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NIMBY effect, mortgage payments and firm size: the different impact of homeownership on new businesses

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Abstract

This empirical paper aims at integrating two recent and related research streams: the consensus about a negative effect of homeownership on new businesses (usually explained by the so-called 'Not In My Back Yard' effect) and the negative impact of homeownership with mortgage payments on business start-up. Using a cross-section analysis in Italy, we find a first empirical evidence of a different impact of homeownership on new businesses according to the firm size. Precisely, the (negative) NIMBY effect works for medium- and large-sized enterprises, while outright homeownership has a positive effect on new small firms; instead, the negative effect of mortgage payments on business start-up concerns small firms.

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1 Introduction

In a very debated work, Blanchflower and Oswald (2013) report a negative impact of homeownership on labour market outcomes. Precisely, they find a positive relation between homeownership and unemployment and a negative association between homeownership and new businesses. Actually, the analysis of the effect of homeownership on unemployment has become a topic very popular in economics, the so-called “Oswald puzzle” (Oswald 1996, 1999),¹ while the link between homeownership and business start-up has been however much less investigated (see, e.g., Bracke et al., 2014; Heller and Stephenson, 2015).² This unequal treatment in the related literature is really amazing, since entrepreneurship and (un)employment are closely related. As a matter of fact, an individual can always choose between searching for a salaried job and creating its own job as employer, namely opening its own business activity (see, e.g., Fonseca et al., 2001; Pissarides, 2002).

The negative relationship between homeownership and new businesses is usually explained by the so-called ‘Not In My Back Yard’ (NIMBY) effect (see, e.g., Fischel 2001; Konecny and Stroukal 2015), a kind of negative externality that arises from the housing market and acts in the labour market. Concisely, homeowners care more than renters about the region they live in and oppose new development in their area, thus hindering whatever can represent a novelty (although potentially positive) for the future of their region.

Bracke et al. (2014) also find a negative correlation between homeownership and business start-up. Precisely, they report the importance of financial constraints. In their work, the negative effect of homeownership with mortgage payments on new firms is strong and statistically significant; whereas, that effect is small and insignificant with respect to outright homeownership. In this case, therefore, the negative externality arises from the mortgage market, namely the negative relation between homeownership and new businesses is linked to the type of homeowner taken into account.

This empirical paper aims to deepen this relation by distinguishing two types of firm: the small-sized enterprises (including the self-employed) and the medium- and large-sized firms. Indeed, this paper is closely related to a recent work on the topic (Lisi, 2017) where a positive and bidirectional relation emerges between outright homeownership and entrepreneurship. However, that work only considers new small firms (and the self-employed). Thus, this empirical work represents a next step in that route, since it introduces into the analysis also the medium and large firms. Concisely, this paper relies on the fact that the firm size matters in estimating the actual effect of homeownership on business start-up, namely the effect (negative or positive) of homeownership on new businesses depends on firm size. To the best of our knowledge, this paper is the first attempt to empirically test this hypothesis.

¹ For a comprehensive survey of this important strand of literature see, e.g., Havet and Penot (2010).

² For the sake of simplicity, the terms “new businesses” and “business start-up” are used interchangeably.

The rest of this paper is organised in two sections. The next section presents the empirical model and comments the results. The final section summarises the main contributions of the present work.

2 Empirical analysis

2.1 Dataset

This paper performs a cross-section analysis in Italy and data from several sources are used.³ Precisely, the dataset used in this study is composed of five main variables obtained for 108 Italian provinces (with the exception of Bolzano and Aosta) in the year 2014. Thus, the total number of observations is 108.⁴

The five main variables are: (1) the rate of new firms (the number of new firms as a proportion of the number of operating companies); (2) the rate of outright homeownership; (3) the rate of homeownership with mortgage payments; (4) the unemployment rate; (5) the gross domestic product (GDP) per capita. Table 1 summarises the data.⁵

In order to take into account (at least partially) the history, the local culture and habits and the structural characteristics of the different local units, we also introduce three binary variables representing three Italian macro-regions: *North*, *South*, and *Center*.

The first step of this empirical analysis is to distinguish the small businesses (including the self-employed) from the medium- and large-sized firms. According to the European Commission classification, the “small businesses” employ less than 50 employees and produce a business turnover equal to or lower than 10 million euros; instead, the “medium-sized firms” employ less than 250 employees and produce a business turnover equal to or lower than 50 million euros; finally, the “large-sized firms” has a number of employees equal to or higher than 250 and produce a business turnover higher than 50 million euros. However, it is really hard to find data that take these (economic) distinctions into account. Therefore, in order to catch the role of firm size in a very simple way, we take advantage of the legal distinction of firms, namely, we use the number of sole proprietorships as a proxy for the small businesses and the number of partnerships and company as a proxy for the medium- and

³ *Bank of Italy*, *OMI* (Real Estate Market Observatory of the Italian Revenue Agency), *Istat* (Italian National Institute of Statistics), *Confindustria* (the main association representing manufacturing and service companies in Italy), *Unioncamere* (Union of the Italian Chambers of Commerce), *Studies Office of CGIA* (Craftsmen and Small Businesses Association of Mestre), the *Institute ‘Guglielmo Tagliacarne’* (IGT, training and socioeconomic research Foundation), and *Italian Provinces and Regions*.

⁴ Currently, many provinces no longer exist (they were abolished or replaced by other public institutions).

⁵ The homeownership rate in Italy is higher than the averages of the Eurozone (66.6%) and European Union (70%). In that percentage value, the rate of homeownership with mortgage payments is less than 20% (sources: Eurostat and Istat).

large-sized firms. On average, the percentage of sole proprietorships is 58.2% of the total number of operating firms and the percentage of new sole proprietorships is 66.2% of the total number of new firms. The Italian economy is in fact almost completely characterised by the presence of small businesses and the self-employed (source: Istat).

We verify our hypothesis about a different impact of homeownership (both outright and with mortgage payments) on new businesses according to the firm size by performing two separate regressions. In the first regression analysis, the dependent variable of the model is the rate of new small firms (including the self-employed); while, in the second regression analysis, the dependent variable of the model is the rate of new medium and large firms. In this specific instance, the cross section analysis does not limit the robustness of the results, since the share of homeowners among the total population of Italy remained relatively stable over time.⁶

2.2 Empirical strategy

It is well-known that the econometric assessment of the effects of homeownership on labour market outcomes involves one main issue that could make the results unreliable: the endogeneity of homeownership. As regards the causal relationship between homeownership and (un)employment, this issue has been surveyed effectively by Havet and Penot (2010). Of course, the endogeneity problem also involves the inexplicably neglected relation between homeownership and business start-up. Really, financial constraints and housing capital gains affects business start-up and, at the same time, entrepreneurial gains affect residential choices (see Lisi, 2017).

In this specific instance, therefore, one should formulate an empirical model with four endogenous variables, viz. new small firms, new medium and large firms, outright homeownership and homeownership with mortgage payments. Clearly, this approach is anything but simple, since it requires the identification of many valid instruments; at least, one exogenous variable for each endogenous variable. However, these exogenous sources are hard to come by because of the close relationship between the variables. Therefore, the second step of this cross-section analysis aims at overcoming (at least partially) the endogeneity problem. In doing so, we adopt a simple empirical strategy and carry out two preliminary regression analyses (the subscript i denotes the cross-section unit, namely the Italian provinces):

$$H_i = \alpha_0 + \beta_1 \cdot GDP_i + \beta_2 \cdot UN_i + \beta_3 \cdot North + \beta_4 \cdot Center + \varepsilon_i \xrightarrow{yields} \widehat{H}_i \quad (1)$$

$$HM_i = \alpha_1 + \beta_5 \cdot GDP_i + \beta_6 \cdot UN_i + \beta_7 \cdot North + \beta_8 \cdot Center + \varepsilon_i \xrightarrow{yields} \widehat{HM}_i \quad (2)$$

where H is the rate of outright homeownership; HM is the rate of homeownership with mortgage payments; GDP the gross domestic product (per capita); UN is the

⁶ Precisely, the share of homeowners in Italy during the period 2005-2016 oscillated around approximately 72.3 percent of the total population (source: <https://www.statista.com/>). Hence, this percentage value could be seen as a steady-state equilibrium value.

unemployment rate; α_0 and α_1 are the constant terms; *North* and *Center* are the macro-regions dummy variables (reference dummy: *South*); β_k (with $k = 1, 2, \dots, 8$) are the regression coefficients; ε and ϵ are the stochastic error terms. Finally, \widehat{H} and \widehat{HM} denote the fitted values of H and HM , respectively. Concisely, we focus on a single equation (the effect of homeownership on firm size) but in the empirical estimation we exploit (at least partially) the information on the “homeownership equations”, namely equations (1) and (2), in order to get suitable instruments for H and HM .⁷

Eventually, the final step of this empirical analysis is to estimate the benchmark model where \widehat{H} and \widehat{HM} replace H and HM , respectively:⁸

$$\ln(F_i^S) = \alpha_2 + \beta_9 \cdot \ln(\widehat{H}_i) + \beta_{10} \cdot \ln(\widehat{HM}_i) + \beta_{11} \cdot \ln(GDP_i) + \beta_{12} \cdot \ln(UN_i) + \dots \\ \dots + \beta_{13} \cdot \textit{North} + \beta_{14} \cdot \textit{Center} + \eta_i \quad (3)$$

$$\ln(F_i^{ML}) = \alpha_3 + \beta_{15} \cdot \ln(\widehat{H}_i) + \beta_{16} \cdot \ln(\widehat{HM}_i) + \beta_{17} \cdot \ln(GDP_i) + \beta_{18} \cdot \ln(UN_i) + \dots \\ \dots + \beta_{19} \cdot \textit{North} + \beta_{20} \cdot \textit{Center} + \nu_i \quad (4)$$

where F_i^S denotes the rate of new small business (including the self-employed), while F_i^{ML} is the rate of new medium- and large-sized firms. In short, we suggest a simplified form of the method of two-stages least squares where additional exogenous sources are not required, because we do without the structural model. At worst, one could interpret the coefficients as partial correlations.

2.3 Results and comments

The estimation results of equations (3) and (4) are reported in Tables 2 and 3 (see the Appendix).⁹

Two main findings emerge from this cross-section analysis. First, the negative effect of outright homeownership on business start-up (usually explained by the so-called NIMBY effect) works for medium- and large-sized enterprises; instead, it has a positive effect on new small businesses. Indeed, an increase in the rate of outright homeownership of 1%, reduces the rate of new medium and large firms by 0.12%; whereas, an increase in the rate of outright homeownership of 1%, increases the rate of new small firms by 0.13%. Second, the negative effect of mortgage payments on new businesses concerns small firms; whereas, this effect is small and insignificant with respect to medium- and large-sized enterprises. Precisely, an increase in the rate

⁷ Unlike other instruments, indeed, the fitted values do not require theoretical justifications. Also, they are, by definition, exogenous values (uncorrelated with the error term) and not weak (very correlated with the actual values).

⁸ The logarithmic function enables to consider, in a straightforward way, a non-linear relationship between the variables; also, the estimated coefficients have a straightforward economic meaning, since they represent elasticities (the percentage change in the dependent variable when the explanatory variable varies of 1%). Of course, in the case of binary variables, the regression coefficients are merely percentage changes.

⁹ The model used in this empirical analysis is very parsimonious; however, according to the Ramsey RESET test, it has no omitted variables (see Tables 2 and 3 again).

of homeownership with mortgage payments of 1%, reduces the rate of new small firms by 0.11%.¹⁰

As a result, the impact of homeownership (both outright and with mortgage payments) on business start-up crucially depends on the firm size.

From a theoretical point of view, however, these different effects of homeownership on new businesses are straightforward to understand.

As regards the ‘Not In My Back Yard’ (NIMBY) effect, only large firms are able to produce unwanted effects or negative novelty for the region where the homeowners live in, such as the hiring of many unemployed workers that leads to an increase in the local population. Conversely, this problem does not concern sole proprietorships; rather these firms are often seen as distinctive features of a region and thus they are well regarded by the community.

As regards the role of mortgage payments, instead, sole proprietorships can count on lower financial resources compared to the medium and large firms. Thus, they have tighter financial constraints. As a matter of fact, in the case of sole proprietorships, the corporate capital coincides with the individual income of the business owner. Therefore, the different financial resources and financial constraints explain the different impact of mortgage payments on new businesses.

Eventually, these results seem to provide a first, albeit preliminary (considering the simple empirical strategy developed in this paper), support to our (intuitive) hypothesis that the firm size matters in estimating the actual effect of homeownership on business start-up.

3 Conclusions

This paper is the first attempt to empirically test the relationship between homeownership and business start-up by putting emphasis on the characteristics of both homeowners and firms. Precisely, this paper relies on the fact that the firm size is relevant when considering the relationship between homeownership (outright or with mortgage) and new enterprises (small-sized or medium- and large-sized).

Two key results emerge from a cross-section analysis in Italy. Outright homeownership has a positive effect on small business start-up, while it has a negative effect on new medium- and large-sized firms. Second, homeownership with mortgage payments has a negative effect on new small businesses, while it seems to have no effect on the establishment of medium- and large-sized enterprises. Therefore, the NIMBY effect on entrepreneurship is far from being clear. Intuitively, many entrepreneurs create their business where they live and the smaller the business activity,

¹⁰ Note that the economic conditions (namely the GDP) become more important (the regression coefficient raises) when the firm size decreases. This is not surprising, since in the case of economic crisis small businesses are the first to go bankrupt. Also, the location in the North of Italy has, *ceteris paribus*, a positive effect on business start-up. This too is not surprising, since the socio-economic dualism present in Italy is a universally recognised phenomenon (the so-called “Southern question”).

the stronger this correspondence. Also, owners of small companies often offer personal guarantees to their creditors (e.g. to banks), so that outright homeownership is likely to facilitate the creation of small businesses, whereas homeownership with mortgage payments heavily reduces this possibility.

Finally, it is very likely that the firm age also matters in answering the research question and thus the distinction between young firms and mature firms could provide further results. In this case the problem consists in identifying a threshold value of firm age that is able to distinguish between young firms and mature firms without leading to the so-called sample selection bias due to the subjectivity in the choice of the threshold value.

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Appendix

Table 1. Descriptive Statistics

Variable	Mean	St. Dev.	Min	Max
<i>F</i>	57,732.95	63,690.26	9,008	464,986
<i>NF</i>	3,661.74	4,340.72	638	31,598
<i>SP</i>	31,309.10	26,953.50	5,603	180,823
<i>NSP</i>	2,332.62	2,446.50	335	16,881
<i>H</i>	55.37%	0.02821	53.17%	58.60%
<i>HM</i>	18.55%	0.03540	16.73%	21.09%
<i>GDP</i>	23,936	11,241.73	12,571	44,775
<i>UN</i>	13.32%	0.060083	4.43%	27.89%

Note: *F* = operating firms (total), *NF* = new firms (total);
SP = sole proprietorships and *NSP* = new sole proprietorships.

Table 2. Estimation results (sole proprietorships)

$\ln(F^S)$	coefficients	p-values	t-statistics	standard errors
$\ln(H)$	0.1289	0.0548 *	1.95	0.0661
$\ln(HM)$	- 0.1075	0.0934 *	-1.70	0.0632
$\ln(GDP)$	0.2635	0.0000 ***	4.01	0.0657
$\ln(UN)$	0.0917	0.2733	1.12	0.0819
North	0.2779	0.0235 **	2.22	0.1252
Center	0.1129	0.3417	0.95	0.1189

Note: Reference dummy variable: South.

* Denotes significance at 10% level, ** at 5% level and *** at 1% level.

Number of observations (cross-section units) = 108

Test F

F(6, 101) = 8.135

Prob > F = 0.0000

R-squared = 0.3258

Adj R-squared = 0.2857

Ramsey RESET test

F(3, 98) = 1.67

Prob > F = 0.1761

Table 3. Estimation results (partnerships and company)

$\ln(F^{ML})$	coefficients	p-values	t-statistics	standard errors
ln(H)	- 0.1188	0.0761 *	-1.85	0.0642
ln(HM)	0.0584	0.5468	0.67	0.0872
ln(GDP)	0.2201	0.0010 ***	3.46	0.0636
ln(UN)	0.0679	0.4324	0.81	0.0838
North	0.2508	0.0438 **	2.01	0.1248
Center	0.1063	0.3713	0.89	0.1194

Note: Reference dummy variable: South.

* Denotes significance at 10% level, ** at 5% level and *** at 1% level.

Number of observations (cross-section units) = 108

Test F

F(6, 101) = 7.115

Prob > F = 0.0000

R-squared = 0.2971

Adj R-squared = 0.2553

Ramsey RESET test

F(3, 98) = 1.48

Prob > F = 0.2184