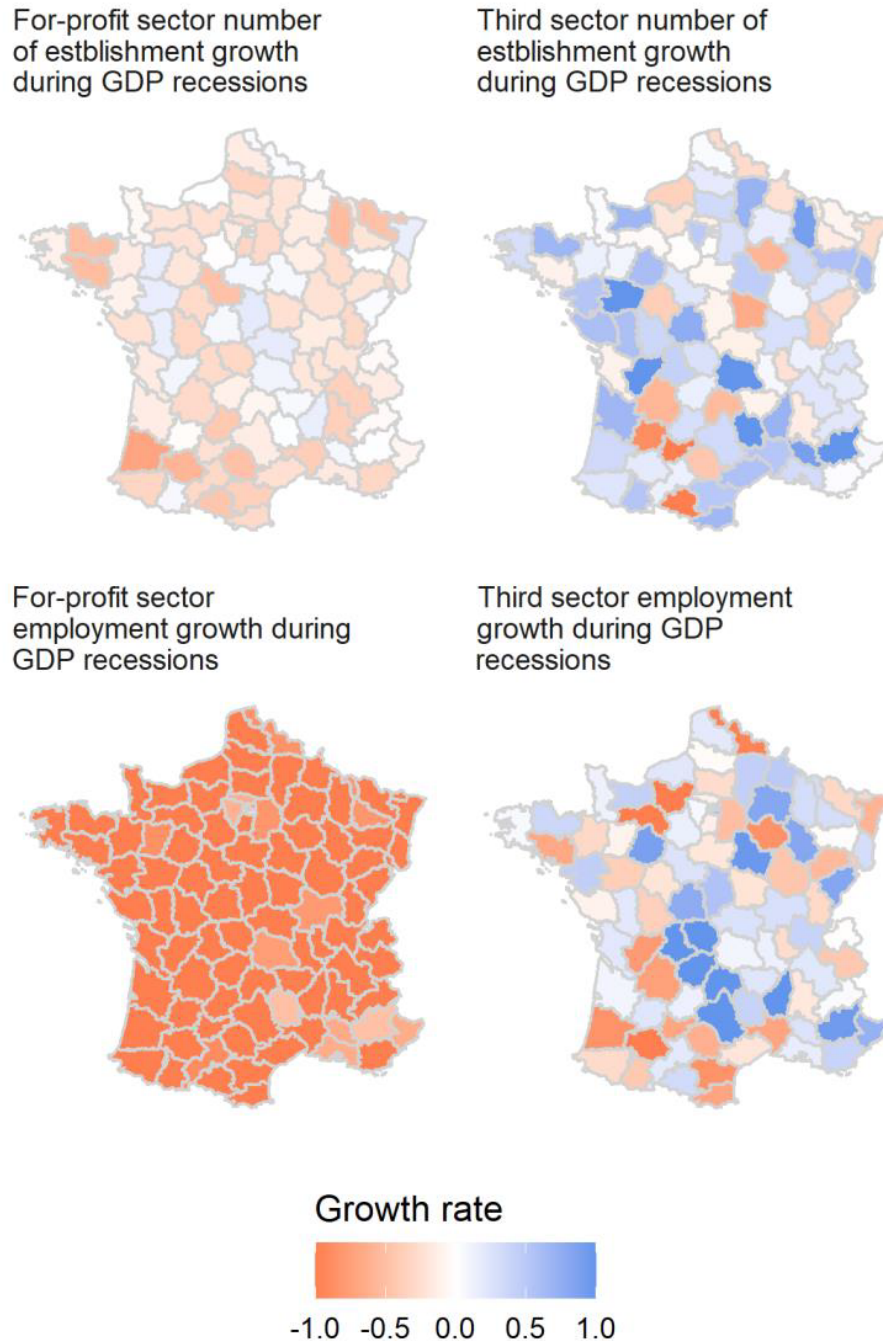
Notes: Growth rates are computed as the average of within department growth rates over the years in recessions. All initial variables are computed per 1,000 inhabitants. Growth rates are computed as $\frac{1}{T}\sum_1^T REC_t\,(Growths_{it} - \overline{\overline{Growth}}_{st})$ with T the number of years where the aggregated GDP is in recession between 2001 and 2019, s refers to the sector, i to the department, t to the year, is a dummy equal to 1 when t is a recession year and 0 otherwise, the growth of the sector size is computed as $Growths_{it} = \Delta ln(Sizes_{it})$

Table 2 lists the correlation coefficients between sector size growth rates and business cycle growth rates per sector. The cyclicity of the for-profit and the third sector differ starkly. While the for-profit sector reports large significant cyclical correlations, the third sector reports very small significant cyclical or countercyclical correlations. The for-profit establishment correlations with aggregated GDP and regional GDP are significant and positive (0.23 and 0.18, respectively), while third sector establishments show nonsignificant correlations (-0.02 and 0.00, respectively). Employment differences are even more striking. For-profit employment correlations with aggregated GDP and regional GDP are significant and positive (0.60 and 0.49, respectively), while third sector shows nonsignificant correlations (0.04 and 0.06, respectively). These correlations hold when using lagged GDPs instead of contemporaneous ones and provide clear signs of the cyclical differences between the two sectors regardless of the choice of proxy for sector size. In all cases, the for-profit sector has significant pro-cyclical behavior. In contrast, the cyclicity of the third sector is more dependent on the choice of the size and business cycle variables. Nevertheless, there is always a notable difference in correlations between the two sectors.

Table 2. Correlation between sector size growth rates and business cycle growth rates per sector.

	Aggregated growth		GDP Aggregated growth (t-1)		GDP Regional growth (t)		Regional GDP growth (t-1)	
Number of establishments								
For-profit growth	0.23	(.00)	0.33	(.00)	0.18	(.00)	0.24	(.00)
Third sector growth	-0.02	(.40)	-0.19	(.00)	0.00	(.85)	-0.0	(.00)
Employment								
For-profit growth	0.60	(.00)	0.44	(.00)	0.49	(.00)	0.35	(.00)
Third sector growth	0.04	(.09)	0.01	(.55)	0.06	(.01)	0.09	(.00)

Notes: p-values are in parentheses. Growth rates are based on the regional number of establishments and employment per 1,000 inhabitants. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included. Growth rates are computed as $(y_{st} - y_{st-1})/y_{st-1}$, y refers to the aggregated size of sector s and t refers to the year.

In sum, the previous descriptive statistics document substantial variations between the two sectors and give several insights for further analysis. First, we observe strong heterogeneity across regions with large variations regarding the level of employment and the number of establishments. Second, the growth paths followed by the two sectors are not similar and even asymmetric in some cases. Third, there exist distinctive patterns in terms of cyclicity for the two sectors. While the for-profit sector shows strong cyclical behavior, the third shows very small cyclical or even countercyclical patterns.

5. Empirical approach and results

We aim to evaluate whether for-profit and third sector display different business cycle sensitivities. We define cycle sensitivity as the association between changes in economic conditions and changes in sector size (Crouzet and Mehrotra 2020). To analyze this relationship, we regress sector size growth on business cycle growth separately for each sector.

This section presents our empirical results. First, we measure the cyclical sensitivity of both sectors. Then, we provide several robustness and sensitivity checks. Finally, we discuss whether wage variations could partly explain observed sensitivities.

5.1. Empirical specification and main results

As sector size proxy, we use the number of establishments and the employment. Both sector size and business cycle variables are computed per inhabitant to take into account size differences across regions. To account for time invariant individual heterogeneity across regions, we use regional fixed effects. To limit endogeneity, we lag all independent variables by one year. Still, we are aware that the current estimation does not identify causal relationship between the size of a sector and business cycles. However, the observed relationship is net of control variables and individual fixed effects influence. Moreover, we provide additional analysis in the next sections to better understand this relationship.

5.1.1. Empirical specification and results for the number of establishments

The number of establishments estimation is based on the following equation:

$$\Delta ln(\text{Number of Establishments } it^s) = \beta^s \Delta ln(GDP_{t-1}) + \alpha^s \Delta ln(X_{it}-1) + \mu_i^{\ s} + \varepsilon_{it}^{\ s} \ (1)$$

where $s \in \{For - profit\ sector, Third\ sector\}$ refers to the sector; $\Delta ln(\text{Number of } Establishment_{it})$ is the annual difference in logarithm of the number of establishments of sector in region i between year t and $t - 1$; $\Delta ln(GDP_{t-1})$ is the annual change in logarithm of lagged aggregated GDP; $\Delta ln(X_{it-1})$ is the annual change in logarithm of lagged control variables; μ_i captures time invariant unobservable regional factors that vary across regions and influence size variations; ε_{it} is the error term.

Table 3 presents the results of OLS estimations of the number of establishments with regional fixed effects. Striking differences in correlation with GDP are observed between the for-profit and the third sector. While the number of for-profit establishments relates significantly positively with GDP, the number of third establishments relates significantly negatively with GDP. When breaking the third sector into its main subgroups, we observe similar GDP correlations than the whole third sector. Thus, both sectors show opposite cyclical sensitivities. While the for-profit sector behaves pro-cyclically, the third sector and its two main subgroups behave countercyclically. These findings are in line with the correlations found in the descriptive statistics section.

Table 3. Estimates of the number of establishments per sector with GDP as business cycle proxy.

	Number of establishments			
	For-profit	Third	Non-profit	Co-operative
GDP	0.173*** (0.015)	-0.384*** (0.033)	-0.376*** (0.031)	-0.467*** (0.129)
Share in services	0.027 (0.034)	0.449*** (0.099)	0.456*** (0.104)	0.266 (0.376)
Share in construction	0.152*** (0.010)	0.360*** (0.027)	0.375*** (0.030)	0.278*** (0.079)
Share in industry	-0.092*** (0.021)	0.191*** (0.062)	0.246*** (0.071)	-0.297* (0.175)
Region FE	Yes	Yes	Yes	Yes
N	1692	1692	1692	1692
Within R2	0.363	0.181	0.178	0.024

Notes: OLS estimations with clustered robust standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. GDP and the number of establishments are per inhabitant. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included.

Despite the fact that our data are restricted to the total number of establishments, the results provide insights on the birth and death of establishments. Table 3 shows a positive correlation between the variation of the number of for-profit establishments and the GDP variation. This implies that the establishment birth rate is higher than the establishment death rate when economic conditions are improving. Thus, it is likely that the number of births increases while the number of deaths decreases during expansion periods. In other words, the establishment birth rate would be more cyclical than the establishment death rate. Conversely, the variation in the number of establishments is negatively correlated with the GDP variation for the third sector, which most likely means that establishment birth is higher than establishment death during recessions. Hence, worsening conditions are likely associated with higher birth and lower death for the third sector.

This difference in cyclicity between the two sectors could be explained by the difference in objectives. If for-profit organizations seek to maximize profit, they will likely have higher establishment birth rates than death rates when economic conditions are improving. On the contrary, if third sector organizations seek mutual or common objectives, they will likely have lower birth-death differences than for-profit establishments when economic conditions are improving and profits are promising. Moreover, they could even show higher birth rates than death rates to answer mutual or common needs when conditions are worsening, which will translate into countercyclical net variation of establishments.

These results are consistent with existing studies on labor-owned firms. Previous research provides evidence of the difference in behaviors of for-profit and labor-managed organizations. On one hand, labor-owned firms could have lower cyclical birth rates (Pérotin 2006; Kalmi 2013), on the other they could show better survival rates (Estrin and Jones 1992; Burdín 2014; Monteiro and Stewart 2015). Even though previous studies focused on firms and not establishments and only on labor-owned organizations, our conclusions are in line with previous findings.

5.1.2. Empirical specification and results for employment

Employment estimation is based on the following equation:

$$\Delta ln(Employment\ _{it}^{s}) = \beta^{s}\Delta ln(GDP_{t-1}) + \alpha^{s}\Delta ln(X_{it-1}) + \mu_{i}^{s} + \varepsilon_{it}^{s}\ (2)$$

where $s \in \{For-profit\ sector, Third\ sector\}$ refers to the sector; $\Delta ln(Employment_{it})$ is the annual difference in logarithm of employment of sector s in region i between year t and $t-1$; $\Delta ln(GDP_{t-1})$ is the annual change in logarithm of lagged aggregated GDP; $\Delta ln(X_{it-1})$ is the annual change in logarithm of lagged control variables; μ_i captures time invariant unobservable regional factors that vary across regions and influence size variations; ε_{it} is the error term.

Table 4 displays the results of OLS estimations of employment with regional fixed effects. Comparably to the number of establishments estimations, notable differences are observed between the for-profit and the third sector. Once again, the for-profit sector is strongly correlated with GDP and significant at 1% level. However, the third sector shows a very small correlation with GDP. Additionally, all third sector sensitivities are systematically smaller than for-profit ones. These findings are consistent with correlations found in the descriptive statistics section.

Table 4. Estimates of employment per sector with GDP as business cycle proxy.

	Number of establishments			
	For-profit	Third	Non-profit	Co-operative
GDP	0.504*** (0.016)	-0.053* (0.028)	-0.059** (0.030)	0.012 (0.106)
Share in services	-0.309*** (0.063)	0.247*** (0.089)	0.244** (0.095)	0.156 (0.195)
Share in construction	-0.158*** (0.019)	0.299*** (0.025)	0.336*** (0.027)	0.034 (0.082)
Share in industry	0.222*** (0.044)	0.098** (0.045)	0.096* (0.049)	0.044 (0.152)
Region FE	Yes	Yes	Yes	Yes
N	1692	1692	1692	1692
Within R2	0.259	0.123	0.142	0.001

Notes: OLS estimations with clustered robust standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. GDP and employment are per inhabitant. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included.

As with the number of establishment sensitivity discussion, the difference in employment cyclical sensitivity could be explained by the difference in objectives. If for-profit organizations seek to maximize profit, they will most likely increase their activity and employment during expansions rather than recessions. On the contrary, since third sector organizations have other objectives than profit maximization, their activity is susceptible to be less sensitive to economic conditions, which in turn explains the higher cyclical behavior of the for-profit sector compared to the third sector. However, our analysis is not limited to existing organizations. Thus, the variation of employment includes the net variation of employment due to the birth and death of organizations.

These findings are consistent with previous studies on labor-managed firms. These latter have showed higher employment stability (Pencavel et al. 2006; Alves et al. 2016) as well as lower adjustments to worsening economic conditions (Burdín and Dean 2009; Kurtulus and Kruse 2018; Garcia-Louzao 2021; Borzaga et al. 2021).

5.2. Robustness tests and sensitivity analysis

5.2.1. Regional business cycle

Sector size could be differently sensitive to local or aggregated economic conditions. However, computing GDP at the regional level is not straightforward. Some components of GDP could be at the national level or common across regions[6]. As part of the European Union regional investment policy, Eurostat makes estimations of regional GDP. We use their estimated GDP to evaluate regional sensitivities. The results are provided in Table 8 in appendix. The GDP coefficients have changed sign in third sector employment estimations, but they are not significant or only at 5% and still smaller than the estimated for-profit coefficients. We run complementary estimations to account for time effects that are fixed across regions but which could vary over time. The resulting coefficients reflect regional sensitivity net of shared effects across regions. Estimations are available in Table 9 in Appendix. All regional GDP coefficients of the third sector and its subgroups have become insignificant. Hence, the main findings are robust to the level of GDP aggregation and to the inclusion of time fixed effects.

5.2.2. Control variable sensitivity

Our results could be dependent on the choice of control variables (Ho et al. 2007). To evaluate the model dependence of control variables, we run additional regressions. Table 10 and Table 11 in Appendix report specifications using various sets of control variables. We first run Eq. 1 and Eq. 2 without any control variable. We then add the share of employment in activities, population, and median revenue, respectively. The population and median revenue could be associated with the employment dynamism in a region. The obtained results indicate very little model dependence except for employment in the third sector. This latter change could be explained by the initial very low correlation coefficient found in Table 4. However, by adding the full set of control variables, the

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6   This could explain why the French National Institute of Statistics and Economic Studies INSEE do not compute such data.

sensitivity of the third sector employment gets significantly countercyclical and even widens the gap between the third sector and the for-profit sector. These results are in line with our initial conclusions.

5.2.3. Spatial correlation

One of the previous assumptions is the independence of error terms across individuals. However, any time-variant unobserved correlation between regions would make statistical inference challenging. Hence, in this section, we relax the independence of errors assumption and allow for spatial autocorrelation. Following the procedure initially proposed by (Conley 1999) and recently advanced by (Colella et al. 2019) we use an OLS estimator and report heteroscedasticity-autocorrelation consistent standard errors. The resulting variance-covariance matrix accounts not only for spatial correlation between regions but also for serial correlation. Additionally, we assume that regions are linked if they share common borders. Thus, we use a contiguity matrix of order one for linkage assumptions between regions. As in previous regressions we include fixed regional effects. Results are reported in Table 12 in appendix. All coefficients are identical to the initial estimations since OLS estimator is used. Only two of the sensitivities changed significance. Third sector employment sensitivity and its non-profit subgroup turned from significant to insignificant. This suggests that our main results are robust to this alternative assumption.

5.2.4. Seemingly unrelated regressions

So far, separate estimations have been run for each sector. However, an omitted variable could influence both equations, whose error terms would be correlated. Here, we estimate a two-equation system including the size of the for-profit and third sectors, respectively, and allowing the error terms to be correlated. Since the same regressors are used in both equations, the resulting estimations are identical to OLS estimations. Thus, the results displayed in Table 13 in the appendix present the same coefficients as in our initial estimations. However, standard errors[7] are slightly different but no change in significance is observed. Finally, the null hypothesis of the Breusch-Pagan test of independence is accepted for the number of establishments and employment at 1% significance level[8]. These results indicate that our main conclusions are robust to this assumption modification.

5.2.5. Field of activity distribution

Within the for-profit and third sectors, the distribution of the employment and number of establishments between areas of activities varies. The difference of cyclical sensitivities between the two sectors could therefore be imputable to these differences in distributions. The URSSAF regional dataset used in the main analysis do not allow to

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7   Standard errors are clustered at regional level though they do not account for serial correlations. No change in significance level is observed.

8   The observed $\chi^2 (1) = 1692 * 0.0345^2 = 2.014$ for the number of establishments, the observed $\chi^2 (1) = 1692 * 0.0454^2 = 3.487$ for employment. With 1692 observations and 0.0345 and 0.0454 correlation coefficient of residuals for the number of establishments and employment respectively.

account for the different areas of activities. To circumvent this issue, we rely on another dataset from URSSAF, which provides the number of establishments and employment at the aggregate French level but with details per area of activity. The data provides information for 32 different fields of activities. To account for the difference in growth per field of activity, we perform additional estimations with field fixed effects. The results reported in Table 14 indicate that our main findings are robust to this new specification[9].

5.2.6. Other proxies for business cycles

An open question remains the choice of proxy for business cycles. The usual variables used in the literature are based on the GDP and unemployment. Table 5 and Table 6 present coefficients of the estimates with both aggregate and regional unemployment rates. The results are consistent with the previous tables, and show that our main findings are independent of the use of unemployment as a business cycle variable.

Table 5. Estimates of the number of establishments per sector with aggregated and regional unemployment as business cycle proxies.

	Number of establishments			
	For-profit	Third	Non-profit	Co-operative
Proxy(1) Unemployment	-0.015*** (0.005)	0.027*** (0.008)	0.026*** (0.009)	0.075*** (0.028)
Proxy(2) Regional Unemployment	-0.028*** (0.004)	0.028*** (0.009)	0.026*** (0.009)	0.045 (0.027)
Control variables	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes
N	1692	1692	1692	1692

Notes: OLS estimations with clustered robust standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. Unemployment variables are per inhabitant. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included.

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9 In this regression we assume an equally weighted distribution of activity areas between the two sectors.

Table 6 Estimates of employement per sector with aggregated and regional unemployment as business cycle proxies.

	Number of establishments			
	For-profit	Third	Non-profit	Co-operative
Proxy(1) Unemployment	0.042*** (0.008)	-0.033*** (0.009)	-0.038*** (0.009)	0.009 (0.025)
Proxy(2) Regional Unemployment	-0.047*** (0.005)	-0.034*** (0.008)	-0.035*** (0.009)	-0.013 (0.021)
Control variables	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes
N	1692	1692	1692	1692

Notes: OLS estimations with clustered robust standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. Unemployment variables are per inhabitant. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included.

5.3. Payroll and wage analysis

Payroll could be an alternative proxy for the size of a sector. However, this variable is deemed to be strongly related to the level of employment. All other things being equal, an increase in the number of employees would increase payroll and vice versa. In some cases, however, employment and payroll could deviate from each other. This deviation may be due to variations in working hours, base salary, salary bonuses, or average wages between incoming and outgoing employees. Consequently, payroll and employment may have different sensitivities. We therefore run a regression with payroll as the dependent variable. Results are provided in Table 15 in the appendix and show similar patterns.

In addition, we regress the average wages, which are computed as the sector payroll divided by sector employment. The results displayed in Table 7 show a countercyclical sensitivity for the for-profit sector and no sensitivity for the third sector. The countercyclical average means that improving economic conditions is associated with decreasing average wages. This result could be explained by the higher variation of employment seen for the for-profit sector, and by the low-wage workers who are more likely to be affected by worsening economic conditions.

Table 7 Estimates of average wages per sector with GDP as business cycle proxy.

	Av. wage			
	For-profit	Third	Non-profit	Co-operative
GDP	-0.064*** (0.009)	-0.032 (0.023)	-0.038 (0.023)	-0.046 (0.047)
Share in services	0.077*** (0.027)	-0.024 (0.054)	-0.021 (0.062)	-0.056 (0.087)
Share in construction	0.003 (0.007)	-0.035* (0.021)	-0.037 (0.023)	0.062** (0.025)
Share in industry	0.052*** (0.019)	0.045 (0.031)	0.037 (0.034)	0.080 (0.050)
Region FE	Yes	Yes	Yes	Yes
N	1692	1692	1692	1692
Within R2	0.022	0.011	0.009	0.010

Notes: OLS estimations with clustered robust standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. GDP is per inhabitant. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included.

6. Conclusion

This study examines the behavior of the third sector as a whole, rather than focusing solely on worker-cooperatives as previous research has done. Our results are in line with earlier studies on labor-owned organizations. We find that the cyclicity between the third sector and the for-profit sector is markedly different. The number of establishments in each sector displays opposite correlations with GDP. The for-profit sector shows pro-cyclical sensitivity, while the third exhibits countercyclical sensitivity. Moreover, the employment sensitivity of the third sector is systematically lower than that of its counterpart. However, its sign and significance are dependent on the model specification, most likely because of the very small level of correlation. Last for not least, the results remain generally consistent across the two subgroups of the third sector.

Our results are in keeping with existing theory. Previous literature argues that different property structures could lead to different objectives and behaviors. Third sector organizations are more likely to pursue mutual or general interest goals as opposed to for-profit organizations which are more likely to pursue profit maximization. This divergence in objectives could explain the pro-cyclicity of for-profit sector and the lower (or the absence of) cyclicity of the third sector. The for-profit sector is more likely to flourish and increase its size during expansions when profits are higher and inversely during recessions. Democratic governance and the limited profit distribution constraint are principles that incite French third sector organizations to better pursue non-monetary objectives in the mutual or general interest, and lead to lower sensitivities to changes in economic conditions.

Our findings shed new light on the comparative behavior between the third sector and for-profit sector with regard to business cycles and call for further research. Each dependent variable studied relies on different mechanisms and deserves in-depth analysis. The net variation in the number of establishments results from the difference between the birth and death of establishments, which may have different cyclicities concealed in the net variation (Tian 2018). Similarly, employment results from both job creation and job destruction which may also have different behaviors (Alves et al. 2016). To fully understand these mechanisms, it is important to control for factors such as firm age, size, and industry-fixed effects (Haltiwanger et al. 2013). These types of analysis would only be possible with a detailed dataset at the organizational level. Finally, the specificities of the third sector vary across national contexts, so analysis in other countries could bring valuable insight into the relationship between ownership structure and behavior.

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Appendix

Table 8 Estimates of employment per sector with regional GDP as business cycle proxy.

	Number of establishments				Employment			
	For-profit	Third	Non-profit	Co-operative	For-profit	Third	Non-profit	Co-operative
Regional GDP	0.069***	-0.119***	-0.108***	-0.181**	0.203***	0.047*	0.057**	-0.030
	(0.008)	(0.019)	(0.017)	(0.079)	(0.019)	(0.025)	(0.025)	(0.064)
Share in services	0.084**	0.297***	0.301***	0.108	-0.145**	0.179**	0.164*	0.186
	(0.033)	(0.096)	(0.104)	(0.344)	(0.064)	(0.086)	(0.093)	(0.188)
Share in construction	0.162***	0.332***	0.346***	0.249***	-0.129***	0.285***	0.319***	0.041
	(0.009)	(0.028)	(0.031)	(0.081)	(0.019)	(0.026)	(0.028)	(0.084)
Share in industry	-0.085***	0.168***	0.222***	-0.318*	-0.201***	0.082*	0.078	0.051
	(0.021)	(0.063)	(0.072)	(0.173)	(0.044)	(0.044)	(0.049)	(0.154)
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1692	1692	1692	1692	1692	1692	1692	1692
Within R2	0.329	0.136	0.134	0.020	0.145	0.125	0.145	0.001

Notes: OLS estimations with clustered robust standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. Regional GDP is per inhabitant. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included.

Table 9 Estimates of employment per sector with regional GDP and with time fixed effects.

	Number of establishments				Employment			
	For-profit	Third	Non-profit	Co-operative	For-profit	Third	Non-profit	Co-operative
Regional GDP	0.023**	-0.011	-0.009	0.017	0.045***	0.030	0.035	-0.019
	(0.009)	(0.021)	(0.020)	(0.099)	(0.012)	(0.029)	(0.028)	(0.074)
Share in services	0.010	0.149*	0.173**	-0.199	0.014	0.282***	0.297***	0.011
	(0.033)	(0.081)	(0.084)	(0.364)	(0.036)	(0.076)	(0.080)	(0.201)
Share in construction	0.066***	-0.025	-0.006	-0.193	0.005	0.086**	0.107***	-0.095
	(0.019)	(0.032)	(0.032)	(0.116)	(0.022)	(0.037)	(0.038)	(0.100)
Share in industry	-0.020	0.120**	0.124**	0.138	-0.051**	0.105**	0.087*	0.199
	(0.020)	(0.051)	(0.057)	(0.229)	(0.022)	(0.043)	(0.044)	(0.193)
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1692	1692	1692	1692	1692	1692	1692	1692
Within R2	0.573	0.500	0.524	0.154	0.719	0.349	0.376	0.045

Notes: OLS estimations with clustered robust standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. Regional GDP is per inhabitant. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included.

Table 10 Estimates of the number of establishments per sector using different set of control variables.

| | Number of establishments | | | | | | | |
| | For-profit | | | | Third | | | |
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
GDP	0.222***	0.173***	0.172***	0.167***	-0.287***	-0.384***	-0.374***	-0.479***
	(0.012)	(0.015)	(0.015)	(0.015)	(0.026)	(0.033)	(0.034)	(0.036)
Share in services		0.027	0.026	0.016		0.449***	0.454***	0.516***
		(0.034)	(0.034)	(0.037)		(0.099)	(0.097)	(0.102)
Share in construction		0.152***	0.160***	0.152***		0.360***	0.307***	0.289***
		(0.010)	(0.010)	(0.010)		(0.027)	(0.027)	(0.027)
Share in industry		-0.092***	-0.100***	-0.095***		0.191***	0.241***	0.215***
		(0.021)	(0.021)	(0.022)		(0.062)	(0.061)	(0.065)
Population			-0.196***	-0.208***			1.242***	0.834***
			(0.074)	(0.074)			(0.205)	(0.206)
Revenue mediane				0.190***				0.534***
				(0.034)				(0.099)
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1692	1692	1692	1598	1692	1692	1692	1598
Within R2	0.117	0.363	0.366	0.402	0.039	0.181	0.207	0.247

Notes: OLS estimations with clustered robust standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. GDP is per inhabitant. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included.

Table 11 Estimates of employment per sector using different set of control variables.

	Employment For-profit (1)	(2)	(3)	(4)	Third (1)	(2)	(3)	(4)
GDP	0.470***	0.504***	0.495***	0.469***	0.020	-0.053*	-0.044	-0.172***
	(0.014)	(0.016)	(0.016)	(0.016)	(0.025)	(0.028)	(0.029)	(0.028)
Share in services		-0.309***	-0.314***	-0.380***		0.247***	0.252***	0.290***
		(0.063)	(0.062)	(0.067)		(0.089)	(0.087)	(0.094)
Share in construction		-0.158***	-0.113***	-0.145***		0.299***	0.253***	0.235***
		(0.019)	(0.018)	(0.018)		(0.025)	(0.026)	(0.027)
Share in industry		-0.222***	-0.265***	-0.288***		0.098**	0.141***	0.086*
		(0.044)	(0.042)	(0.045)		(0.045)	(0.044)	(0.045)
Population			-1.062***	-1.160***			1.079***	0.486**
			(0.144)	(0.142)			(0.232)	(0.229)
Revenue mediane				0.343***				0.517***
				(0.045)				(0.065)
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1692	1692	1692	1598	1692	1692	1692	1598
Within R2	0.213	0.259	0.297	0.325	0.000	0.123	0.145	0.171

Notes: OLS estimations with clustered robust standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. GDP is per inhabitant. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included.

Table 12 Estimates of employment per sector considering spatial correlation.

	Number of establishments				Employment			
	For-profit	Third	Non-profit	Co-operative	For-profit	Third	Non-profit	Co-operative
GDP	0.173***	-0.384***	-0.376***	-0.467**	0.504***	-0.053	-0.059	0.012
	(0.024)	(0.054)	(0.053)	(0.208)	(0.055)	(0.039)	(0.040)	(0.113)
Share in construction	0.152***	0.360***	0.375***	0.278***	-0.158***	0.299***	0.336***	0.034
	(0.014)	(0.033)	(0.036)	(0.105)	(0.031)	(0.028)	(0.031)	(0.085)
Share in industry	-0.092***	0.191***	0.246***	-0.297	-0.222***	0.098**	0.096*	0.044
	(0.023)	(0.066)	(0.074)	(0.202)	(0.049)	(0.049)	(0.054)	(0.169)
Share in services	0.027	0.449***	0.456***	0.266	-0.309***	0.247**	0.244**	0.156
	(0.038)	(0.108)	(0.112)	(0.406)	(0.081)	(0.097)	(0.102)	(0.199)
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1692	1692	1692	1692	1692	1692	1692	1692

Notes: OLS estimations with heteroscedasticity-autocorrelation consistent standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. GDP is per inhabitant. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included. Spatial correlation is considered between bordering regions.

Table 13 Estimates of seemingly unrelated regression modelst per sector.

| | Number of establishments | | Employment | |
	For-profit	Third	For-profit	Third
GDP	0.173***	-0.384***	0.504***	-0.053*
	(0.014)	(0.033)	(0.016)	(0.028)
Share in construction	0.152***	0.360***	-0.158***	0.299***
	(0.010)	(0.027)	(0.019)	(0.025)
Share in industry	-0.092***	0.191***	-0.222***	0.098**
	(0.021)	(0.062)	(0.043)	(0.045)
Share in services	0.027	0.449***	-0.309***	0.247***
	(0.034)	(0.099)	(0.063)	(0.089)
Region FE	Yes	Yes	Yes	Yes
N	1692	1692	1692	1692

Notes: SUR estimations with clustered robust standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. GDP is per inhabitant. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included.

Table 14 Estimates of employment per sector with field of activity fixed effects.

	Number of establishments				Employment			
	For-profit	Third	Non-profit	Co-operative	For-profit	Third	Non-profit	Co-operative
GDP	0.234**	-0.266***	-0.236*	-0.137	0.354***	-0.049	0.123	0.095
	(0.086)	(0.074)	(0.128)	(0.214)	(0.057)	(0.131)	(0.248)	(0.375)
Activity FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	608	608	608	475	608	608	608	475
Within R2	0.021	0.015	0.007	0.001	0.024	0.000	0.000	0.000

Notes: OLS estimations with clustered robust standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. GDP is per inhabitant. All years are included between 2001 and 2019. The data is aggregated at French national level and includes all 94 continental NUTS 3 French regions.

Table 15 Estimates of payroll per sector with GDP as business cycle proxy.

| | Payroll | | | |
	For-profit	Third	Non-profit	Co-operative
GDP	0.440***	-0.085**	-0.097***	-0.033
	(0.018)	(0.035)	(0.033)	(0.124)
Share in services	-0.233***	0.223**	0.223**	0.100
	(0.058)	(0.089)	(0.096)	(0.200)
Share in construction	-0.156***	0.264***	0.299***	0.096
	(0.019)	(0.023)	(0.024)	(0.083)
Share in industry	-0.170***	0.143***	0.133***	0.124
	(0.041)	(0.046)	(0.049)	(0.155)
Region FE	Yes	Yes	Yes	Yes
N	1692	1692	1692	1692
Within R2	0.181	0.080	0.102	0.002

Notes: OLS estimations with clustered robust standard errors in parenthesis. ***, **, * statistically significant at 1%, 5% and 10% level, respectively. All variables are expressed as Δln the annual variation in logarithm. All independent variables are lagged by one year. GDP is per inhabitant. All years are included between 2001 and 2019. All 94 continental NUTS 3 French regions are included.