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GROSS JOB – CREATION AND GROSS JOB – DESTRUCTION DETERMINANTS: EMPIRICAL ANALYSE AT MICRO FIRMS DATA LEVEL

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Abstract: This study analyses gross job-creation and gross job-destruction determinants at the firm level for a panel of Portuguese micro-firms across four industry sectors, using the Ordinary Least Square and Fixed Effect econometrics model to analyse a database consisting on 15.686 micro firms, for the period going from 2010 to 2017. It was found that lagged gross job-creation, assets tangibility, financial leverage, profits, and the fact firms belong to the construction sector determine gross job-creation. Regarding gross job-destruction, it was found that this variable is determined by its lagged variable, firm's size, worker's tenure, and the fact the firm belongs to the hotels and restaurant sector. Finally, findings suggest that a resource-based approach explains gross job-creation and gross job-destruction for micro firms by using microdata. This study contributes to the state of the art on the determinants of employment and firing at micro firms' level as it investigates the importance of the independent variables in explaining micro firm's labour demand in Portugal.

Keywords: gross job-creation, gross job-destruction, micro firms, Portugal

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INTRODUCTION

This work intends to analyse gross job creation's determinants at a micro firm-level in the Portuguese economy from 2010 to 2017. Most literature points towards the idea that micro firms are the main responsible for gross job-creation, because of tax incentives, regulatory policies, and other government programs that favor them to enter the market and implement their business. That's why firms and plants classified in this size exhibit higher gross job-creation rates, meaning they represent a larger number of workers [1]. To achieve this goal, this article seeks to analyse if firm's size, tenure measured as the workers' experience, liquidity availability, financial leverage, asset tangibility, and profits impact positively or negatively on employment as it was found by Lawless [2] when studying Ireland firms, recurring to microdata from this country's Central Bank and Davis et al. [1] when measured size and worker age, in terms of experience impact in the gross job-creation and destruction. We also intend to see if industry affiliation is positively related with gross job-creation and gross job-destruction as it is pointed out by Yazdanfar and Salman [3], when studying Swedish micro firms. To achieve this goal, Ordinary Least Square Dummy Variable, Fixed Effect, and Random Effect econometric methods are

applied to regress the models with the main object of investigating whether Portuguese micro-firms behave similarly or if they display different patterns. The results show that gross job-creation does not increase with increases in the firm's size and worker's tenure. However, it increases with increases in its lagged value, assets tangibility, financial leverage, profits, and industry affiliation. In what gives respect to gross job-destruction the same conclusion can be obtained regarding its lagged variable impact. Nonetheless, all the remnant variables display the opposite effect, except for the case of profits and financial leverage, that were not statistically significant. The rest of the paper is organized as follows. In section two is presented the literature reviews, in section three the methodology, and section four the empirical analyses and conclusions.

THEORETICAL FRAMEWORK

Most empirical research has shown that many factors have impacted on the labour market, both in the supply and in the demand side. According to Davis et al. [4], job – creation, and job – destruction are two faces of the same coin that determine the job reallocation rate. The authors defined job – creation as the total variation in employment level caused by all firms that expand or start their businesses in a given period. Similarly, Lawless [2], defines gross job – creation in the present time as the difference between the total level of employment gains caused by all business entities that expand or set-up between time t minus time $t-1$.

On the other hand, job – destruction is the opposite of job creation. Thus, it exists whenever we observe changes in employment that are assumed by the total number of firms that contract their businesses or exit the market in a given period [3–5]. From this perspective, we were able to infer that all businesses that do not expand or contract during a given moment will not influence any employment increase or decrease. As these changes in the employment level will not be reflected, the impact of the firm regarding its contribution to the labour market for job- creation or job-destruction will be equal to zero. Therefore, and to simplify, [4], argued

that all changes that can occur ought to be thought of as having in its essence the reshuffling of job opportunities across locations. These job- creation, and job – destruction concepts presented above are defined in conventional terms and in line with the concepts presented by Neumark et al. (2011) [6], when studying the job flow in the UK.

Neumark et al. (2011) [6], evaluated job-creation and job-destruction in the UK from 1998 to 2010. Similarly, Samsi et al.(2018) [7] measured the firm's expenditure on research and development and its impact on job-creation and job-destruction for the Malaysian labour market. Also, Haltiwanger and Pintyn (2019) [8] seek to know the influence of innovation on job-creation in the U. S and Colombian firms. These three studies added many related or derivative concepts from the previous job-creation and job-destruction ones.

Net employment (or net employment change, according to some authors) is defined as changes in the level of employment between two consecutive years. Putting it in another way, net employment is the difference that arises from the comparison between the number of jobs created and the number of jobs lost at a given period. Likewise, the net employment rate results from the difference between the job-creation rate and job- destruction rates.

In contrast, the definition of job-reallocation rate appears not to be quite right because the variable in question is defined as the job-creation rate plus job-destruction rate, for a given period. But Neumark et al. (2011) [6] and Samsi et al.(2018) [7] agreed with the job-reallocation rate's measure, referring that, this measure is very important as it gives us total employment flows that can occur in the labour market. Also, Davis et al. [4], considered job-reallocation summarizes the overall volume of changes that can occur in the employment level, representing the reshuffling of job opportunities across location as referred and gives us the net employment.

Finally, we consider the excess job reallocation rate, that measures the difference between the job reallocation rate and the net employment rate and indicates the extent of 'churn' in a given labour market, as it measures the extent to which job destruction exceeds the cutoff point that is

needed to produce the observed net employment change. The literature in this field sustains that, if one subtracts the amount of job – destruction in a given period of the time from the correspondent job creation, the result will be net employment.

Lawless, Yazdanfar, and Salman and Davis et al. [2–4] defined net employment as a change in job creation minus job destruction. While the employment rate is the difference between the job creation rate and the job destruction rate. These rates are normally influenced by many factors. Therefore, regarding this, many empirical pieces of evidence, as the previously mentioned, point out that firm-specific characteristics impact differently in job creation or job destruction.

For instance, Centeno et al. [5], when analyzing the Portuguese firms, have concluded that although larger firms' contributions on either job – creation or job – destruction overcomes the contribution from micro, small or medium firms. Both small and micro firms still have a significant role so that this process may be possible. Following the same line of thought, Lawless [2] concluded that job turnover and firm productivity's growth are driven systematically according to the firm's size group and firm's age.

Job – Creation and Job – Destruction Determinants

Bringing a new perspective, in comparison to many other studies, this one is focused on the deterministic resource-based approach to survey the firm-level job-creation determinants. As we can find in the widespread related literature, the word resource is here meant to refer to all types of assets. For instance, among these large numbers of assets, we can mention some, such as cash, debt, capital, management skills, the firm's organizational level in terms of processes' organization, the information treatment level, the firm's ability, and firm's knowledge stock.

From the resource's based approach methods perspective point of view, firms can achieve their optimum performance level through several different types of paths. As a matter of fact, Yazdanfar and Salman [3] mentioned various performance measures that firms can use to achieve their optimum performance level. Similarly to this measurement method, one can recur to the analysis

of profitability, variations in sales (or changes in sales) and job-creation, as well as one, can recur to other available resources. Putting it in another way, if firms increase the level of inputs such as capital, labour, and intermediate materials, as a result of previous increases in investment expenditure, raise the employment rate. According to Lawless et al. [2], job-creation is positively impacted by the level of investment expenditure made by each firm. This increase in the investment expenditure impacts innovation and benefit both, company and U. S employment.

This is indeed in line with the conclusions of Yazdanfar and Salman [3], when studying Malaysian firms. They concluded that to remain economically competitive, firms need to invest constantly so that they can generate and establish new sources for economic growth. Many paths can be followed to achieve such a goal. For instance, for the Malaysian case, the study recommends increasing Research and Development expenditure, as it is suggested to increase both science and technology level as well as job-creation.

However, the need for constant and permanent investment requires firms to have sources of financing. Firms can take debt from several financial institutions such as banks or other firms operating in the financial sector, that can lend money. From the new-Keynesian perspective, these financial institutions display information that is not equally available for all firms. This is the so-called asymmetric information that prevails in the financial market allows those firms to have easier access to debt in comparison with the remnant ones. Therefore, those authors considered asymmetric information as the main source of market imperfection. As a matter of fact, the information asymmetries, agency costs, moral hazards, and adjustment can explain, at least, partially why some firms have access to financial resources while others have not (Greenwald and Stigitiz, 1993) [10].

Yazdanfar and Salman [3] found pieces of evidence of a positive association between liquidity availability and fixed capital investment. Other authors found that employment variation is associated with a firm's financial pressure [3]. However, Modiglian and Miller (1958) [11], argued that a firm's financial structure is not an

important determinant of its market value. Firms can be financed by internal resources, debt, or a combination of both, however, this will not affect its real operations. Therefore, market imperfections associated with asymmetric information problems, moral hazards (results from the asymmetric information, occurring when the part with more information about one action or intention tends to have or have the incentive to behave inappropriately from the perspective of the party with less information), agency conflicts between shareholders and the management team, labour market regulation and distortion in taxation leads to the separation of investment and financing decisions.

Regarding this, many empirical shreds of evidence, as the previously mentioned, point out that firm-specific characteristics impact differently in job creation or job destruction. For instance, Centeno et al. [5], when analyzing the Portuguese firm's case have concluded that, although larger firms' contribution on either job – creation or job destruction overcomes the contribution from micro, small or medium firms, both small and micro firms still have a significant role so that this process may be possible. Following the same line of thought, Lawless [2] concluded that job turnover and firm productivity's growth are driven systematically according to the firm's size group and firm's age. Similarly, findings point out that micro and small-sized enterprises are the backbones for Australia's creation of employment and new businesses.

Empirical studies have shown that micro, small and startups suffer more than large and incumbent ones from such market imperfections problems. Large firms explore economies of scale and they offer diversified goods and services. For these reasons, they face fewer liquidity constraints, asymmetric information, moral hazards, financial distress, cash flow volatility, and bankruptcy risk problems. These conditions allow them to have easier access to debt and better opportunities to invest and employ labour. On the other hand, incumbent firms have the same opportunities as a result of the fact that they have more knowledge and network acquired over time than young or entrant ones do, what allows them to have easier access to external financial resources than young's

or entrant ones without a history and reputation in the market do. In the same line, studies provide details of age structure and employment growth for Australian SME firms which comprise around 98 percent of all firms and account for 41 percent of total employment over 2001–2011.

From the idea discussed above, we can infer that firm's age impacts positively on debt, capital, and job creation. Thereby, Yazdanfar and Salman (2012) [12], referred to financial constraints in terms of difficulties in obtaining debt as one of the most important barriers to a firm's liquidity and employment. Also, Acemoglu and Autor (2011) [13], highlighted the association between liquidity and employment and between employment and the firm's economic activity sector because of the difference in the inputs (technology, capital, labour, and material they need so that they can perform their activity.

Previous Empirical Evidence

Most studies made regarding labour demand and supply determinants have found that many factors analyzed at the firm-level underline that the level of employment declines in the presence of market distortions, arising from information asymmetries. Young, micro and small firms found this lack of information as a great barrier in access to the bank loan. They need so that they can invest. As a matter of fact, these firms face many financial constraints, less availability liquidity which contributes to lower labour demand. On the other side, most literature and empirical research points for a significative contribution of micro and small firms to job-creation. *Table 1* summarizes some results found in the literature.

METHODOLOGY

Dependent and Independent Variables

Based on the existing literature related to the factors that determine job creation, for the Portuguese case, we intend to identify what factors influence job-creation the most, considering the country's specificities. Therefore, four independents variables namely the firm's liquidity, size, age, leverage, and industrial affiliation are incorporated in our model as independent variables. As

Table 1

Summary of some Empirical Evidence

Author	Findings	Variables	Country
Coutor (1990)	-	High leverage and employment	USA
Coutor (1990)	+	Capital investment and employment	USA
Graafland and Lever (1996)	-	Firm leverage ratio and employment	British companies
Sharp (1994)	-	Interest rate and firm leverage and employment	USA
Greenwald and Stiglitz (1993)	-	Firm financial constraint caused by asymmetric information and demand for labour	USA
Arnold (2002)	-	Financial constraints derived from asymmetric information and employment	USA
Yazdanfar et al. (2012)	-	Size, age, debt, liquidity availability, industry and job-creation	Sweden
Henrekson (2020)	+	How labor market institutions affect job creation and productivity growth	U.S
Hendrickson et al. (2015)	+	Age structure and employment growth	Australian
Eslava et al. (2019)	+	Micro and Small firms employment by using the number of employees as a proxy for size	U.S and Colombia
Eslava et al. (2019)	-	Age and employment	U.S and Colombia

Source: produced by the author

my dependent variable, in which we expect to measure the impact of each of the explanatory variables above presented, I have chosen job creation. Also, tangibility and profitability have been identified and used as instrumental variables, following the methodology of Yazdanfar and Salman [3].

The variables are computed as it follows:

$$\text{Job – Creation}_{i,t} = \log(\text{Employment}_{i,t} - \text{Employment}_{i,t-1}) \quad (1)$$

$$\text{Job – Destruction}_{i,t} = \log(\text{Employment}_{i,t} - \text{Employment}_{i,t-1}) \quad (2)$$

In this perspective, we expect job creation's behavior to be affected by changes that occur in the explanatory variable, as liquidity can be generated by leverage. Conversely, several independent variables were identified in the previous study to be associated with job-creation. Most analyses were carried out by considering the data at the firm-level and found that job-creation is associated with a firm's size, age, financial leverage, and liquidity. Size can be proxied taking as a basis the number of workers, as it was considering for

the case of the U. S and Colombian. In contrast, for this work, this variable is defined as the mean of the number of workers following [3].

$$Xe_{i,t} = \frac{(\text{Employment}_{i,t} + \text{Employment}_{i,t-1})}{2} \quad (3)$$

Since one knows that firm market knowledge is accumulated over time, one can infer that old firms have suffered less from asymmetric information increasing their probability of accessing debt and this will reduce the liquidity constraints [13]. In the computation of this variable, we follow Yazdanfar and Salman [3] and using as a proxy the natural logarithm of worker's tenure.

$$\text{Tenure}_{i,t} = \text{Holdest worker number of year in the firm} \quad (4)$$

Based on the previous existent literature, leverage is measured using the ratio between the book value of total liabilities and total assets [3].

$$\text{Financial Leverage}_{i,t} = \frac{(\text{Book Values of Total Liabilities})}{(\text{Total Assets})} \quad (5)$$

For a firm's liquidity, total current assets divided by total asset is mostly used as a proxy.

$$\text{Liquidity}_{i,t} = \frac{(\text{Total Current Assets})}{(\text{Total Assets})} \quad (6)$$

Finally, as job-creation and job-destruction are expected to be affected by the firm industry affiliation and changes across industries. The dummy variable will be included in the model in order to control the sector impact in the job-creation.

Hypothesis

Based in the resource-based approach which implies that independent firm-level variables positively or negatively impact on gross job-creation or gross job – destruction Yazdanfar and Salman [3]; Davis et al. [4, 14]; Kane [15]. And using data from SCIE and *Quadros de Pessoal* for the Portuguese case, we test if gross job-creation and gross job-destruction are positively related to firm size, leverage, tenure, liquidity, profits, assets tangibility, and industry affiliation.

The data and preliminary evidence

The data set used in this study is an unbalanced panel of Portuguese micro firms, recorded in both SCIE and *Quadros do Pessoal*, over the period going from 2010 to 2017. This data set contains the firm's balance sheets and workers' information, respectively. Nonetheless, data does not provide any information for assets depreciation which positively biased the profit variable results.

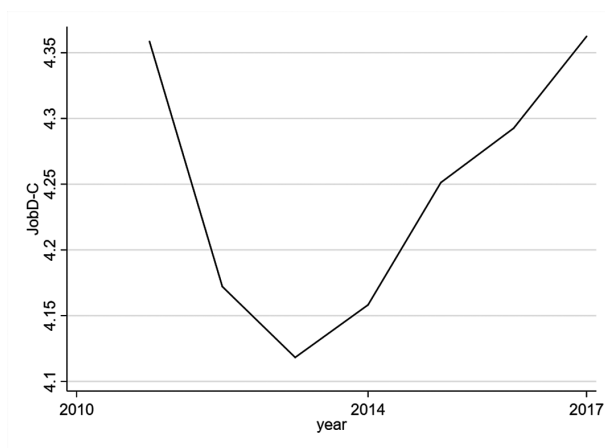
After imposing some restrictions to the number of workers for firms with over 10 workers, with the object of selecting only micro firms and restrict it

to four industries, namely, food, beverage and tobacco (3); textiles, dressing, and leather (5); construction (11) and restaurants and hotels (13), our sample was reduced to 15.686 firms.

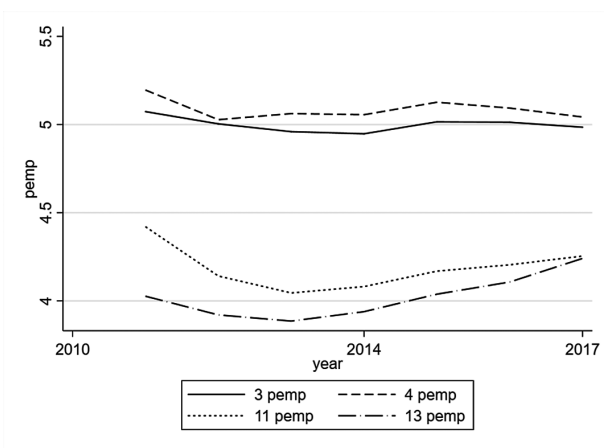
In the graphs presented above, we can see that there was evidence of job- destruction from 2010 to 2012. From this moment onward, firms started to recover their employment level, generating a job-creation effect. Also, one can see that textiles, dressing, and leather (4 pemp) were at the top of the employment over this time, in comparison with the remnant sectors. This sector is followed by food, beverage and tobacco (3 pemp), construction (11 pemp), and restaurants and hotels (13 pemp), respectively.

The two graphs above show the evolution and the growth observed in employment by sector. On the left side hand, one can see the evolution observed for Job-creation, sustaining the hotels and restaurants' sector seems to have increased the level of employment, compared to construction's, food's, and textiles' sector firms. The same trend is observed when we analyses its growth. Firm's classification by industry in the selected data is distributed as it follows: 7.11% of the firms analysed belong to the food, beverage, and tobacco sector; 7.49% to the textiles and dressing one; 43.61% to the construction sector and 41.76% to the hotel and restaurants sector.

Table 2 with the descriptive statistic presented below allows us to explain our data better. The

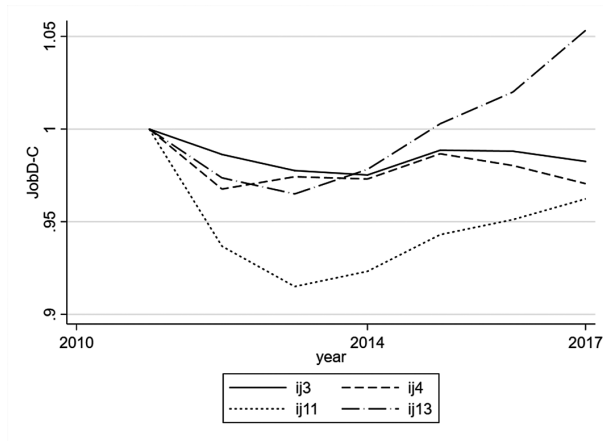


Source: SCIE, 2010–2017

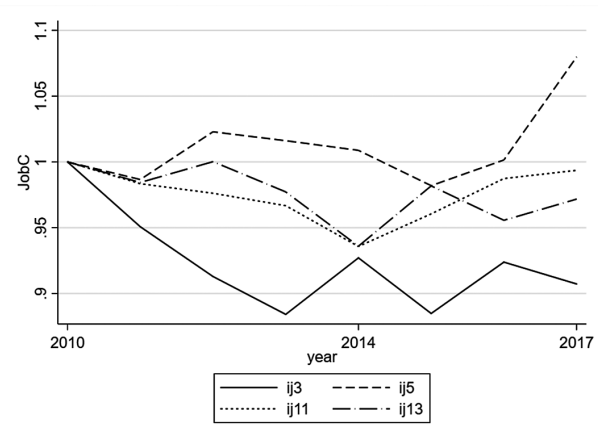


Source: SCIE, 2010–2017

Figure 1. JobC and JobD for all sector and its growth



Source: SCIE, 2010–2017



Source: SCIE, 2010–2017

Figure 2. Job creation and its growth by sector

average number of paid workers is 4.298 and the minimum observed is 4.184. In terms of sector, the sectors with an average higher number of workers are food, beverage, tobacco, and textiles and dressing sector, respectively. Regarding tenure, data shows that the oldest worker in our data sample has 62 years of experience. Worker's display an average tenure of 10.27 years and a minimum of 0.319 years. Regarding size, its mean value is settled at 4.24 workers and no firm reveals to have more than 10 employees over our data sample, as the maximum number of employees was settled at 10 workers.

Econometric model and estimation strategy

The following dynamic model was estimated:

$$\ln Gross - JobC_{i,t} = \beta_0 + \beta_1 \ln Xet_{i,t} + \beta_2 \ln Tenure_{i,t} + \beta_3 Liquid_{i,t} + \beta_5 Sect_{i,t} + \mu_{i,t} \quad (7)$$

$$\ln Gross - JobD_{i,t} = \beta_0 + \beta_1 \ln Xet_{i,t} + \beta_2 \ln Tenure_{i,t} + \beta_3 Liquid_{i,t} + \beta_4 FinLev_{i,t} + \beta_5 Sect_{i,t} + \mu_{i,t} \quad (8)$$

Where $Gross JobC_{i,t}$ represents the current year sum of the number of job-creation and $Gross JobD_{i,t}$ represents the current year sum of the

Table 2

Descriptive Statistics

	(1)	(2)	(3)	(4)
VARIABLES	mean	sd	min	max
year	2.014	2.160	2.011	2.017
Job C	0.513	0.0894	0.387	0.623
Xet	4.042	0.0789	3.955	4.178
tenure	10.03	0.319	9.480	10.27
FinLev	2.186	0.792	1.378	3.783
Liq	12.83	10.64	7.727	36.82
tangibility	74.197	1.910	71.996	77.138
profit	66.594	13.973	54.397	95.777
pemp	4.298	0.0948	4.184	4.414

number of job-destruction; $LnXet_{i,t}$ is the natural log of firms' size, $LnTenure_{i,t}$ is the natural logarithm of the highest firm's tenure; $FinLev_{i,t}$ is the financial leverage; $Liq_{i,t}$ firm's liquidity; $Sect_{i,t}$ is the categorical variable for the sector, which allows controlling for the heterogeneity of the sector, taking values equal to 1(one) if the sector is verified and zero otherwise; $mu_{i,t}$ is the error term; and finally, two instrumental variables, $Profitability_{i,t}$ represents the difference between total sales and total cost and $Tangibility_{i,t}$ which is the portion of tangible assets.

Empirical Analysis and Conclusions

The results on the fixed-effect model will not be analysed as this model eliminate the industry effect which is important for this analysis. However, the results of the main model, LSDV show that not all job-creation determinants show the expected coefficient's sign. Table 3 above shows us that job-creation is positively impacted by its previous values (lagged). This implies that a one percentage change in this previous value, leads

on average, ceteris paribus, to approximately, 20 percent increase in job-creation. The financial leverage ratio and tangibility also display a positive relationship. That means that an increase of one percent in the referred variable, on average, ceteris paribus, leads to a change of 0.9 and 0.5 percent in the firm's labour demand.

Regarding profits also displays the same relationship with job creation, meaning that a one percent change in a firm's profit leads, on average, ceteris paribus, to a 0.6 percent change on job-creation. This relation can be explained based on the base of marginal productivity of the labour: as firms are profit maximizers, a positive change in output resulting from hiring leads to additional hiring of workers, holding constant all other inputs. Industrial affiliation, as construction and food, beverage, and tobacco, has a positive impact on job creation, thus explaining the variation in job creation across firms. On the other hand, a firm's size and tenure display negative influences on job-creation. An increase of one percent on those variable leads, on average, ceteris paribus, to a negative

Table 3

Gross job-creation and destruction estimates

	JC-LSDV	JC-FE	JC-RE	JD-LSDV	JD-FE	JD-RE
L. InGet C	0.2143*** (0.011)	-0.2593*** (0.023)	0.1827*** (0.010)			
"lnXet"	-0.3895*** (0.017)	-0.5311*** (0.057)	-0.4008*** (0.017)	-0.8884*** (0.014)	-1.0771*** (0.044)	-0.9107*** (0.015)
Intenure	-0.0960*** (0.007)	-0.2060*** (0.046)	-0.1017*** (0.007)	-0.0462*** (0.007)	-0.0353 (0.045)	-0.0445*** (0.007)
Intangibility	0.0092*** (0.003)	0.0341** (0.017)	0.0047 (0.003)	0.0085*** (0.003)	0.0244 (0.015)	-0.0004 (0.003)
Inprofit	0.0340*** (0.005)	-0.0370** (0.019)	0.0417*** (0.005)	0.0039 (0.005)	0.0152 (0.014)	0.0119*** (0.004)
FinLev	0.0058*** (0.002)	0.0597*** (0.021)	0.0047* (0.002)	0.0027 (0.002)	-0.0197 (0.015)	-0.0051* (0.003)
4. inda1	-0.0215 (0.025)			0.0504 (0.031)		
11. inda1	0.0454** (0.022)			0.1111*** (0.020)		
13. inda1	-0.0193 (0.022)			-0.0172 (0.020)		
L. InGet D				-0.0600*** (0.013)	-0.4887*** (0.027)	-0.0933*** (0.012)
cons	-0.7609*** (0.056)	-0.3400 (0.244)	-0.7884*** (0.056)	-0.0315 (0.056)	-0.5713** (0.231)	0.0216 (0.051)
N	8436	8436	8436	7250	7250	7250

Notes: robust standard errors in parenthesis. Significance levels: *, 10%; **, 5%; ***, 1%.

change of 39 and 9.6 percent respectively, in job creation. As size is computed taking as a basis the number of workers the firm has, it is normal to infer that hiring will decrease as the number of workers increases in line with the law of diminishing returns.

New workers may increase output substantially due to specialization. However, as we continue to increase the number of new workers, labour marginal productivity decreases and job-creation decreases as well. Regarding tenure, the negative relationship can be explained by the cost minimization firm's strategy. Firms, when they decide to hire, can choose to continue with the more experienced workers in order to avoid spending money in providing training for new workers and this strategy affects negatively job creation. On other hand, the negative relation can occur due to the fact the majority of micro firms are family-owned and most of the workers belong to the owner's family, thus they will choose to keep the same workers for a long period of time, what will impact negatively on job creation.

Following the opposite trend, we find firm size. This variable displays a negative relationship with job creation, meaning that the number of workers firms hire decreases when a firm's size is large or when firm's employment is close to 10 employees. This means that firms achieve their optimal employment level by increasing their size.

The negative relation with tenure means that firms with old workers reflect a higher level of impatience in hiring new workers and that most family firms tend to employ predominantly owner's family members. Likewise, job destruction coefficients evidence that lagged job – destruction patterns impact negatively on current job destruction patterns. This evidence indicates that a one percent change in the previous job destruction increases, *ceteris paribus*, on average, the actual job destruction by almost 6 percent.

In what respects the firm's size and tenure display, as well, a negative relation with job destruction by showing that a one percent change in the referred variables leads, *ceteris paribus*, on average, to an increase in job destruction of 8.8 and 4.6 percent respectively. However, an increase of one percent on the

level of tangible assets reduces job destruction on average, *ceteris paribus*, by 0.85 percent. Profits and financial leverage display positive impacts but this relationship was not statistically significant.

Regarding industry affiliation, it is clearly evidenced that the construction sector displays a fundamental role in reducing job destruction over the time period analysed. The coefficient's sign is the same when analyse the random effect model changing according to its direction for fixed-effect models.

CONCLUDING REMARKS

This paper focuses on analysing gross job-creation and gross job-destruction for Portuguese firms. The study is performed using micro firms data from SCIE and Quadros do Pessoal, for the time period going from 2010 to 2017. Our findings sustain that previous gross job-creation, asset tangibility, financial leverage, and firm affiliation are important gross job-creation determinants for micro firms belonging to the food, beverage and tobacco; textiles, dressing and leather sector firms; construction and hotel and restaurants sectors. Contrarily to what we expected, the firm's size and worker's tenure influence negatively gross job-creation, meaning that these two variables contribute to labour demand for Portuguese' micro firms.

Regarding gross job-destruction, the results show that previous gross job-destruction, firm's size, and worker's tenure were in the base of the observed increases in the gross job- destruction for Portuguese micro firm for the time period going from 2010 to 2017. This leads us to conclude that from 2010 to 2012 there was an accumulation in the gross job-destruction and that firms prefer to fire more recently hired workers rather than those who were linked to the company for a longer period of time.

Conversely, tangible assets influence negatively gross job-creation by decreasing its rising trend. Regarding industry affiliation, evidence shows that the construction sector contributes to gross job-destruction reduction. Thus, the result of this study can have political implications and help to define fiscal policies for the micro-firms in Portugal.

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