Business owners in Portugal and the euro area: characteristics and exposure to the pandemic

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Abstract
The interdependencies between households financial situation and the businesses they own are numerous and complex, involving labour market participation, income, assets and debts. These interconnections make business holders particularly exposed to economic shocks. This article, using data from the Household Finance and Consumption Survey, characterizes households' participation in businesses (non-publicly traded companies or other self-employment activities) and analyses households' exposure to the pandemic crisis through business ownership.
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1. Introduction

This article uses data from the Household Finance and Consumption Survey (ISFF for Portugal and HFCS for the other euro area countries) to analyse households' participation in non-publicly traded companies or any other self-employed activities of the household members. These companies/activities are referred to as businesses, according to the terminology used in these surveys. These businesses include the activity of sole proprietors and independent workers, as well as any non-publicly traded company that is actively managed by a household member. According to ISFF/HFCS data, in Portugal 14% of households had at least one business in 2017, which compares with around 11% on average in the other euro area countries.

The identification of the factors explaining firm creation and survival is widely present in the literature, what results in large part from the importance of firm creation and growth for innovation and job creation. Haltiwanger *et al.* (2013), for example, document that new firms contribute substantially to job creation in the United States. Despite the high number of firms that start up every year, new firms exit at a significant

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rate in their early age. Many studies, for example, Evans and Leighton (1989), Hurst and Lusardi (2004), Levine and Rubinstein (2017), Catherine (2019), Qi *et al.* (2018) or Humphries (2018) associate the decision to start a business and the success of new businesses with observable and unobservable characteristics of business owners, such as age, education, gender, access to finance, managerial experience, intellectual ability, and risk attitude.

In Portugal, little is known about the interactions between the characteristics of firms and their owners, partly because the data necessary to analyse these phenomena is scarce. The ISFF is the only statistical source in Portugal that allows to characterize in detail the financial situation of households both with and without businesses and, at the same time, to characterise those businesses. This article aims to contribute to the knowledge of the interactions between entrepreneurs and businesses, seeking to answer a set of questions. What are the characteristics of household businesses? How do households with and without businesses differ? What types of businesses do different households have? Which households are more financially dependent on their businesses? Which households are most exposed to the Covid-19 pandemic crisis through business ownership?

The characterization of households owning businesses, the type of businesses that they own and the interconnections between them are very relevant aspects in the Portuguese economy. On the one hand, given the small size of most businesses, the role of owners in their financing, through equity or debt, is crucial for their growth and survival. Liquidity constraints can hamper firm creation, survival and growth as shown, for example, by Evans and Jovanovic (1989), Schmalz *et al.* (2016), Fairlie and Krashinsky (2012) and Farinha *et al.* (2019). On the other hand, although businesses are concentrated in a relatively small group of households, they have a very relevant role in the financial situation of these households. The share of the businesses in total assets of business owners is around 43% in Portugal and 31% in the euro area (47% and 34% respectively in net wealth). The interdependence between the business and the financial situation of its owners is complex, comprising various aspects such as the labour status, labour income, distributed profits, ownership of assets and indebtedness. These aspects make households who own businesses particularly vulnerable under an economic crisis. In the current COVID-19 pandemic crisis, this vulnerability is particularly high for businesses in non-essential service sectors, where the contraction is expected to be stronger and more prolonged. The data used in this article makes it possible to identify the households that are most exposed to the current crisis through business ownership in Portugal and the euro area.

The next section describes the data and analyses the characteristics of businesses in Portugal and the euro area. Section 3 compares the demographic and socio-economic characteristics of households with and without businesses. Section 4 begins with an analysis of the type of business that households own in terms of its value, size and age, for different groups of households and then looks at the type of households and businesses in which the interdependencies are strongest. This section also identifies the groups of households most exposed to the pandemic crisis through business ownership. Section 5 presents the main conclusions.

2. What are the characteristics of household businesses?

This article uses data from the ISFF/HFCS to analyse households' participation in businesses. The ISFF is part of the HFCS project of the Eurosystem, which means that the data collected for Portugal is comparable to the remaining euro area countries. These surveys collect detailed information on wealth, debt and income of the households. The surveys also collect information about social and demographic aspects, consumption and savings and behavioural aspects, namely attitudes and expectations. In this article the data for Portugal correspond to the latest two waves of the ISFF, which took place in 2013 and 2017. For the remaining countries, the data collection periods of the last two waves of the HFCS occurred mostly in 2013/14 and in 2017. The ISFF and the HFCS are representative of the households living in each country.[1]

In the ISFF/HFCS the information about households' businesses is organized around three types of business participation: (i) self-employment businesses or non-publicly traded businesses in which a household member has an active role in running the business; (ii) non-publicly traded businesses in which the participation is only through investment; (iii) participation in publicly traded companies. In this article only the first type of participation is analysed since this is the case where the interdependence between the business and the household is higher.

In these surveys the information about businesses includes the sector of activity, the legal form, the number of workers, the identification of the household members that work in the business, the percentage of the participation in the business and the value of that participation at the moment of the interview. This is the value that the household considers it could to sell its business, thus it should reflect its financial situation, including the business' assets and debt. In the case of Portugal, the ISFF also includes the year in which the participation of the household in the business began and the turnover value in the year before the interview.

These surveys also include information about the involvement of the household in the financing of the business. The ISFF collects data about personal guarantees granted to the business, household loans granted to the business and loans granted to the household members to finance the business. The HFCS only collects information about the last type of involvement.

In Portugal, 14% of households had at least one business in 2017, which compares with 12.7% in 2013.[2] In the euro area, the percentage is around 11% in the last two waves of the HFCS, that is, lower but close to that of Portugal.[3] Although businesses are concentrated in a relatively small group of households, they have a very relevant

1. All of the presented results refer to extrapolated values for the whole population, that is, they correspond to the answers of each household in the sample, weighted by the number of households with similar characteristics in the population.

2. Although slightly higher than in 2013, the value of 2017 is not statically different from the previous wave (Costa *et al.*, 2020).

3. In this article, data relating to the euro area, excludes Portugal, and includes all other countries that are currently part of the euro area, with the exception of Lithuania in 2013/14 and Spain in 2017. In Lithuania the HFCS was not collected in 2013/14 and in Spain the microdata from the 2017 edition was not yet

role in the financial situation of their owners. The share of businesses in total assets of business owners in 2017 is around 43% in Portugal and 31% in the euro area (in 2013, 42% and 33% in Portugal and in the euro area, respectively). The share in net wealth is slightly higher (47% in Portugal and 34% in the euro area, in 2017).

Both in Portugal and the euro area, around 88% of households with businesses have only one business. In this article, the data refers to the main business of each household, which in general corresponds to the business with the highest value.[4]

Table 1 presents a description of the main business of households in Portugal and the euro area, based on the data from the last two waves of the ISFF/HFCS.

Both in Portugal and in the other euro area countries, most businesses have less than three workers and are held by a single household. Unlimited liability businesses are predominant but at a lesser extent in Portugal.[5] However, it should be noted that the legal form may not be fully comparable across jurisdictions given national legal specificities. In Portugal, unlimited liability businesses mainly cover independent workers and sole proprietors, while limited liability companies may have one or several partners.

Table 1 presents the distribution of businesses by the six NACE sections that are more frequent in Portugal. In 2017, these sections cover 79% of the businesses in Portugal and 63% in the euro area. Wholesale and retail trade and vehicle repair concentrates the largest number of businesses, that is, around 30% of the total in Portugal and around 15% in the other countries.

In 2017, the median value of the households' participation in the business was 20 thousand euros in Portugal and 30 thousand euros in the euro area. In both cases, this value is very unevenly distributed. In 2017, 25% of these participations were lower than 5 thousand euros, both in Portugal and in the euro area, and 10% worth more than 300 thousand euros in Portugal and 392 thousand euros in the euro area. Similarly, business turnover is also very heterogeneous. The duration of ownership, which like turnover is only available for Portugal, has a median of 11 years and a mean of 13.9 years.

available at the date this article was written. The results obtained with a sample of countries common to both periods of time are qualitatively identical to those presented throughout the article.

4. In ISFF/HFCS households are asked how many businesses of this type they own and then it is gathered detailed information about the characteristics of the three businesses with the highest value, while for any remaining businesses it is collected their aggregate value.

5. In this type of businesses the owner may have to use its personal assets when debts are not paid or when the business bankrupts, while in the limited liability case the responsibility of the owner is limited to the business' capital.

	Portugal		Euro area	
	2013	2017	2013/14	2017
Participation in the business (%)				
Median	100.0	100.0	100.0	100.0
Mean	83.2	85.2	87.7	88.9
Value of the participation in the business (EUR, thousands)				
Median	15.2	20.0	30.3	30.0
Mean	168.6	174.0	206.8	192.6
Turnover of previous year (EUR, thousands)				
Median	20.3	25.0	x	x
Mean	768.2	932.2	x	x
Number of workers (% of total business owners)				
1-2	75.9	71.2	75.5	68.8
3-9	17.7	20.6	19.0	26.9
>=10	6.4	8.2	5.5	4.4
Unlimited liability (% of total business owners)	61.1	54.3	78.8	79.4
Duration of ownership (years)				
Median	13.0	11.0	x	x
Mean	15.6	13.9	x	x
Sectors of activity (% of total business owners)				
Agriculture, forestry and fishing	9.0	12.0	13.7	13.8
Manufacturing	9.7	7.9	7.7	5.9
Construction	9.4	9.7	10.0	11.8
Wholesale and retail trade; repair of motor vehicles and motorcycles	26.1	30.1	17.2	14.5
Accommodation and food service activities	13.1	9.5	5.7	5.4
Professional, scientific and technical activities	9.7	10.0	10.5	10.9
Other activities	23.0	20.8	35.3	37.7
Personal guarantees granted to the business (% of total business owners)	13.1	10.8	x	x
Loans granted to the business by the household (% of total business owners)	7.9	6.8	x	x
Loans granted to the household to finance the business (% of total business owners)	6.2	5.1	17.8	10.9
Memo:				
Business owners (%)	12.7	14.1	10.8	10.6
Value of the businesses (% of gross wealth)	42.3	42.8	32.6	31.1
Value of the businesses (% of net wealth)	48.5	47.1	36.1	34.2

TABLE 1. Characteristics of the businesses of the households in Portugal and in the remaining euro area countries

Notes: The euro amounts of 2013 were adjusted for inflation. The euro area refers to the euro area excluding Portugal and the data do not inlcude Lithuania in 2013/2014 and Spain in 2017.

Regarding the involvement of households in the financing of the business, in Portugal, the most common type is to provide guarantees for loans granted to the business, followed by loans granted by the household to the business (in 2017, approximately 11% and 7% of households with businesses had these types of involvement). In 2017 around 5% of Portuguese business owners had taken out loans with the aim of financing their business, which is about half the percentage of households with this type of loans in the euro area.

Between 2013 and 2017, in Portugal, there was an increase in the median and mean values of both the business and turnover, as well as in the percentage of business with 3 or more workers. Additionally, the percentage of households involved in the financing of the business declined. This is in line with the recovery of the economic activity and the improving of the financing conditions of businesses during this period. However, in general terms the characteristics of the businesses do not present substantial differences between the two waves neither in Portugal nor in the euro area.

Finally, it is interesting to note that the characteristics of the businesses described in this section, namely their small size, the predominance of unlimited liability businesses and the involvement of the household in their financing, are very similar to those reported for the United States based on the Survey of Consumer Finances (SCF) (Kennickell *et al.*, 2017).

3. How do households with and without businesses differ?

The purpose of this section is to analyse the relationship between the characteristics of households and their participation in businesses in Portugal and the euro area. This analysis is only possible because the ISFF/HFCS includes data for both households that have businesses and those that do not. However, the data do not include the characteristics of the households in the period before the establishment of the business or in the moment before its closure. Thus, the analysis carried out does not allow to conclude whether the characteristics of the households, namely in financial terms, determine the decision to participate in the business or if they were determined by this decision. It is also not possible to draw conclusions about the role of these characteristics in the success of the business. The analysis is thus essentially descriptive, not intending to establish causal relationships.

The households are characterized in terms of their financial situation, sociodemographics and other aspects that may condition the participation in businesses.

The financial situation is measured by income, net wealth and a variable that identifies the existence or not of debt. Income includes all types of income received by any household member and is the gross amount (i.e., before taxes and social security contributions). Net wealth corresponds to the sum of real and financial assets deducted from all debts.[6] Income, assets and debts of business owners have some components that are directly related to their active participation in businesses. Household income includes income from self-employment and distributed profits. Assets include the value of all businesses owned and actively managed by the household (which is considered a component of real assets in this type of data) as well as any loans the household has made to the business (as a component of financial assets). Debts include any loan granted to the household members whose purpose is to finance the business (a component of debt).

The analysis also considers information on inheritances received by the household any time in the past. Inheritances are relevant to the probability of having a business, not only because the business itself can have been inherited, but also because inheritances can provide individuals the capital needed to start a business particularly in cases of credit constraints.

Sociodemographic variables used in the analysis are age, education level, gender and marital status (married or other). These variables refer to the reference person, who was selected among household members according to the definition of Canberra (United Nations, 2011) that corresponds in most cases to the person with the highest income in the household. Additionally, a variable related to the number of household members aged 16 years or over is included in the analysis. This variable makes it possible to take into account the positive effect of the number of individuals of working age on income, wealth and on the probability of having a business.

The analysis also considers a measure of the degree of risk aversion. This variable aims to capture the fact that investing in a business is risky. This variable includes two categories (lower risk aversion and higher risk aversion), which were built from the answers to a question about the level of risk that the household is willing to take in investment decisions.[7]

In order to take into account potential non-linear relationships between the probability of having a business and income, net wealth, age and number of working age household members, these continuous variables were categorized by classes. Income and net wealth classes were based on the percentiles of the respective variables, considering a narrower breakdown at the top of the distributions, since the empirical evidence suggests higher concentration of businesses in high levels of wealth and income.

Table 2 presents the percentage of households with businesses for the different classes defined according to the variables described above. The first two columns of the table

6. In most countries, including Portugal, net wealth refers to the time of the interview and income to the previous calendar year. The reference periods for variables in the different countries as well as other aspects related to HFCS can be found in HFCN (2016a), HFCN (2016b), HFCN (2020a) and HFCN (2020b).

7. This question includes four possible response options: substantial financial risks, above average financial risks, average financial risks and are not willing to take any financial risk. Households that selected one of the first two categories were classified as having a lower risk aversion and those that selected one of the last two categories were classified as having a higher risk aversion.

include the data for Portugal and the subsequent two columns the data for the euro area (excluding Portugal) for the last two waves of the ISFF and the HFCS.

	Percentage of business owners in each class				Memo: percentage of households in each class			
	Portugal		Euro area		Portugal		Euro area	
	2013	2017	2013/14	2017	2013	2017	2013/14	2017
Total	12.7	14.1	10.8	10.6	100.0	100.0	100.0	100.0
Income percentile								
<=20	3.2	7.1	4.5	4.7	20.0	20.0	20.0	20.0
20-40	7.0	6.1	6.8	6.5	20.0	20.0	20.0	20.0
40-60	11.8	12.6	8.2	8.3	20.0	20.0	20.0	20.0
60-80	13.4	17.5	11.9	11.4	20.0	20.0	20.0	20.0
80-90	25.2	24.3	16.8	15.6	10.0	10.0	10.0	10.0
>90	30.7	30.4	28.0	28.5	10.0	10.0	10.0	10.0
Net wealth percentile								
<=20	3.6	3.6	2.7	2.7	20.0	20.0	20.0	20.0
20-40	7.1	6.9	6.5	5.9	20.0	20.0	20.0	20.0
40-60	9.3	10.9	8.5	8.3	20.0	20.0	20.0	20.0
60-80	12.3	16.0	10.4	11.3	20.0	20.0	20.0	20.0
80-90	22.8	23.7	17.6	15.7	10.0	10.0	10.0	10.0
>90	39.2	43.0	33.5	33.9	10.0	10.0	10.0	10.0
Has debt								
Yes	17.7	19.6	14.8	14.6	45.9	45.7	42.6	40.2
No	8.4	9.6	7.8	7.9	54.1	54.3	57.4	59.8
Received an inheritance (other than a business)								
Yes	15.0	17.1	12.4	11.4	26.7	28.7	25.1	26.7
No	11.8	13.0	10.2	8.6	73.3	71.3	74.9	73.3
Inherited a business								
Yes	40.8	77.1	65.4	46.4	0.3	0.4	0.9	0.3
No	12.6	13.9	10.3	10.5	99.7	99.6	99.1	99.7
Risk aversion								
Lower	22.9	54.1	21.4	23.0	1.2	1.3	4.5	5.1
Higher	12.5	13.6	10.3	10.0	98.8	98.7	95.5	94.9
Number of members ≥ 16 years old								
1	4.4	5.7	4.9	6.2	22.0	25.2	36.7	39.3
2	12.6	15.4	11.9	11.5	48.8	47.3	45.7	44.7
3	17.1	18.4	18.7	16.7	19.6	19.1	11.2	10.5
>3	23.0	22.5	22.1	22.4	9.5	8.4	6.4	5.5
Age								
<35	11.0	14.3	8.1	7.6	11.2	9.8	14.5	15.1
35-44	16.8	21.0	14.3	14.3	20.8	19.3	17.8	16.4
45-54	17.0	20.2	17.4	17.3	20.1	20.3	20.2	20.0
55-64	14.9	15.6	13.7	13.3	18.0	18.4	18.0	18.3
>=65	6.1	5.4	3.6	4.0	29.9	32.2	29.6	30.3
Education								
Less than secondary	10.8	11.1	7.8	7.1	69.4	64.9	31.3	26.5
Secondary	14.2	18.2	10.2	10.5	13.7	15.6	41.5	44.9
Tertiary	18.9	21.1	15.2	14.0	16.9	19.5	27.2	28.6
Gender								
Male	13.9	15.8	12.6	12.5	59.0	58.2	62.8	62.0
Female	10.8	11.8	7.7	7.5	41.0	41.8	37.2	38.0
Married								
Yes	15.7	18.8	14.6	13.7	61.1	55.4	49.8	48.1
No	7.9	8.3	6.9	7.7	38.9	44.6	50.2	51.9

TABLE 2. Percentage of business owners in Portugal and euro area countries, by household characteristics

Notes: The euro area refers to the euro area excluding Portugal and the data do not inlcude Lithuania in 2013/2014 and Spain in 2017.

The participation in businesses across groups of households has a similar pattern in Portugal and in the euro area, as well as in the two periods considered. The percentage of households with businesses increases with the level of income, with the level of net wealth, as well as with the education of the reference person and is higher for households that have debt. By age group, the percentage of households with businesses reaches maximum values for households where the reference person is between 35 and 54 years old and minimum values in those where he is 65 years old or more. The prevalence of business owners increases with the number of working age members and is higher when the reference person is married or when he is male. Having received inheritances, in particular having inherited a business, is also positively correlated with business participation. Finally, the level of risk aversion is negatively correlated with business ownership.

The variables used to characterize the households, shown in Table 2, are correlated with each other, what limits the interpretation of the results of the univariate analysis. In order to better evaluate which are the main household characteristics that distinguish business owners from other households, a multiple regression approach was taken. The results of this approach, which does not solve the endogeneity issues, can be interpreted as correlations between the dependent variable and each explanatory variable conditional on the other explanatory variables.

Logit models were estimated in which the dependent variable takes the value 1 when the household owns a business, and the value zero otherwise. The characteristics of the households were included as explanatory variables. To facilitate the interpretation of the results, the explanatory variables take the form of dummy variables that classify households into different classes, according to each of the characteristics. These variables take the values 1 or zero, depending on whether the household belongs to a certain class or not. Thus, the estimated coefficients must be interpreted as differences relative to the omitted classes.[8] In estimating these models, the sample was restricted to households in which the reference person is under 65 years old in order to focus the analysis on ages that typically participate in the labour market.

The results of the estimation confirm that households that own a business have similar characteristics in Portugal and the euro area, both in 2013/14 and 2017 (Table 3). The results suggest that the likelihood of owning a business increases with the level of net wealth and is higher for indebted households than for households that do not have debt, for households that inherited a business than for those who have not and for households where the reference person is less than 35 years old than for those where he is between 55 and 64 years old. For example, in 2017 in Portugal, a household with net wealth above the 90th percentile was 0.42 percentage points more likely to own a business than a household with net wealth below the 20th percentile. In turn a household in which the reference person is between 55 and 64 years old was 0.12 percentage points less likely to own a business than a household in which the reference person is under 35 years old.

When the value of the business is subtracted from wealth, the marginal effect of wealth continues to show an increasing profile along wealth classes, suggesting that households with businesses are also distinguished from the rest by having higher levels of the remaining assets.[9] Without information on the level of the household wealth prior to the creation of the business, it is impossible to know if business owners are wealthier

8. The omitted categories correspond to the following household groups: first income class (up to the 20th percentile); first net wealth class (up to the 20th percentile); just one member aged 16 years old or older; lower risk aversion, no debt; did not receive inheritances; did not inherited a business; the reference person is less than 35 years old; the reference person has lower than secondary education; the reference person is female and; the reference person is not married.

9. The results of these regressions are not presented in the article for space reasons, but can be made available by the authors upon request. The same applies to other results referred to in this section and which are not part of the basic regression included in Table 3.

because they run a business or if they own a business because they were wealthier beforehand.[10] However, it is interesting to note that the variables that probably capture more exogenously the initial financial situation of the household, such as the level of education and inheritances, are not statistically significant or have an unexpected sign.[11] In Portugal, households whose reference person has tertiary education are less likely to own a business than households whose reference person has a lower than secondary level of education. Thus, although the percentage of households with businesses increases with the level of education, when controlling for the remaining characteristics, more educated households are less likely to own a business.

In the case of debt, the positive correlation with the ownership of a business may reflect the recourse to credit to finance the business. The regression results, however, remain practically unchanged when households with loans taken out for the purpose of financing the business are excluded from the sample. Another possible explanation for the positive relationship between the existence of debt and businesses is the fact that some of the households that do not have debt face credit constraints that hamper the set-up of a business.

For the remaining variables included in the regressions, the results for Portugal and the euro area show some differences. In the univariate analysis, participation in businesses increases with the level of income, in any of the regions and periods. However, when the remaining household characteristics are taken into account, this relationship is no longer evident. In the regression for the euro area, the coefficients on income are significant with a negative sign for middle income classes and not significant for the other classes. The marginal effects in the euro area have a U-shape suggesting that the likelihood of owning a business for households at both extremes of the income distribution is higher than for those at intermediate levels. This might be the result of individuals with bad experiences as employees starting an activity on their own, in which they obtain lower income than employees with similar observable characteristics (Evans and Leighton, 1989). In the other extreme of the income distribution, the result might be associated with the fact that individuals with higher unobservable abilities have a higher probability of earning high income in their own business than as employees (Levine and Rubinstein, 2017).

10. This positive relationship may also reflect a sample selection effect, because when households have a more fragile financial situation, businesses may have a lower probability of survival.

11. In the case of inheritances, the result remains when, as an alternative to the dummy variable, having no inheritance, a variable with the inheritance value updated for the current moment is included in the regression.

	PT 2013		PT 2017		EA 2013		EA 2017		PT 2017-2013	EA 2017-2013	EA-PT 2013	EA-PT 2017
	marginal effect	*t-ratio*	marginal effect	*t-ratio*	marginal effect	*t-ratio*	marginal effect	*t-ratio*	*t-ratio*	*t-ratio*	*t-ratio*	*t-ratio*
Income percentile												
20-40	0.0326	0.83	-0.1189	-2.87	0.0040	0.28	0.0008	0.05	-2.63	-0.15	-0.67	2.62
40-60	0.0568	1.62	-0.0535	-1.48	-0.0240	-1.72	-0.0217	-1.39	-2.22	0.12	-2.22	0.65
60-80	0.0386	1.01	-0.0667	-1.88	-0.0298	-2.16	-0.0281	-1.88	-2.03	0.10	-1.79	0.82
80-90	0.1008	2.26	-0.0139	-0.35	-0.0277	-1.87	-0.0285	-1.72	-1.98	-0.03	-2.85	-0.46
>90	0.0844	1.82	-0.0707	-1.60	-0.0146	-0.98	-0.0043	-0.25	-2.51	0.46	-2.05	1.34
Net wealth percentile												
20-40	0.0479	1.10	0.0884	1.89	0.0991	6.99	0.1000	5.75	0.50	0.01	1.42	0.67
40-60	0.1050	2.39	0.1492	3.47	0.1324	8.92	0.1444	8.05	0.53	0.49	0.97	0.57
60-80	0.1333	2.89	0.2292	5.91	0.1611	11.32	0.1842	9.95	1.28	0.96	1.00	-0.06
80-90	0.2203	4.97	0.2945	7.08	0.2233	14.53	0.2285	12.38	0.78	0.15	0.68	-0.28
>90	0.3171	6.98	0.4184	10.58	0.3186	21.14	0.3349	18.07	1.07	0.57	0.87	-0.14
Has debt												
Yes	0.0500	2.82	0.0331	1.72	0.0489	7.64	0.0470	5.92	-0.78	-0.21	0.28	1.12
Received an inheritance												
Yes	0.0082	0.46	0.0149	0.81	-0.0157	-2.08	-0.0121	-1.48	0.22	0.33	-1.32	-1.43
Inherited a business												
Yes	0.1320	2.40	0.2685	3.53	0.3260	14.90	0.2414	8.85	1.28	-2.49	3.94	0.33
Risk aversion												
Higher	-0.0326	-1.04	-0.1681	-2.84	-0.0397	-3.29	-0.0538	-4.34	-1.93	-0.80	-0.36	1.66
Number of members ≥ 16 years old												
2	0.0314	0.98	0.0153	0.45	0.0309	2.81	0.0004	0.03	-0.39	-1.92	0.10	-0.40
3	0.0486	1.46	0.0027	0.07	0.0429	3.65	-0.0006	-0.04	-0.97	-2.42	0.00	-0.08
>3	0.0553	1.51	-0.0146	-0.35	0.0434	3.45	0.0075	0.53	-1.32	-1.92	-0.16	0.53
Age												
35-44	-0.0024	-0.09	-0.0225	-0.65	0.0078	0.70	0.0093	0.75	-0.44	0.08	0.37	0.90
45-54	-0.0315	-1.08	-0.0623	-1.88	0.0006	0.05	0.0037	0.28	-0.61	0.18	1.01	1.80
55-64	-0.0607	-2.01	-0.1180	-3.37	-0.0383	-3.20	-0.0361	-2.54	-1.09	0.13	0.53	1.88
Education												
Secondary	-0.0376	-1.71	-0.0170	-0.75	-0.0088	-1.21	-0.0092	-1.05	0.72	-0.03	1.18	0.23
Tertiary	-0.0535	-2.12	-0.0644	-2.35	0.0071	0.79	-0.0115	-1.09	-0.15	-1.33	2.22	1.63
Gender												
Male	-0.0093	-0.50	-0.0058	-0.30	0.0114	1.64	0.0227	3.11	-0.50	1.64	1.09	1.59
Married												
Yes	0.0056	0.27	0.0724	3.22	0.0020	0.25	-0.0027	-0.29	2.08	-0.38	-0.15	-2.97
Year 2017 dummy	x	x	x	x	x	x	x	x	2.49	1.36	x	x
Euro area dummy	x	x	x	x	x	x	x	x	x	x	-1.84	-3.77
N	4,371		3,948		47,854		40,395		8,321	88,254	52,227	44,343

TABLE 3. Logit regressions for the probability of owning a business in Portugal and euro area countries

Notes: The euro area refers to the euro area excluding Portugal and the data do not inlcude Lithuania in 2013/2014 and Spain in 2017. The marginal effects correspond to the average marginal effects, calculated in comparison with the ommited categories. The last four columns in the table include the t-ratios of the difference in the estimated coefficients for 2017 relative to 2013 and for the euro area relative to Portugal.

In Portugal the results for income are more similar to the euro area in 2017 than in 2013. The same is true for the effect of the degree of risk aversion. Households with greater risk aversion are less likely to have businesses than those who are less risk averse, in any period, in the euro area, and in 2017 in Portugal. In 2013, in Portugal, the degree of risk aversion does not seem to be related to the ownership of a business. The fact that in 2013 the differences in the results for Portugal and the euro area are larger may be associated with the 2011-2013 strong recession in Portugal that may have encouraged participation in business by households who would not otherwise participate.

Finally, the descriptive statistics in Table 2 show that, regardless of the period or countries considered, participation in businesses increases with the number of working age individuals in the household and is higher when the reference person is married or when he is male. However, in the multiple regression analysis, these characteristics are not consistently identified as relevant to the ownership of businesses.

The above conclusions about the relationship between household characteristics and business participation may differ according to the business type. A relevant feature that distinguishes businesses is the legal form in terms of households' liability: limited or unlimited. In the latter, which are typically smaller businesses, there is no clear distinction between the finances of the household and the business. When the regressions are estimated separately for limited liability and unlimited liability businesses, the positive relation of business ownership with net wealth, business inheritances and with the existence of debt, still holds.[12] The same stands for the negative relationship with risk aversion. However, for education, the negative relationship in Portugal with the ownership of businesses is closely linked to the unlimited liability case, not holding for the limited liability businesses.

4. Relationship between the household and business characteristics

This section explores one of the advantages of the data which is the possibility to link household and business characteristics. The analysis focus household groups defined in terms of income, net wealth, age and education. The first subsection describes the type of businesses these groups have in terms of their value, size and age. The second subsection focuses on the characteristics of the relationship between the household and the business associated with a greater potential business dependency of the household. Finally, the last subsection takes into account the potential dependency as well as the business sector of activity, in order to identify the groups of households that might be more exposed through businesses to the current crisis resulting from the COVID-19 pandemic.

12. These results hold for Portugal and the remaining euro area countries, for the two periods, except for the case of debt in 2013 for Portugal, which was not significant for the unlimited liability businesses.

4.1. *What types of businesses do different households hold?*

As mentioned in section 2, although most households' businesses are small and have low value, they are very heterogeneous. Thus, it is relevant to analyse, for different household classes, what type of businesses they own.

Table 4 includes the value of the business for different household classes as well as indicators related with two important business characteristics: size and age. In each group of households, the size of the businesses is measured by the share of businesses with 10 or more workers. The age of the business is measured by the duration of ownership. Data refers to 2017 and includes Portugal and the remaining euro area countries, with the exception of the age of the business, which is only available for Portugal.

	Business value (EUR, thousands) Median		Businesses with 10+ workers (% of businesses in each class)		Duration of ownership (years) Median
	Portugal	Euro area	Portugal	Euro area	Portugal
Total	20.0	30.0	8.2	4.4	11.0
Income percentile					
<=20	5.0	20.0	1.7	2.7	8.0
20-40	10.0	20.4	5.7	3.6	11.0
40-60	13.0	20.0	7.5	1.1	11.0
60-80	29.1	22.8	3.1	1.9	11.0
80-90	20.0	25.0	10.1	4.1	10.0
>90	54.7	50.0	17.4	9.3	12.0
Net wealth percentile					
<=20	1.0	0.5	3.3	1.3	7.0
20-40	5.0	8.0	7.0	1.3	4.0
40-60	6.9	15.0	4.5	2.7	8.0
60-80	12.0	24.0	1.9	2.6	11.0
80-90	50.0	50.0	9.8	1.4	16.0
>90	105.0	150.0	15.2	9.3	14.0
Age					
<35	30.0	20.0	11.7	3.6	5.0
35-44	15.0	21.5	4.8	2.3	7.0
45-54	24.2	30.0	11.2	7.4	12.0
55-64	37.6	30.0	8.3	3.0	21.0
>=65	11.5	21.0	6.3	3.1	21.0
Education					
Less than secondary	13.9	25.0	6.4	1.1	16.0
Secondary	23.5	30.0	10.8	4.9	7.0
Tertiary	30.0	27.9	9.7	5.3	8.0

TABLE 4. Characteristics of the businesses by household classes in Portugal and euro area countries

Notes: Data for 2017. The euro area refers to the euro area excluding Portugal and the data do not inlcude Spain.

The previous section has shown that households' participation in businesses increases with income and net wealth. The value of the main business of each household also has a positive correlation with these variables. This determines a high concentration of total business wealth in the wealthiest households (Costa *et al.*, 2020). The median value of the businesses is particularly high in the upper classes of income and net wealth. In the top 10% net wealth group, the median value of the business is 105 thousand euros in Portugal and 150 thousand euros in the remaining euro area countries, which contrasts with business values below or equal to 1000 euros in the bottom 20% net wealth group. The households with the highest income and net wealth are also those in which the largest businesses are most common. Additionally, in Portugal the youngest businesses are concentrated in the lowest income class and the oldest businesses in the upper classes of net wealth. It is likely that the percentage of successful and growing businesses is higher among the oldest businesses, that is, among those that have survived the longest. This might contribute for the positive relationship between the financial situation of the households, namely their net wealth, and the value, size and age of the business.

By education level of the reference person, the business value varies more in Portugal than in the remaining euro area countries. In any case, the business value is lower for households with education levels below the secondary. For these households, businesses also have a smaller size and, according to the data for Portugal, are older. The predominance of older businesses in the lower education levels reflects, in part, the sharp negative relationship between age and education existing in Portugal. By age groups, in general terms, the value of the business is higher when the reference person is between 45 and 64 years old, than in the remaining age classes. Additionally, the share of businesses with more than 10 workers is higher for household groups below 55 years old, which, as expected, also have more recent businesses.

4.2. Which households are more financially dependent on their businesses?

An economic shock can substantially affect the financial situation of business owners because it can cause a loss in their income, but also in their wealth. Business is part of households' assets. Thus, in case of bankruptcy or a loss in the value of the business, the value of households assets decline. This loss is more significant for the household the greater the share of the business in households assets. In addition, some households grant loans to the business, which means that the value of the business is not the only asset of the household related to the business. Often the dependency on the business is not only a potential loss in the value of the assets but also reflects the potential responsibilities assumed by the household. In the case of unlimited liability businesses, the household is potentially responsible for all business debt. In addition, even in limited liability cases the owners can be responsible for the business debts due to personal guarantees.

Households are defined as highly business dependent through income (or labour market) when all household members that work have their activity in the business. Around half of the households owning businesses, both in Portugal and in the euro area, are in this situation (Table 5). The percentage globally decreases with income, slightly increases with age and does not have a very clear relationship with wealth. In the two lowest income classes, high income dependency is found on almost 70% of Portuguese households owning businesses (around 60% in the euro area).

In the case of dependency through wealth, a household is defined as highly business dependent in one of the following situations: the value of the business represents more than 50% of total assets, the business is of unlimited liability or the household gave a personal guarantee in a loan of the business or granted a loan to the business.[13]

As mentioned in section 2, in Portugal, and even more in the euro area, unlimited liability businesses predominate. In Portugal, the median value of unlimited liability businesses is around 8 thousand euros, less than half the median value of all businesses. This type of businesses is particularly frequent for households in the lower wealth and income classes (more than 75% of households) and for those whose reference person is older and less educated (about 66%). In the euro area the incidence of unlimited liability businesses changes more across types of households.

For about 18% of households with businesses, the value of the business represents at least 50% of their assets, a percentage very similar to the euro area. In Portugal, this percentage is relatively stable across income classes, being slightly higher in the higher income class, and to a lesser extent in the two lower income classes. In the remaining euro area countries, the share of the business value in total assets has a globally decreasing profile with income, with the share in the two lowest income classes being much higher than the average. This indicator of business dependency presents a globally decreasing pattern with the age of the reference person. In Portugal, the business dependency through wealth is very high for the youngest (less than 35 years old), who typically have not accumulated other wealth. For almost 40% of households owning businesses in this age group, the value of the business represents more than 50% of the total assets. By wealth classes there is a higher dependency at the extremes of the distribution than in the intermediate net wealth levels. At the lower end, this finding appears to be mainly due to an effect of the denominator. In turn, in the highest class of wealth businesses have the largest median value.

Among the Portuguese business owners, about 12% have a limited liability business but have given guarantees for obtaining credit for the business or have provided loans to the business. This percentage is higher than 20% for the households with the highest income and wealth, for those whose reference person is less than 35 years old or has tertiary education. These results suggest that it is the households with a better financial situation that can finance the business or grant loan guarantees. Additionally, younger households typically have more recent businesses that do not have a credit history and so require a greater engagement of the owner in its financing.

13. The information about personal guarantees granted to the business and household loans granted to the business is only available for Portugal.

	Dependency through labour market		Dependency through wealth					Aggregate business dependency		
	All workers work for the business		Unlimited liability business		Business value>50% of assets		Limited liability business and personal guarantees/loan to the business	Without guarantees/ granted loans		With guarantees/ granted loans
	Portugal	Euro area	Portugal	Euro area	Portugal	Euro area	Portugal	Portugal	Euro area	Portugal
Total	48.3	49.2	54.3	79.4	17.9	16.7	12.2	33.0	39.7	36.7
Income percentile										
<=20	67.1	63.9	76.5	69.1	17.4	34.9	12.2	57.3	51.3	57.6
20-40	66.9	57.8	73.8	76.4	19.4	30.1	2.2	55.4	48.9	55.9
40-60	41.5	51.5	55.4	77.2	16.1	15.7	5.4	28.5	41.9	29.1
60-80	46.1	51.0	54.2	77.4	16.8	11.0	11.9	30.2	42.4	32.5
80-90	36.4	39.9	50.7	72.6	14.1	14.3	9.1	22.8	30.6	26.9
>90	49.7	42.6	37.9	69.6	23.4	11.2	24.7	27.6	33.1	38.2
Net wealth percentile										
<=20	46.7	44.6	80.0	69.2	16.9	24.5	0.0	38.4	32.0	38.4
20-40	47.3	53.1	72.9	77.3	22.1	27.3	2.3	45.1	43.9	45.3
40-60	45.1	46.3	68.8	81.2	9.8	19.8	3.8	36.2	38.4	36.3
60-80	47.5	46.6	60.7	76.7	9.4	7.6	9.4	33.3	37.5	37.5
80-90	41.4	49.5	56.5	80.0	8.4	9.4	17.0	23.4	43.3	30.2
>90	55.0	51.5	30.5	64.5	32.6	19.8	21.1	31.6	39.8	36.8
Age										
<35	47.4	40.2	28.2	65.1	38.9	24.9	21.5	26.9	28.4	32.9
35-44	41.3	51.4	50.6	71.5	15.8	19.2	15.3	25.2	41.9	29.8
45-54	46.7	44.7	59.1	74.0	16.1	17.3	10.2	33.4	36.1	36.9
55-64	55.8	53.0	57.7	77.6	17.3	12.4	10.8	41.4	43.1	44.5
>=65	56.8	58.4	66.9	77.4	11.1	11.4	4.3	40.9	49.3	42.4
Education										
Less than secondary	48.7	60.3	66.2	80.3	13.7	18.4	5.2	36.0	52.6	37.7
Secondary	42.6	48.6	56.5	77.8	24.2	18.3	13.1	33.2	40.2	34.9
Tertiary	51.6	44.7	31.9	65.8	21.0	14.1	23.8	27.5	32.9	36.2
Memo: business value (median, EUR, thousands)	28.3	30.0	7.9	24.0	155.0	151.6	89.6	20.0	30.0	22.3

TABLE 5. Business dependency indicators for households in Portugal and euro area countries: dependent households in percentage of business owners in each class

Notes: Data for 2017. The euro area refers to the euro area excluding Portugal and the data do not inlcude Spain.

The last column of Table 5 shows an aggregate indicator of business dependency in Portugal that includes all the previous dimensions of dependency. Dependency is very high when both dimensions (in terms of income and wealth) occur simultaneously. According to this indicator, in Portugal 37% of households that own businesses have a financial situation that is highly dependent on the business. This percentage reaches maximum values, above 55%, for the lowest income households. This reflects the high dependence on income, and simultaneously a high dependency on wealth resulting from the existence of unlimited liability businesses. These factors also determine that the percentage of highly dependent households is higher for the older age groups. By level of education or classes of net wealth, the percentage of dependent households is less heterogeneous.

In order to compare data from Portugal with the remaining euro area countries, Table 5 also includes an alternative dependency indicator that does not take into account dependency through guarantees or loans granted by the owner to the business (that are only available in Portugal). According to this indicator, the percentage of very dependent households is 33% in Portugal and 40% in the euro area. It is interesting to note that in Portugal the percentage of dependent households continues to hit maximum values, above 50%, in the lowest income classes, and that the same happens in the remaining countries.

4.3. *Which households are most exposed to the COVID-19 pandemic crisis through business ownership?*

The COVID-19 pandemic forced authorities to adopt containment measures that have disrupted a significant part of the economic activity in many countries. The progressive easing of these measures allowed a gradual restart of the economy. However, in some sectors, due to their specificities, activity remained far below pre-pandemic levels. For the purposes of the analysis in this section, two groups of sectors were considered. The first, broader group, includes the sectors that have been most affected during the lock-down period. This group includes the sectors in which the impact was considered medium-high and high by the ILO in April 2020 (International Labour Organization, 2020). These sectors are Manufacturing, Trade and repair of motor vehicles and motorcycles, Accommodation and food services activities, Real estate activities, Administrative activities, Arts, entertainment and recreation and Transport and storage. The second group, more restricted, covers only Accommodation and food services activities and Arts, entertainment and recreation. These sectors are expected to maintain a very low level of activity given that they require greater physical proximity or are very limited by the constraints created by pandemic to tourism.

In Portugal 56% of business owners have their business in a sector highly affected during the lock-down period. This percentage is more than double that observed, on average, in the euro area (24%) (Table 6). The share of households whose business belongs to the sectors with a slower recovery is 10% in Portugal, twice that of the euro area.

	Households with businesses in more affected sectors			
	Sectors more affected in the lock-down period		Slower recovery sectors	
	Portugal	Euro area	Portugal	Euro area
Total	55.6	23.0	10.5	5.0
Income percentile				
<=20	57.5	28.1	13.8	7.1
20-40	49.5	24.1	11.5	6.5
40-60	61.4	31.1	12.3	5.7
60-80	51.6	23.2	8.2	5.6
80-90	62.0	22.8	11.6	3.8
>90	52.0	21.3	8.8	3.3
Net wealth percentile				
<=20	41.9	22.3	11.2	3.5
20-40	49.6	20.8	13.9	5.3
40-60	60.2	27.0	16.1	9.1
60-80	53.6	28.7	12.5	5.6
80-90	55.7	22.4	8.9	3.6
>90	59.0	22.7	5.8	4.2
Age				
<35	38.4	25.6	4.1	5.4
35-44	52.3	26.3	9.2	6.9
45-54	57.5	25.4	10.2	5.2
55-64	60.3	25.0	13.4	4.7
>=65	65.2	15.3	14.4	3.2
Education				
Less than secondary	60.1	15.3	13.3	3.5
Secondary	62.9	26.3	9.8	5.9
Tertiary	42.7	26.5	6.1	5.3

TABLE 6. Percentage of households with businesses in sectors more affected by the COVID-19 pandemic

Notes: Data for 2017. The euro area refers to the euro area excluding Portugal and the data do not inlcude Spain. The "Sectors more affected in the lock-down period" are: Mining and quarrying, Manufacturing, Wholesale and retail trade, repair of motor vehicles and motorcycles, Transportation and storage, Accommodation and food service activities, Real estate activities, Administrative and support service activities and Arts, entertainment and recreation. The "Slower recovery sectors" are: Accommodation and food service activities and Arts, entertainment and recreation.

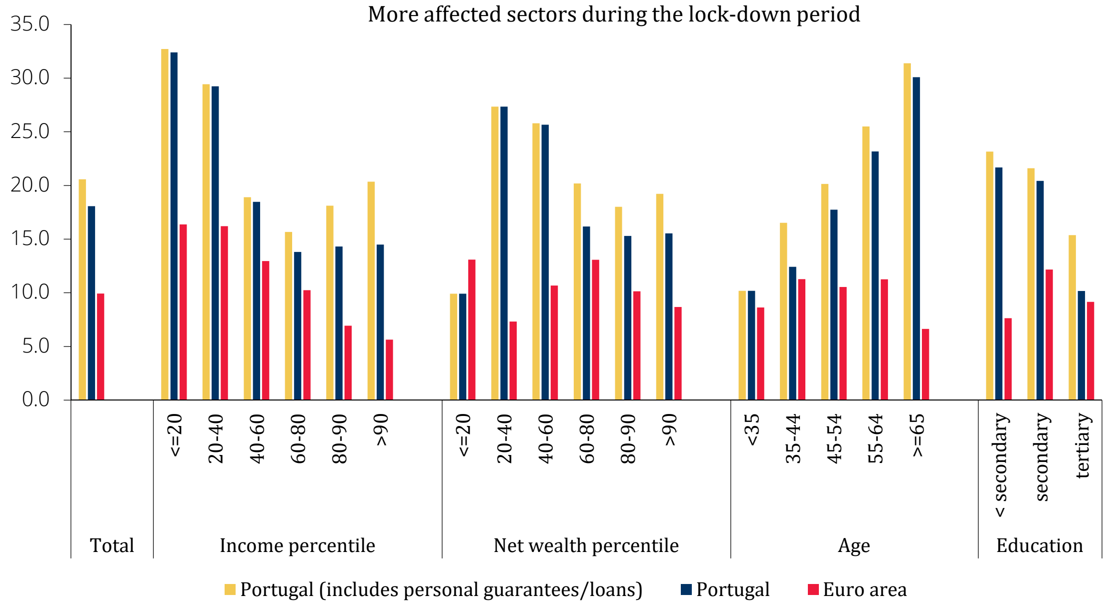
In Portugal, the share of business owners whose business belongs to the group of sectors more affected during the lock-down period increases with net wealth up to the class between the 40th and 60th percentiles. In the euro area, the share of these sectors is higher in the two intermediate net wealth classes. When considering the group of sectors with the slower recovery, the share of households with businesses in the more affected sectors has a more marked profile with income and wealth. In this case, the share of the more affected sectors is decreasing globally with income, both in Portugal and in the other countries of the euro area. By net wealth classes, the share of households with businesses in these sectors increases until the class between the 40^{th} and 60^{th} percentiles and decreases in the subsequent classes.

To evaluate the exposure of business owners to the pandemic crisis, the information on the share of households with businesses in affected sectors is combined with the indicators of business dependency analysed in the previous subsection. A household is considered very exposed to the pandemic crisis if the business belongs to one of the more affected sectors and the household financial situation is very dependent on the business, that is, if both its income and its assets have the risk of reducing substantially with the crisis.

In Portugal, about 18% of households owning businesses were very exposed to the pandemic during the lock-down period, which compares with a percentage of around 10% in the remaining euro area countries (Figure 1). Considering the sectors with a slower recovery (Accommodation and food services activities and Artistic, entertainment and recreation), very exposed business owners are 4.5% and 3% of households with businesses, in Portugal and in the euro area, respectively.[14]

The share of households very exposed to the crisis decreases globally with income, both in Portugal and in the euro area. In Portugal, this share is close to 30% in the two lower income classes, when considering the set of sectors most affected in the lock-down period (almost 10%, when considering the sectors where the crisis is likely to be prolonged). In Portugal, exposure also decreases with net wealth (from the class between the 20^{th} and 40^{th} percentiles) and with the education level, and increases with age. In the remaining countries, the pattern with these variables is less defined. In the euro area, the highest share of households highly exposed to the crisis occurs in the 35-44 age group and in households whose reference person has the secondary education.

14. When the dependency measure also considers household guarantees and loans for the business, information that is only available for Portugal, the share of Portuguese business owner households very exposed to the pandemic is 21% and 4.8%, respectively, when considering the sectors most affected in the lock-down period or the sectors with the slowest recovery.



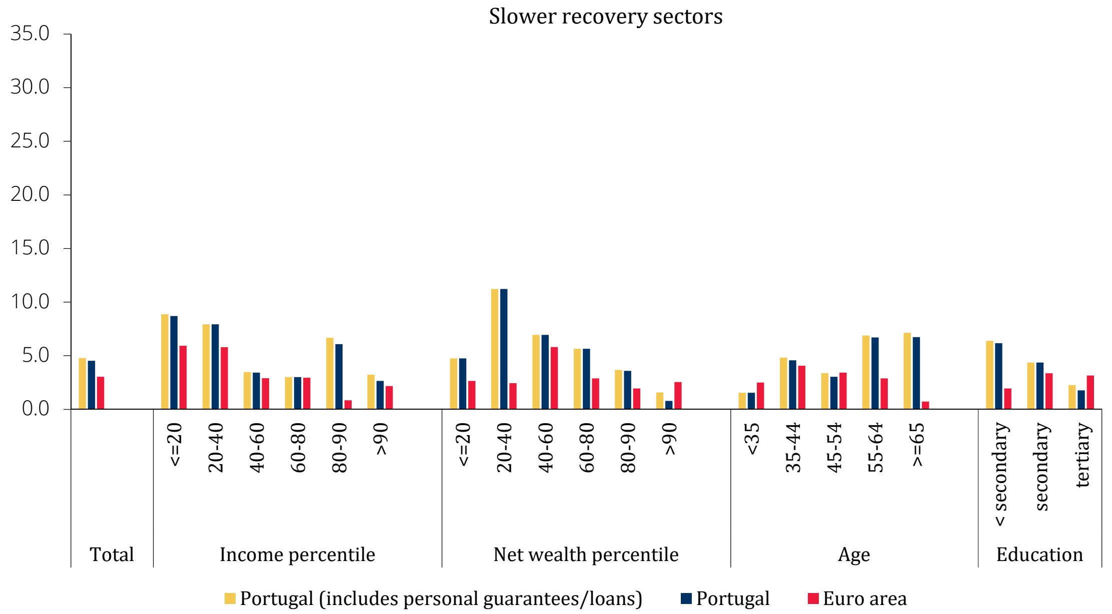


FIGURE 1: Business owners very exposed to the pandemic in Portugal and euro area countries

Note: Data for 2017. The euro area refers to the euro area excluding Portugal and the data do not inlcude Spain. The "Sectors more affected in the lock-down period" are: Mining and quarrying, Manufacturing, Wholesale and retail trade, repair of motor vehicles and motorcycles, Transportation and storage, Accommodation and food service activities, Real estate activities, Administrative and support service activities and Arts, entertainment and recreation. The "Slower recovery sectors" are: Accommodation and food service activities and Arts, entertainment and recreation. A household is considered to be very exposed to the pandemic if the household business belongs to one of the more affected sectors and if the financial situation is very dependent on the business.

5. Conclusion

According to data from the Household Finance and Consumption Survey (ISFF for Portugal and HFCS for the other euro area countries), in Portugal 14% of households had at least one business in 2017, which compares with around 11% in the rest of the euro area. Businesses, i.e., non-publicly traded companies or other self-employed activities that are owned by households, have very similar characteristics in Portugal and in the rest of the euro area countries. Most households holding businesses have small businesses, in which they have unlimited liability and in which they are sole proprietors. In Portugal, in 2017, the value of the main business of each household was less than 20 thousand euros for half of the business owners and less than 5 thousand euros for 25% of these households (30 thousand euros and 5 thousand euros, in the other countries, respectively). However, businesses are highly heterogeneous according to the level of wealth, income, age and other characteristics of the owners. In Portugal, households with a higher level of income, a higher level of net wealth or belonging to the age group in which the reference person is between 45 and 64 years old have businesses with a higher value, larger size (in terms of the number of workers) and older.

But what distinguishes households with businesses from other households? In the regression analysis having a higher level of net wealth, having debt and having inherited a business stand out as the main factors identifying households with businesses. Households with a lower degree of risk aversion or those that belong to the extremes of the income distribution are also more likely to own a business.

An economic shock can substantially affect the financial situation of households owning businesses because it can affect their income and also their wealth. In the current context, given the heterogeneity of the effects of the pandemic crisis across different sectors, to assess household exposure to the crisis it is important to take into account not only the household financial dependency on the business but also the sector of the business. In Portugal, the dependency of business owners' financial situation on the business is slightly lower than in the euro area. However, the share of households very exposed to the pandemic crisis through business ownership is larger due to the higher concentration of businesses in sectors very affected by the crisis.

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