

Homeownership and regional growth


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Abstract

Studies on the interaction between labour mobility, housing supply and employment growth neglect the complex role of homeownership. Indeed, homeownership discourages labour mobility but, in general, homeowners have better housing and labour market outcomes. This theoretical and empirical paper analyses the different effects of homeownership on housing and labour markets. To this end, a modified version of the search-and-matching model of the labour market (that considers the role of homeownership) is developed and then a regional panel data analysis in Italy is carried out. We find that the scarce job mobility of homeowners is harmful to housing and labour market outcomes when the regional labour productivity is low. Consequently, policymakers could encourage homeownership in those regions where job productivity is quite high.

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1. Introduction

There is a well-known interaction between migration, housing and labour markets (Haas and Osland, 2014; Mohino and Ureña, 2020). Labour migration (migration of workers from an area to another) is one of the primary mechanisms through which metropolitan areas adjust to changes in local economic conditions (Blanchard and Katz 1992; Saks, 2008). Precisely, labour migration is influenced by both housing market outcomes (areas with lower housing prices will attract more migrants) and labour market outcomes (areas with better labour market conditions will attract more workers). In this complex interaction, the elasticity of housing supply is one of the key factors in determining how housing markets adjust to changes in local labour markets (Saks, 2008). By raising the marginal cost of construction, government regulations (such as land use restrictions) lower the elasticity of housing supply. In places where the housing supply is constrained and, thus, residential construction responds to new demand with difficulty, an increase in housing demand will lead mostly to higher housing prices.¹ Hence, government regulations constraint the supply of new housing and higher housing prices prevent workers from moving to areas where the marginal product of labour is higher. Eventually, therefore, the economy will have both an inefficient allocation of workers across locations and a lower level of total output.² It follows that the costs of housing supply regulations will be underestimated if the effects on the labour market – precisely, on labour mobility – are not considered (Saks, 2008).

Studies on the interaction between labour mobility, housing supply and employment growth, however, neglect the role of homeownership. There is, indeed, an important strand of literature that studies the impact of homeownership on unemployment. This literature comes to different results. Concisely, at the macroeconomic level, it would appear that homeownership has a negative effect on employment growth (a “positive” effect on unemployment);³ instead, at the microeconomic level, it would appear that homeowners have better economic outcomes in the labour market (for a comprehensive survey of this strand of

¹ A similar negative effect on housing is obtained in a tightening credit constraint environment (Ren, 2016; Ludvigson, 1999).

² Construction of new housing (housing growth) plays a crucial role in both employment growth and output growth (see, e.g., Green, 1997; Ofori and Han, 2003; Gauger and Snyder, 2003; Davis and Zhu, 2004; Benito, 2006; Miller et al., 2011). Residential construction influences overall output directly (construction and manufacturing employment rises with housing starts) and indirectly through the multiplier effect, as new home buyers tend to purchase other consumer durables when they buy their house (Mayer and Somerville, 2000). Saks (2008) clearly shows that in some parts of the United States, employment growth can be severely limited by constraints on residential construction.

³ Precisely, Oswald (1996, 1999), Blanchflower and Oswald (2013) and Laamanen (2013) suggest that an increase in the homeownership rate leads to a large rise in unemployment rate in the future, namely, the negative effect occurs with delay.

literature see, e.g., Havet and Penot, 2010). Theoretically, the different home moving costs and skills of homeowners and tenants are usually used to explain their different labour market outcomes (see, e.g., Dohmen 2005; Munch et al. 2006, 2008; Rouwendal and Nijkamp, 2010). In general, homeowners have higher costs of moving than renters, due to transaction costs to sell and/or buy their home. The higher moving costs of homeowners decrease their search intensity for non-local jobs and increase their search intensity for local jobs. Homeowners, therefore, should be less willing to accept jobs outside their local labour market. Eventually, this could hamper job mobility, thus increasing unemployment. At the same time, however, homeownership should contribute to boost both gross fixed capital formation (housing investment) and households' private consumption (Andrews et al., 2011). Indeed, Dohmen (2005) exploits the hypothesis that homeowners have, in general, more human capital. Homeownership creates barriers to mobility, but homeowners are more likely to invest in social capital (DiPasquale Glaeser, 1999).⁴

This theoretical and empirical paper aims at connecting the literature on job mobility, housing and labour markets with the literature on housing tenure and unemployment. Specifically, the present paper considers the “double” role of homeownership in the relation between employment growth and housing growth, viz.:

- A (potential) positive effect on human capital and, thus, on employment growth.
- A (potential) negative effect on labour mobility and, thus, on housing growth;

Suppose that in some regions the share of homeowners is high and contributes to increase job productivity and, thus, job vacancies. This does not necessarily imply employment growth. Furthermore, employment growth results in housing growth only in the case of migration of workers into areas with better labour market opportunities. However, homeownership hampers labour mobility. Thus, the net effect of homeownership on regional growth could be negative, even in the presence of a positive shock in the labour market. We describe “regional growth” as a framework in which both housing and employment grow.

By introducing the role of homeownership in the relation between employment growth and housing growth, this paper aims at clarifying the impact of homeownership on regional economic growth. Specifically, the key research question of this paper is the following: since homeowners have, in general, a low job-mobility (they are less willing to accept job-offers outside their region with respect to renters), could a greater share of homeownership break the

⁴ Across cities and counties, areas with more homeowners have lower government spending, but spend a larger share of their government budget on education and highways (DiPasquale Glaeser, 1999).

positive link between employment growth and housing growth, thus damaging regional economic growth? How could this be consistent with the view that homeownership has positive effects on labour market outcomes and, thus, it should be promoted by policymakers? ⁵

The paper addresses these issues both theoretically and empirically. Theoretically, by developing an extended search-and-matching model of the labour market (Pissarides, 2000). Empirically, by performing a regional panel data analysis in Italy. Indeed, the Italian economy – that is historically characterised by ‘regional inequalities’ (the so-called ‘North-South dualism’) and where the homeownership rate is among the highest in the European Union (see, e.g., Bouyon, 2015a; 2015b) – represents a case study extremely interesting.⁶

The rest of this paper is organised as follows. The next section describes the theoretical model, while Section 3 presents the empirical analysis. Finally, Section 4 summarises the main contributions of the present work and provides some important policy implications.

2. The theoretical model

This economy consists of n regions. Each region is characterised by a different rate of homeownership h . The homeownership rate in the economy is \bar{h} (the average of h).

In order to describe the effect of homeownership on regional growth, we introduce into the standard version of the search-and-matching model (Pissarides, 2000) the “double” role of homeownership in the labour market. Precisely,

- a) As regards the positive effect of homeownership on human capital and, thus, on labour market outcomes, we assume that labour productivity (y) depends positively on the rate of homeownership in the region (h);
- b) Instead, regarding the negative effect of homeownership on labour mobility, we assume that job search intensity across regions depends negatively on the homeownership rate in the economy (\bar{h}). We formalise this assumption in a quite simple way, namely by introducing in the probability of finding a job an “external” search intensity parameter:

$$f\left(\frac{v}{u}\right) \cdot s$$

where $f\left(\frac{v}{u}\right)$ is the (customary) probability of finding a job (that depends positively on the “job vacancies (v) – unemployment (u)” ratio) and $s = (1 - \bar{h})$ is the “external” search intensity parameter that depends negatively on the homeownership rate in the

⁵ The increase of the rates of homeownership have long been on the political agenda in many EU member states (see Bouyon, 2015a; 2015b).

⁶ Almost 80% of Italian households live in their own owned-house.

economy. The probability of finding a job refers to the whole economy, since also the unemployed workers (in general, the job seekers) residing in a certain region can search for a job in other regions.

2.1. Labour market outcomes

The model starts with the key equation of the labour supply side, namely the evolution of unemployment (u) over time (t), that include the assumption b), viz.:

$$\dot{u} \equiv \frac{du}{dt} = \underbrace{(1 - u) \cdot \delta}_{\text{inflow rate to}} - \underbrace{u \cdot f\left(\frac{v}{u}\right) \cdot s}_{\text{outflow rate from}} \quad (1)$$

where $(1 - u) \cdot \delta$ and $u \cdot f\left(\frac{v}{u}\right) \cdot s$ are, respectively, the inflow rate to and the outflow rate from unemployment; $(1 - u)$ are the employed workers; δ is the job destruction rate and $f\left(\frac{v}{u}\right) \cdot s$ is the “overall” probability of finding a job (the probability of finding a job that includes the “external” search intensity parameter).

In the steady state, we get a modified version of the so-called and well-known “Beveridge curve” (BC), namely the negative relationship between job vacancies (v) and unemployment:

$$u = \frac{\delta}{\delta + \left[f\left(\frac{v}{u}\right) \cdot s\right]} \quad (BC)$$

Indeed, an increase in the homeownership rate in the economy (\bar{h}) shifts the Beveridge Curve outward in the (u, v) space, thus increasing the unemployment rate for a given “job vacancies-unemployment” ratio (see Figure 1). Furthermore, this simple extension of the model implies that there is not a single BC but rather a bundle of Beveridge curves exist, where each BC corresponds to a different value of the “external” search intensity parameter (s).

<<< Insert Figure 1 about here, now at the end >>>

As regards the labour demand side, the so-called and well-known Job Creation Condition (JCC) includes the assumption a), viz.:⁷

$$\frac{(1-\omega) \cdot y(h)}{r+\delta} = c \cdot \left[\varphi\left(\frac{v}{u}\right)\right]^{-1} \quad (JCC)$$

where r is the real interest rate; c is the cost flow of a job vacancy; $\varphi\left(\frac{v}{u}\right)$ is the probability of

⁷ As usual, by combining the present value of a representative firm ($r \cdot F$) and the present value of a job vacancy ($r \cdot V$), viz.:

$$r \cdot F = (1 - \omega) \cdot y(h) + \delta \cdot (V - F)$$

$$r \cdot V = -c + \varphi\left(\frac{v}{u}\right) \cdot (F - V)$$

the Job Creation Condition (JCC) is obtained under the customary “zero-profit” or “free-entry condition” ($V = 0$) of a (one-job) firm (Pissarides, 2000). It states that a firm opens a further vacancy until its value is reduced to zero, namely the (discounted) marginal benefit of a job match (the left-hand side of the JCC) equals the (expected) marginal cost of the same job match (the right-hand side of the JCC).

filling a vacancy (that depends negatively on the “job vacancies-unemployment” ratio), while the reciprocal of $\varphi\left(\frac{v}{u}\right)$ denotes the average duration of a job vacancy. For the sake of simplicity, we assume that the wage rate is a fixed share ($0 < \omega < 1$) of labour productivity $y(h)$, with $\frac{dy(h)}{dh} > 0$ that describes the positive effect of the rate of homeownership in the region (h) on human capital and, thus, on labour productivity.

The *JCC* allows to get the “job vacancies-unemployment” ratio:

$$\left[\frac{(1-\omega)\cdot y(h)}{c\cdot(r+\delta)}\right] = \left[\varphi\left(\frac{v}{u}\right)^{-1}\right] \xrightarrow{\text{yields}} \frac{v}{u} \quad (2)$$

As a result, an increase in h increases the discounted marginal benefit of a job match and, in turn, this implies both an increase in the average duration of a job vacancy and an increase in job vacancies. In the (u, v) space, therefore, the “job vacancies-unemployment” ratio rotates anticlockwise, thus decreasing the unemployment rate for a given Beveridge Curve (see Figure 2).

<<< Insert Figure 2 about here, now at the end >>>

Accordingly, the final effect of homeownership on unemployment is, a priori, ambiguous: an increase in h and, thus, in \bar{h} , in fact, increases labour productivity (hence, the ratio between job vacancies and unemployment rotates anticlockwise), but it reduces the probability of finding a job (then the Beveridge Curve shifts to the right). Eventually, the equilibrium of the economic system lies at the point E_3 in Figure 3 where job vacancies unambiguously rises, but the net effect on unemployment is, instead, a priori ambiguous.

<<< Insert Figure 3 about here, now at the end >>>

It follows that two different effects of homeownership on unemployment can emerge from the theoretical model:

1. If the positive effect of homeownership on labour productivity overcomes the negative effect of homeownership on job search intensity, the anticlockwise rotation of the ratio between “job vacancies and unemployment” is larger than the shift to the right of the Beveridge Curve; thus, the economy will have more vacancies and lower unemployment;
2. Instead, if the negative effect of homeownership on job search intensity overcomes the positive effect of homeownership on labour productivity, the shift to the right of the Beveridge Curve is larger than the anticlockwise rotation of the ratio between “job vacancies and unemployment”; in this case, the economy will have more vacancies but

higher unemployment.

Comparative statics exercises of the model are straightforward. Specifically, a higher net labour productivity contributes to strengthen the anticlockwise rotation of the ‘vacancy-unemployment’ ratio, whereas, a higher job destruction rate or a higher cost flow of a vacancy dampens the anticlockwise rotation of the ‘vacancy-unemployment’ ratio; instead, a higher job destruction rate contributes to strengthen the outward shift of the Beveridge curve.

2.2. Labour mobility and housing market outcomes

Movement of workers from regions with scarce labour market opportunities to regions with better labour market opportunities are crucial for both employment growth and housing growth (Blanchard and Katz 1992; Saks, 2008; Karahan and Rhee, 2019).⁸ In the housing market new hires residing elsewhere lead to an increase in the share of home-seekers. With an increase in the ratio of home-seekers to sellers, the probability that a seller will sell increases; thus, the value of the seller’s search and the house price also increase (Genesove and Lu, 2012).⁹ In turn, an increase in house prices spurs new construction and increases the total number of housing (as suggested by the model developed by DiPasquale and Wheaton, 1992, the popular “four-quadrant” model).¹⁰ Finally, an increase in the local population (through the hiring of unemployed workers residing elsewhere),¹¹ further spurs housing growth. As in the models of urban growth theory (see, e.g., Capozza and Helsley, 1989; Mayer and Somerville, 2000), at the new equilibrium, the city increases in size to accommodate the new residents (specifically, population growth is accommodated by an expansion of the city through the new construction) and average house prices are constant, but at a new higher level.

Eventually, in the presence of labour mobility, employment growth calls housing growth. When this happens, it is possible to talk about “*regional growth*”. Of course, regional growth also requires low constraints on new housing supply. Higher regulations discourage new

⁸ Indeed workers’ reallocation is important also in the case of shocks in the housing market (not only in the labour market). Karahan and Rhee (2019) find that housing busts (marked by decreases in the number of agents who buy homes) is responsible for 12% of the increase in unemployment as it reduces workers’ reallocation and forces more homeowners to look for jobs in areas with lower job-finding rates.

⁹ Precisely, the value of the seller’s search depends positively on the “seller contact hazard” and, in turn, the house price depends positively on the value of the seller’s search (Genesove and Lu (2012)).

¹⁰ The explicit distinction between homeownership market (sellers) and rental market (landlords) does not change the main results of the analysis, since in equilibrium the owner should be indifferent between posting a vacancy in the rental market and posting a vacancy in the homeownership market. Thus, an increase in sale prices should push up rents. Otherwise, it introduces a further effect into the developed model that reinforces the previous ones. Precisely, an increase in sale prices reduces the value of a vacant house in the rental market. Hence, many landlords may choose to sell their houses rather than offer rental units, thus increasing vacant houses (housing supply) in the homeownership market.

¹¹ Indeed, there is some evidence of bi-directional causality between population and employment growth (Bernard, 2009).

housing supply; also, by increasing housing prices, higher housing supply regulations discourage workers migration (Saks, 2008).

2.3. Labour mobility and homeownership

Labour migration also depends on the willingness of new workers to become new residents (in the absence of the possibility of commuting, because of location too far away from home and inefficient transport systems, for example).

Intuitively, a change in the location of the workplace could imply a change in the housing tenure, thus generating a change in the housing cost, namely a cost of moving to another house (the costs of a new rental contract or sale/purchase of a dwelling). In general, homeowners have higher costs of moving than renters (due to transaction costs to sell and/or buy their home), but lower housing costs (Dohmen 2005; Munch et al. 2006, 2008; Rouwendal and Nijkamp, 2010). As a result, an individual will be more reluctant to accept a job in another place if this implies a “bad” change in housing tenure, i.e. the transition from owner to tenant. This result is due to the so-called “intrinsic preference for homeownership”, namely, individuals are willing to pay more to own a set of housing characteristics, such as a house, rather than paying rent (see Linneman and Voith 1991; Heston and Nakamura 2009). Of course, the reverse is also true, in the sense that a tenant will be more willing to accept a job in another place if this implies a good change in both housing tenure (from tenancy to homeownership) and employment status (from unemployed to employed). Eventually, therefore, a greater share of homeowners in the economy implies a lower search intensity for non-local jobs, namely a lower willingness to accept job-offers outside their region with respect to renters.¹²

Consequently, the higher the share of homeowners in the economy, the lower the labour mobility across regions (the lower the workers’ movement into regions with better labour market opportunities) and thus the lower the effect of a positive shock in the labour market. Precisely, the low mobility of homeowners is capable of breaking the positive link between employment growth and housing growth, thus damaging local economic development. In the model developed in Section 2, in fact, the equilibrium reaches the point E_3 where unemployment could also rise (see again Figure 3).

However, homeownership also has a positive effect on labour productivity; indeed, the point E_2 in Figure 3 (where employment grows), can be achieved through a higher share of

¹² Note that the “natural” extension of the model to the homeowners with mortgage payments does not change the main result of this analysis, since a mortgage agreement is a more stringent constraint relative to a rental contract. In some cases, a rental contract does not even exist (the shadow economy, in fact, could concern tenancy but not homeownership).

homeownership in the region.

Accordingly, the empirical part of this paper aims at verifying the net effect of homeownership on regional economic growth. We consider regional growth rather than employment growth since the effects of homeownership are not limited to the labour market, but they are also reflected in the housing market (as highlighted in sub-section 2.2.).

3. Empirical analysis

3.1. Data and econometric model

In order to test the net effect of homeownership on regional growth, we follow a simple insight. Given the assumptions a) and b) of the theoretical model, we expect that the negative effect of (the low job mobility of) homeowners on regional economic growth should be stronger in less developed regions. In that case, in fact, it is likely that the negative effect of homeownership on labour mobility prevails on the positive effect of homeownership on labour productivity.

With the aim of verifying this theoretical hypothesis, we perform an empirical regional analysis in Italy. Precisely, we use a panel obtained for the 20 Italian regions (cross-section units) over 11 time periods, from 2005 to 2015, for a total of 220 observations.

The empirical analysis considers the main variables of the theoretical model (of course, all of them measured at regional level): gross domestic product (since it should include both employment growth and housing growth), homeownership rate (that replaces the variable “mobility”),¹³ employment and education (in order to consider the role of job productivity), house prices and new construction (that implicitly include the effect of regulation on housing supply). We collected data from three main Italian sources: (a) Bank of Italy and Istat (Italian National Institute of Statistics) for data on labour market variables (employment and education) and regional gross domestic product; (b) Real Estate Market Observatory of the Italian Revenue Agency for data on housing market variables (homeownership, house prices and new construction).

We use the so-called “two-way fixed effects” and, thus, the empirical model includes both the unobservable heterogeneity that is specific to each cross-sectional (regional) unit (namely, all effects that vary between regions but not over time) and the unobservable time effects that capture all effects that vary over time but not between regions (for example, the impact of the

¹³ As in Bouyon (2015a), the variable “mobility” is excluded from the analysis for reasons of collinearity since a higher homeownership rate should involve a lower job mobility.

economic and financial crisis that is common to all regions). Also, the ‘fixed-effects’ specification has a particularly useful property with respect to the ‘random-effects’ specification: if the unobservable specific effects represent omitted variables and the cross-section effects are correlated with the other explanatory variables of the model, the fixed-effect estimator remains consistent, while the random-effect estimator becomes inconsistent (Judson and Owen 1999). In a way, the ‘fixed-effects’ model helps to make the model thrifty, since we cannot add other variables that do not vary over time or over regions, since they will be perfectly colinear with the fixed effects.

Specifically, we estimate the following panel model with fixed-effects:¹⁴

$$RG_{i,t} = a_i + \sum_{t=200}^{2015} \gamma_t \cdot year_t + \beta_1 \cdot home_{i,t} + \beta_2 \cdot empl_{i,t} + \beta_3 \cdot educ_{i,t} + \dots$$

$$\dots + \beta_4 \cdot hprice_{i,t} + \beta_5 \cdot new_{i,t} + \varepsilon_{i,t} \quad (3)$$

where $i = 1 \dots 20$ Italian regions; RG = regional gross domestic product; a_i capture the unobservable heterogeneity that is specific to each cross-section (regional) unit; $year_t$ are the temporal dummy variables that capture the unobservable heterogeneity that is specific to each time period (year of reference 2010 omitted); $home$ = homeownership rate; $empl$ = employment rate; $educ$ = number of graduates and postgraduates; $hprice$ = (average) house prices; new = number of new construction, and $\varepsilon_{i,t}$ is the stochastic error term.¹⁵ Homeownership rate includes both outright homeowners and homeowners with mortgage payment.¹⁶

3.2. Empirical strategy and estimation results

First of all, in addition to the negative correlation between job mobility and homeownership (see, e.g., Bouyon, 2015a), we find a remarkably high positive correlation between education and homeownership (about 0.7). These two simple correlations would seem to confirm the two key assumptions of the theoretical model developed in Section 2.

Regarding the empirical model, endogeneity is an inherent issue in the transition from the theoretical model to the empirical specification. Indeed, the endogeneity issue (the problem of reverse causality between dependent and independent variables) is often great and, in some

¹⁴ As usual, in order to save degrees of freedom, we use the so-called ‘within’ estimator.

¹⁵ The Error Component Regression Models assume that the regression disturbances are homoscedastic, with the same variance in time and between individuals. This hypothesis, although restrictive in some cases, will determine (in the case of heteroscedasticity) estimators that are always consistent but inefficient (Wooldridge 2001; Baltagi 2008). The same can be said about serial correlation.

¹⁶ Homeownership is measured as the “owner-occupied rate”, namely the share of a region’s population that lives in a dwelling they own. Homeownership is usually characterised by a relatively low variations of its rates over time.

cases, empirically intractable, since it is extremely hard to find instrumental variables that are, at the same time, “good” and “not weak”.

Specifically, in order to deal with the (potential) bidirectional interaction between homeownership and regional economic growth, we adopt a simple (and somewhat original) ‘identification strategy’: we use the share of regional shadow economy instead of the regional GDP growth rate, i.e., we “change” the dependent variable of the model rather than trying to find “good” instruments for the independent variable. Shadow economy is, in fact, closely inversely related to the GDP growth (in the long run, this is definitely true, see, e.g., La Porta and Shleifer, 2008); whereas shadow economy is not correlated to homeownership. Indeed, shadow economy could concern tenancy (the rental market) but not the homeownership market. Anyway, we interpret the coefficients as partial correlations.

Under the previous assumption, the empirical model becomes:

$$SE_{i,t} = a_i + \sum_{t=2005}^{2015} \gamma_t \cdot year_t + \beta_1 \cdot home_{i,t} + \beta_2 \cdot empl_{i,t} + \beta_3 \cdot educ_{i,t} + \dots$$

$$\dots + \beta_4 \cdot hprice_{i,t} + \beta_5 \cdot new_{i,t} + \varepsilon_{i,t} \quad (3')$$

where SE is the share of regional shadow economy. For the sake of simplicity, in order to interpret the results of the model (3') in terms of the model (3), we assume that:

$$\Delta(RG) = -\Delta(SE)$$

In short, the expected signs of the coefficients of the variables are reversed.

We estimate three alternative specifications of the regression equation (3'): Model (a), Model (b) and Model (c). The model (a) includes all available observations; whereas – under the hypothesis that the positive effect of homeownership on labour market outcomes involves labour productivity – in models (b) and (c), the regional average job productivity (the ratio between regional gross domestic product and regional employment) is used to split the sample in two equal (in number) subsamples. Precisely,

- The model (b) estimates equation (3') for the 10 regions with the highest average labour productivity (central-northern regions);
- The model (c) estimates equation (3') for the 10 regions with the lowest average labour productivity (southern regions and islands).

Table 1 presents the estimation results of the model (3'); whereas, Table 2 derives the results for the model (3).

<<< Insert Table 1 about here, now at the end >>>

<<< Insert Table 2 about here, now at the end >>>

Considering the aim of this empirical part, we focus on Table 2. The partial correlations seem to support the key insight of this paper, since the negative correlation between homeownership and regional economic growth is stronger in regions with low job productivity – namely, in the model (c) – with respect to regions with high job productivity – i.e. the model (b).¹⁷ This analysis, therefore, suggests that the low job mobility of homeowners is harmful to regional growth when the average labour productivity of their region is low.

Consequently, an important economic policy implication emerges from this paper. In regions where job productivity is low, the priority should be a more efficient allocation of workers across regions. Thus, policymakers should encourage job mobility (by policy such as “concessional rent”), rather than facilitating homeownership; whereas, homeownership could be strengthened in those regions where job productivity is quite high.

Our result for Italy seems to be consistent with a recent empirical work by Palomares-Linares and van Ham (2020) for Spain, where the negative effect of homeownership on labour market outcomes is stronger in depressed regions.¹⁸ According to Palomares-Linares and van Ham (2018), therefore, especially in a period of economic crisis, governments should support rental instead of homeownership.¹⁹

4. Conclusions and policy implications

This paper introduces the role of homeownership in the relation between employment growth and housing growth, thus connecting the literature on job mobility, housing supply and employment growth with the literature on housing tenure and unemployment.

In particular, this paper aims at clarifying the net impact of homeownership on regional economic growth. We talk about “regional economic growth” when an economy experiences both employment growth and housing growth. Precisely, employment growth calls housing growth in the presence of labour mobility.

In this framework, the role of homeownership is crucial and cannot be neglected. Under

¹⁷ Unfortunately, we cannot use a casual language; otherwise, one could say that the negative impact of homeownership on regional economic growth is stronger and statistically significant in the model (c), while it is lower and not statistically significant in the model (b). Furthermore, the effect of the other statistically significant explanatory variables (education and employment) does not seem to change among the models, and this could be a signal of robustness of the model. Finally, the temporal dummy variables have positive signs (negative time effects on regional economic growth) and are statistically significant during the period of the economic and financial crisis (2008-2012).

¹⁸ In Spain, homeownership is a key explanatory factor of immobility, which became more important during the economic crisis (Palomares-Linares and van Ham, 2020).

¹⁹ Like Italy, Spain is characterised by an extremely high percentage of homeownership (Palomares-Linares and van Ham, 2020).

the hypothesis that homeowners have, in general, more human capital, homeownership should lead to better labour market outcomes; in particular, by increasing labour productivity. Nevertheless, labour mobility depends on the willingness of new workers to become new residents, and, in general, homeowners have a lower job-mobility than renters, namely they are less willing to accept job-offers outside their region. By discouraging the mobility of workers into areas with better labour market opportunities, homeownership could break the positive link between employment growth and housing growth, thus leading to a lower local economic development.

Given the assumptions of the theoretical model, we expect that the negative effect of homeownership on labour mobility prevails on the positive effect of homeownership on labour market outcomes where the labour productivity is lower at regional level. Concisely, in areas where job productivity is lower, the job immobility of homeownership could be very detrimental to regional growth; instead, in regions where job productivity is higher, the low job mobility of homeowners should be less harmful for regional growth.

Eventually, we perform a regional panel analysis in Italy that confirms this theoretical insight. Precisely, we find that the negative correlation between homeownership and regional economic growth is stronger with reference to the regions where the average labour productivity is lower.

As a result, in areas where job productivity is lower, policymakers should encourage job mobility (by policy such as “concessional rent”), rather than facilitating homeownership, since the priority is a more efficient allocation of workers across regions. In regions where job productivity is quite high, instead, homeownership could receive a favourable tax treatment since it is likely that the positive effects of homeownership on labour market have actually manifested themselves, namely the positive effect of homeownership on labour productivity prevails on the negative effect of homeownership on labour mobility.

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Figures

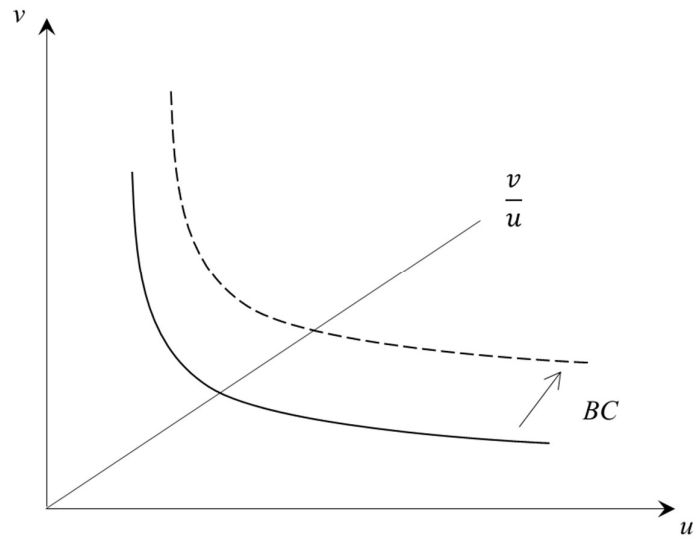


Figure 1. The negative effect of homeownership on unemployment

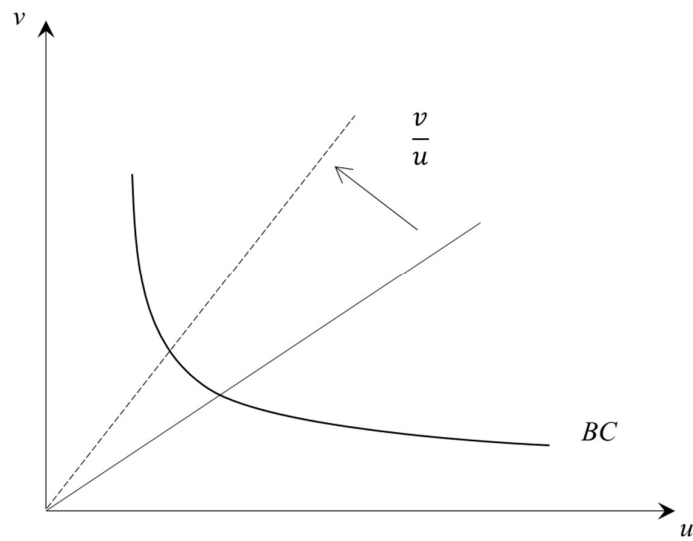


Figure 2. The positive effect of homeownership on unemployment

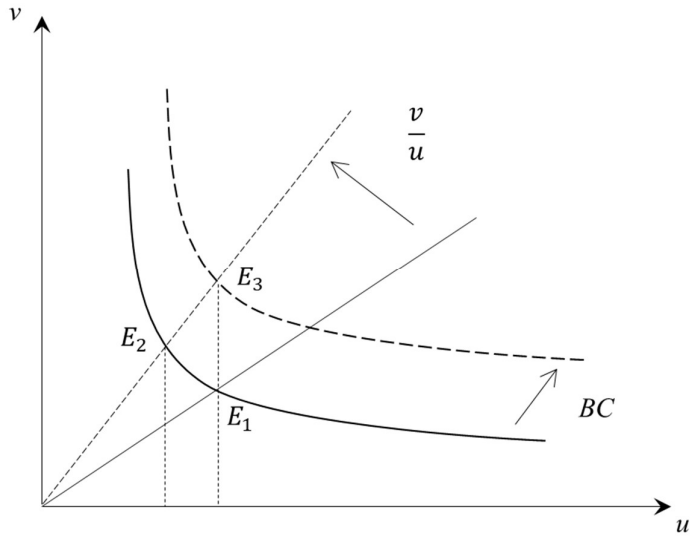


Figure 3. The (ambiguous) net effect of homeownership on unemployment

Tables

TABLE 1. ESTIMATION RESULTS OF MODEL (3')

Explanatory variables	Dependent variable: <i>SE</i> (regional shadow economy)		
	Model (a)	Model (b)	Model (c)
<i>home</i>	0.084 (2.46)	0.076 (1.72)	0.114 (2.11)
<i>empl</i>	- 0.256 (8.72)	- 0.241 (7.89)	- 0.233 (7.67)
<i>educ</i>	- 0.398 (10.62)	- 0.356 (10.44)	- 0.342 (10.45)
<i>hprice</i>	- 0.017 (1.53)	- 0.012 (1.51)	- 0.011 (1.47)
<i>new</i>	- 0.101 (1.65)	- 0.099 (1.58)	- 0.097 (1.54)
<i>year</i> ₂₀₀₅	- 0.023 (1.11)	- 0.018 (1.07)	- 0.021 (1.12)
<i>year</i> ₂₀₀₆	- 0.012 (1.34)	- 0.011 (1.26)	- 0.009 (1.31)
<i>year</i> ₂₀₀₇	- 0.022 (1.89)	- 0.017 (1.91)	- 0.016 (1.87)
<i>year</i> ₂₀₀₈	0.016 (2.01)	0.013 (2.07)	0.014 (2.03)
<i>year</i> ₂₀₀₉	0.018 (2.26)	0.021 (2.19)	0.016 (2.11)
<i>year</i> ₂₀₁₁	0.021 (2.10)	0.019 (2.12)	0.017 (2.04)
<i>year</i> ₂₀₁₂	0.014 (2.12)	0.013 (2.15)	0.013 (2.17)
<i>year</i> ₂₀₁₃	- 0.008 (1.81)	- 0.011 (1.80)	- 0.007 (1.85)
<i>year</i> ₂₀₁₄	- 0.011 (1.54)	- 0.009 (1.47)	- 0.010 (1.53)
<i>year</i> ₂₀₁₅	- 0.007 (1.23)	- 0.005 (1.22)	- 0.004 (1.20)
corr (a_i , Xb)	- 0.1212	- 0.1130	- 0.1128
fixed effects: all $a_i = 0$	p-value 0.000	p-value 0.000	p-value 0.000
R ²	within	0.1806	0.1656
	between	0.0005	0.0004
	overall	0.0635	0.0572
observations	220	110	110

Note: t-statistic in parentheses. Statistical significance at the 5% level (p-value < 0.05): t-statistic > 2. In all equations, the F-test seems to suggest that the choice of a fixed-effects model is appropriate.

TABLE 2. RESULTS OF MODEL (3) *

Explanatory variables	Dependent variable: <i>RG</i> (regional economic growth)	
	Model (b)	Model (c)
<i>home</i>	- 0.076 (1.72)	- 0.114 (2.11)
<i>empl</i>	0.241 (7.89)	0.233 (7.67)
<i>educ</i>	0.356 (10.44)	0.342 (10.45)
<i>hprice</i>	0.012 (1.51)	0.011 (1.47)
<i>new</i>	0.099 (1.58)	0.097 (1.54)

* obtained under the assumption that $\Delta(RG) = -\Delta(SE)$.