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Homeownership and unemployment

Gaetano Lisi
e-Campus University

Abstract

The effect of homeownership on unemployment is, a priori, ambiguous. By introducing the role of homeowners in the "equilibrium unemployment theory", however, this theoretical paper succeeds in establishing the sign of the relation between homeownership and unemployment.

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Contact: Gaetano Lisi - gaetano.lisi@uniecampus.it.
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Introduction

The complex interaction between housing and labour markets makes the effect of homeownership on unemployment, a priori, ambiguous (see, e.g., Havet and Penot, 2010; Rouwendal and Nijkamp, 2010; Laamanen J.-P., 2013; Blanchflower and Oswald, 2013; Haas and Osland, 2014; Mohino and Ureña 2020). Theoretically, indeed, there are a variety of conditions under which a negative or positive relation between homeownership and unemployment rates may arise (Beugnot et al., 2019). Thus, "foster or not to foster homeownership, that is the question" (policy dilemma).

By introducing the role of homeowners in the so-called "equilibrium unemployment theory" (Pissarides, 2000, 2011), however, this paper shows that the effect of homeownership on unemployment can be discovered. As far as we are aware, this is the first theoretical work who succeeds in establishing the sign of the relation between homeownership and unemployment.

Homeownership and labour market

Job immobility and human capital represent the two most investigated features of homeowners (see, e.g., van Leuvensteijn and Koning, 2004; Dohmen, 2005; Munch et al. 2006, 2008; van Ewijk and van Leuvensteijn, 2009; Arrondel, Roger and Savignac, 2013; Palomares-Linares and van Ham, 2020). Actually, homeownership discourages job mobility, but homeowners are more likely to invest in human and social capital (DiPasquale and Glaeser, 1999). We assume, therefore, that:

1. the (higher) job immobility of homeowners reduces the job search intensity. Precisely:

$$\rho(h) \equiv \left[f\left(\frac{v}{u}\right) \right] \cdot (1-h)$$

$$\frac{d\rho(h)}{dh} < 0$$

where $\rho(h)$ is the "overall" probability of finding a job; $(1-h)$ is the "external" search intensity parameter that depends negatively on the homeownership rate (h), while $f\left(\frac{v}{u}\right)$ is the "customary" probability of finding a job, that depends positively on the ratio between job vacancies (v) and unemployment (u).[1]

2. the (higher) human capital of homeowners increases both the job productivity of a

[1] A worker has more possibility to find a job when vacancies increase and/or unemployment decreases.

firm (y) and the wage rate of workers (ω). However, in a meritocratic and prosperous society, where human capital leads to economic growth and helps to hold top management positions (in this case, entrepreneur or manager of a firm), the increase in job productivity should be always higher than the increase in the wage rate, viz.:

$$\pi(h) \equiv y(h) - \omega(h)$$

$$\frac{d\pi(h)}{dh} \equiv \frac{dy(h)}{dh} - \frac{d\omega(h)}{dh} > 0$$

where $\pi(h)$ is the job net productivity.

By introducing these two assumptions into the standard search and matching model of the labour market, this theoretical paper can derive the final (or net) effect of homeownership on unemployment, namely, the sign of the first derivative of u with respect to h.

Equilibrium unemployment theory

The steady-state equilibrium value of unemployment is given by:

$$\frac{du}{dt} = (1-u)\cdot\delta - u\cdot\rho(h) \underset{\rightarrow}{\text{yields}}\, u = \frac{\delta}{\delta+\rho(h)} \tag{1}$$

where $\frac{du}{dt}$ is the evolution of unemployment (u) over time (t); $(1-u)$ are the employed workers, and δ is the exogenous job destruction rate. An increase in the homeownership rate, therefore, reduces the "overall" probability of finding a job, thus increasing the unemployment rate, viz: $\frac{du}{dh} > 0$.

As regards the labour demand side, in equilibrium a firm opens a further vacancy until its value is reduced to zero, i.e., the discounted marginal benefit of a job match (the left-hand side of Equation 2) equals the expected marginal cost of the same job match (the right-hand side of Equation 2):

$$\frac{\pi(h)}{(r+\delta)} = c\cdot\left[\varphi\left(\frac{v}{u}\right)\right]^{-1} \tag{2}$$

where r is the real interest rate; c is the cost flow of a job vacancy; $\varphi\left(\frac{v}{u}\right)$ is the "customary" probability of filling a vacancy, that depends negatively on the "job vacancies-

unemployment" ratio;[2] whereas, $\left[\varphi\left(\frac{v}{u}\right)\right]^{-1}$ denotes the average duration of a job vacancy that is, instead, increasing in $\left(\frac{v}{u}\right)$. In this case, an increase in the homeownership rate increases $\left[\varphi\left(\frac{v}{u}\right)\right]^{-1}$, thus raising the "job vacancies-unemployment" ratio, viz: $\frac{dv}{dh}>0$ and $\frac{du}{dh}<0$.

In order to compare the strength of the two different effects of homeownership on unemployment, we use a popular and very used Cobb-Douglas matching function with constant returns to scale (Petrongolo and Pissarides, 2001), i.e., $m=v^{1-\alpha}\cdot u^{\alpha}$, where $0<\alpha<1$ is the unemployment elasticity. It follows that $f(\theta)\equiv\frac{m}{u}=v^{1-\alpha}\cdot u^{\alpha-1}=\theta^{1-\alpha}$, $\varphi(\theta)\equiv\frac{m}{v}=v^{-\alpha}\cdot u^{\alpha}=\theta^{-\alpha}$, and $f(\theta)=\varphi(\theta)\cdot\theta$, where $\theta\equiv\frac{v}{u}$. Eventually, therefore, we get a system of two equations, viz.:[3]

$$\varphi(\theta)=\frac{\left(\frac{\delta-\delta\cdot u}{u}\right)}{\left[\frac{v\cdot(1-h)}{u}\right]}=\frac{\delta-\delta\cdot u}{v\cdot(1-h)} \tag{1a}$$

$$\varphi(\theta)=\frac{c\cdot(r+\delta)}{\pi(h)} \tag{2a}$$

that defines the unemployment rate:

$$u=1-\frac{\beta\cdot(1-h)}{\delta\cdot\pi(h)} \tag{3}$$

where $\beta\equiv\left[c\cdot(r+\delta)\cdot v\right]$. If $\pi(h)>\frac{\beta\cdot(1-h)}{\delta}$, we get the actual range of the unemployment rate, i.e., $0<u<1$.

By deriving Equation (3) with respect to h, the "overall" effect of homeownership on unemployment is obtained:

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[2] A firm has more difficulty to find a worker (to fill a vacancy) when vacancies increase and/or unemployment decreases.

[3] Thus, $\rho(h)=\varphi\left(\frac{v}{u}\right)\cdot\frac{v}{u}\cdot(1-h)$.

$$\frac{du}{dh}=\frac{\beta\cdot(\delta\cdot\pi(h))-\left[-\beta\cdot(1-h)\cdot\delta\cdot\frac{d\pi(h)}{dh}\right]}{(\delta\cdot\pi(h))^2}>0$$

As a result, homeownership always increases unemployment. In the equilibrium unemployment theory, therefore, homeownership implies a higher mismatch between workers and firms. Consequently, policymakers should encourage job mobility, before facilitating homeownership.

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