

## **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 time 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 determines 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 restaurants 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

**JEL classification:** M10, O14, O18, O44

### **1. Introduction**

This work intends to analyse gross job-creation's determinants at a micro firm level in 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 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 (Davis et al., 1998). In order 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 et al., 2013) when studying Ireland firms, recurring to microdata from this country's Central Bank and (Davis et al., 1998) 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 are positively related with gross job-creation and gross job-destruction as it is pointed out by Yazdanfar and Salman (2012), 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 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 the section two is presented the literature reviews, in the section three the methodology and section four the empirical analyses and conclusions.

## 2. Theoretical Framework

Most empirical research has shown that there are many factors that have impact on the labour market, both in the supply and in the demand side. According to Davis et al. (1996), 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 of time. Similarly, Lawless et al.(2013), define 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 of time (Centeno et al.,2007; Davis et al.,1996 and Yazdanfar and Salman ,2012). From this perspective, we were able to infer that all businesses that do not expand or contract during a given moment of time will not influence on any employment's increase or decrease. As these changes in the employment level will not be reflected, the impact of the firm regarding its contribution in the labour market for job - creation or job - destruction will be equal to zero. Therefore, and to simplify, Davis et al.(1996), argued that all changes that can occur ought to be thought 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 Mark et al (2011), when study the job flow in the UK.

Mark et al. (2011), evaluated job-creation and job-destruction in the UK from 1998 to 2010. Similarly, Hussing and Abdullah (2019) measured the firm's expenditure on research and development and its impact on job-creation and job-destruction for the Malaysian labour market. Also, John Haltiwanger (2019) seek to know the influence of innovation on job-creation in 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 the jobs lost at a given period. Likewise, 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 Mark et al.(2011) and Hussing and Abdullah(2019) agreed with 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. In addition, Davis et al.(1996), 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 et al.(2013),Yazdanfar and Salman (2012) and Davis et al.(1996) 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 evidences, as the previously mentioned, point out that firm specific characteristic impact differently in job creation or job destruction.

For instance, Centeno et al.(2007), when analyzing the Portuguese firms, 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 et al.(2013), concluded that job turnover and firm productivity's growth are driven systematically according to firm's size group and firm's age.

### **2.1. 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 with the purpose of surveying 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 type of assets. For instance, among these large number 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, firm's ability and firm's knowledge stock.

From the resource's based approach methods perspective point of view, firms are able to achieve their optimum performance level through several different types of paths. As a matter of fact, Yazdanfar and Salman (2012), mentioned various performance measures that firms can use in order 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 an previous increases in investment expenditure, rise employment rate. According to Lawless et al.(2013), job-creation is positively impacted by the level of investment expenditure made by each firm. This increase in the investment expenditure impact innovation and benefit both, company and U.S employment.

This is indeed in line with the conclusions of Sobri Nayan et al. (2019), when studying Malaysian firms. They concluded that, in order to remain economically competitive ,firms needs to invest constantly so that they can generate and establish new sources for economic growth. There are many path that can be followed in order to achieve such 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 which is not equally available for all firms. This is the so-called asymmetric information's that prevail in the financial market allows those firms to have easier access to debt in comparison with the remnant ones. Therefore, those authors considered the 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 e Stigitz, 1993).

Yazdanfar and Salman(2012) found evidences of a positive association between liquidity availability and fixed capital investment. Other authors found that employment variation is associated with firm's financial pressure ( Yazdanfar and Salman, 2012). However, Modiglian e Miller (1958), argued that 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 evidences, as the previously mentioned, point out that firm specific characteristic impact differently in job creation or job destruction. For instance, Centeno et al.(2007), 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 et al.(2013) concluded that job turnover and firm productivity's growth are driven systematically according to firm's size group and firm's age. Similarly, findings point out that micro and small sized enterprises are the backbone 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 less liquidity constraints, asymmetric information's, moral hazards, financial distress, cash flow volatility and bankruptcy risk problems. These conditions allow them to have an 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 an easier access to external financial resources than young's or entrant ones without an history and reputation in the market do. In the same line, studies provide details of age structure and employment growth for Australian SMEs 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 (2011), referred to financial constraints in terms of difficulties in obtaining debt as one of the most important barriers to firm's liquidity and employment. Also Acemoglu (2011) and Oliveira e Fortuna(2011), 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).

## 2.2. Previous Empirical Evidences

Most studies made regarding labour demand and supply determinants have found that many factors analyzed at 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 a 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. The table below summarizes some results found in the literature.

**Table 1: Summary of some Empirical Evidences**

Author	Findings	Variables	Country
Coutor (1990)	-	high leverage and employment	USA
Coutor (1990)	+	Capital investment and employment	USA
Nickeel and Wadhvani (1991)	-	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, Magnus (2020)	+	Innovation, investment and employment and company	U.S
Hendrickson et al. (2015)	+	Age structure and employment growth	Australian
Eslava, Marcela and Haltiwanger, John C and Pinz (2019)	+	Micro and Small and employment by using the number of employees as proxy for size	U.S and Colombia
Eslava, Marcela and Haltiwanger, John C and Pinz (2019)	-	Age and employment	U.S and Colombia

Source: Produced by the author

### 3. Methodology

#### 3.1. Dependent and Independent Variables

Based on the existent 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 independent variables namely firm's liquidity, size, age, leverage, and industrial affiliation are incorporated in our model as independent variables. As 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 (2012).

The variables are computed as it follows:

$$Job - Creation_{i,t} = \log(Employment - Employment_{t-1}) \quad (1)$$

$$Job - Destruction_{i,t} = \log(Employment - Employment_{t-1}) \quad (2)$$

In this perspective, we expect job-creation's behavior to be affected by changes that occur in explanatory variable, as liquidity can be generated by leverage.

Conversely, several independent variables were identified in the previous study as 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 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 (Yazdanfar and Salman, 2012).

$$Xe_{i,t} = \frac{(Employment_t + Employment_{t-1})}{2} \quad (3)$$

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 to debt and this will reduce the liquidity constraints (Acemoglu, 2011). In the computation of this variable we follow (Yazdanfar and Salman,2012) and using as a proxy the natural logarithm of worker's tenure.

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

Based on the previous existent literature, leverage is measured using the ratio between the book value of total liabilities and total assets (Yazdanfar and Salman,2012).

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

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

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

Finally as the job-creation and job-destruction is expected to affect with firm in dustry affiliation and changes across industries, a dummy variable will be included in the model in other to control the sector impact in the job-creation.

### 3.2. Hypothesis

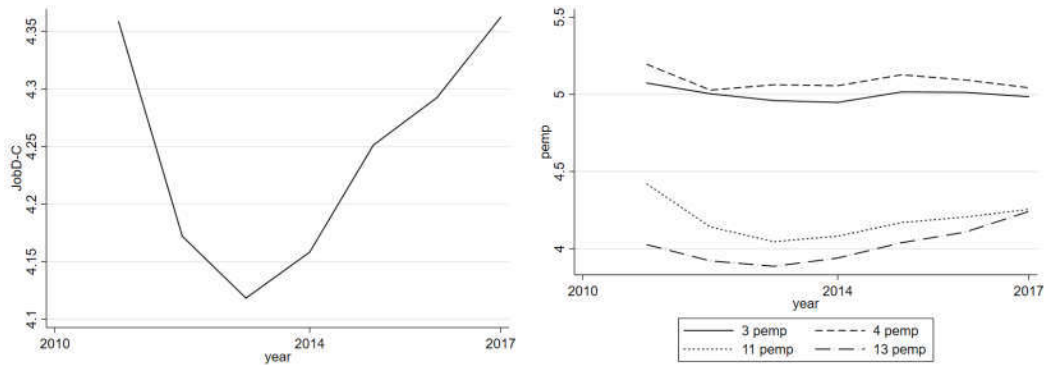
Based in the resource-based approach which implies that independent firm level variables positively or negatively impact on gross job-creation or gross job - destruction Yazdanfar and Salman (2012); Davis et al.(1994,1996); Kane(2010). And using data from SCIE and Quadros de Pessoal for Portuguese case, we test if gross job-creation and gross job-destruction are positively related with firm size, leverage, tenure, liquidity, profits, assets tangibility and industry affiliation.

### 3.3. The data and preliminary evidence

The data set used in this study is an unbalanced panel of Portuguese micro firms, recorded in the both SCIE and Quadros do Pessoal, over the time period going from 2010 to 2017. This data set contains firm's balance sheets and workers informations, 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.

**Figure 1: JobC and JobD for all sector and its growth**

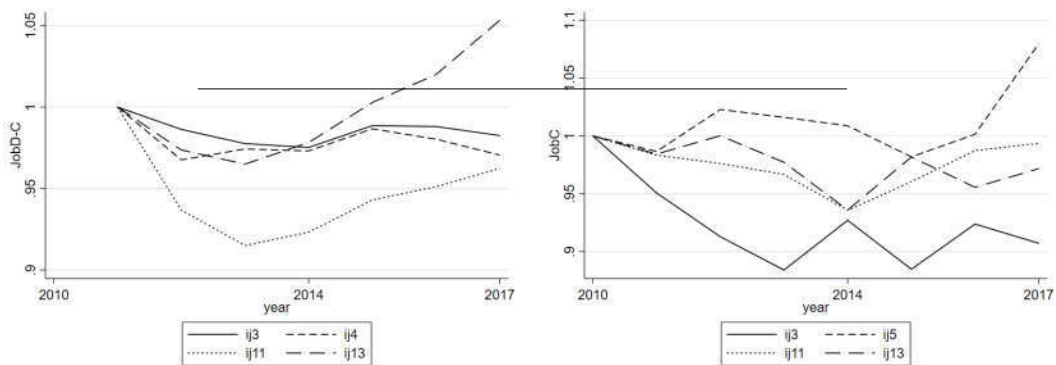


Source: SCIE, 2010-2017 Source: SCIE,2010-2017

In the graphs presented above one can see that there was the evidence of job- destruction from 2010 to 2012. From this moment on, firms started to recover their employment level, generating a job-creation effect. Also, one can see that textiles, dressing and leather were in the top of the employment over this time period, in comparison with the remnant sectors, followed by food, beverage and tobacco, construction and restaurants and hotels, 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 hotels and restaurants’ sector seems to have increased the level of employment

**Figure 2: Job creation and its growth by sector**



Source: SCIE, 2010-2017 Source: SCIE,2010-2017

**Table 2: Descriptive Statistics**

VARIABLES	(1) mean	(2) sd	(3) min	(4) 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

compared with construction’s, food’s, and textiles’ sectors firms. The same trend is observed when we analyses its growth. Firm’s classification by industry in the selected data is distributed as it follow: 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. The table with descriptive statistic presented below allows to explain our data better. The 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 and tobacco and textiles and dressing sector, respectively. Regarding tenure, data shows that the oldest worker in our data sample has 62 year 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.

### 3.4. Econometric model and estimation strategy

The following dynamic model was estimated:

$$\begin{aligned} \text{LnGross} - \text{JobC}_{i,t} = & \beta_0 + \beta_1 \text{LnXet}_{i,t} + \beta_2 \text{LnTenure}_{i,t} + \beta_3 \text{Liquid}_{i,t} \\ & + \beta_5 \text{Sect}_{i,t} + \mu_{i,t} \quad (7) \end{aligned}$$

$$\begin{aligned} \text{LnGross} - \text{JobD}_{i,t} = & \beta_0 + \beta_1 \text{LnXet}_{i,t} + \beta_2 \text{LnTenure}_{i,t} + \beta_3 \text{Liquid}_{i,t} \\ & + \beta_4 \text{FinLev}_{i,t} + \beta_5 \text{Sect}_{i,t} + \mu_{i,t} \quad (8) \end{aligned}$$

Where *Gross JobC<sub>i,t</sub>* and *Gross JobD<sub>i,t</sub>* represents the current year sum of the number of job-creation and job-destruction; *LnXet<sub>i,t</sub>* is the natural log of firms' size, *LnTenure<sub>i,t</sub>* the natural logarithm of the highest firm's tenure; *FinLev<sub>i,t</sub>*, financial leverage; *Liq<sub>i,t</sub>*, firm's liquidity; *Sect<sub>i,t</sub>* is the categorical variable for sector, taking values equal to 1(one) if the sector is verified and zero otherwise; *mu<sub>i,t</sub>* is the error term ; and finally, two instrumental variables, *Profitability<sub>i,t</sub>* represents the difference between total sales and total cost and *Tangibility<sub>i,t</sub>* which is the portion of tangible assets.

### 3.5. Empirical Analysis and Conclusions

The results on fixed effect model will not be analysed as this model eliminate the industry effect which is important for this analysis. However, results of the main model, LSDV show that not all job-creation determinants show the expected coefficient's sign. The table 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. Financial leverage ratio and tangibility also display a positive relationship. That mean 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 firm's labour demand.

Regarding to profits also displays the same relationship with job creation, meaning that a one percent change in 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 an additional hiring of workers, holding constant all other inputs. Industrial affiliation, as construction and food, beverage, and tobacco, have a positive impact on job-creation, thus explaining the variation in job creation across firms. On the other hand, 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 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 increase in line with the law of diminishing returns.

New workers may increase output substantially due to specialization, however, eventually, as we continue to increase the number of workers, labour marginal productivity decreases and job-creation decreases as well. Regarding tenure, the negative relation can be explained by the cost minimization firm's strategy. Firms, when they decide to hire, can choose to continue with the more experience 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.

**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.ind1	-0.0215 (0.025)			0.0504 (0.031)		
11.ind1	0.0454** (0.022)			0.1111*** (0.020)		
13.ind1	-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%.”

Following an 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 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 evidenciate 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 respect 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 on 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 are the same when analyse random effect model changing according to its direction for fixed effect models.

#### **4. 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, 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 gross job- destruction for Portuguese micro firm for the time period going from 2010 to 2017. This leads we 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 influences negatively gross job-creation by decreasing its rising trend. Regarding industry affiliation, evidences shows that the construction sector contributes for gross job-destruction reduction. Thus, the result of this study can have political implications and help defining fiscal policies for the micro firms in Portugal.

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