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Bargaining structures, rent-seeking effect and endogenous growth

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Abstract

Market power of workers on wages is bound to affect economic performances. This paper focuses on this issue and analyse the influence of bargaining structures on growth and labor market functioning. To achieve this, we construct an endogenous growth model where growth appears as the result of a learning-by-doing process whereas imperfect information in the labor market implies matching frictions in the hiring process. If investment occurs before wage bargaining, the growth process can be durably altered. In this case, a higher bargaining power of worker does not give a clear-cut effect on growth.

JEL classification: E24; J50; J64; O40

Keywords: Bargaining structures; Equilibrium Unemployment; Endogenous growth; Learning-by-doing

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1. Introduction

In most OECD countries, workers have their wages set by collective bargaining between employers and trade unions at the plant, firm, industry or aggregate level. Taking into account this established fact, a large literature developed in the eighties to assess the impact of union power on labor market functioning, being on the wage formation or on the unemployment rate (Nickell and Layard 1999, Booth 2002). More generally, during this period labor market institutions have been the object of an intensive political debate and sometimes seen as the cause of the high European rate of unemployment. Even if this explanation must be taken with caution as unemployment in Europe highly diverged in the nineties (Blanchard and Wolfers 2000), assessing the impact of bargaining procedures is worth examining.

On the other hand, a literature linking unemployment and growth followed Pissarides (1990) who introduced growth in a matching model. Whereas the growth process considered was exogenous, it has been made endogenous in Bean and Pissarides (1993) or in Pissarides (2000). Nevertheless, these models do not exhibit a clearcut link between unemployment and growth.

Our focus is to link these two domains. We will therefore aim to analyse bargaining in a broad context and relate this particular way of wage formation with a growth process. Some recent articles dealt with this subject. A lower unionization rate would result in higher research and development and higher growth according to Peretto (1998). Palokangas (1996, 2000) introduces bargaining in a Romer type growth model (1990). In this case, a higher bargaining power would result in a higher growth process along the following lines. Assuming that unions protect high qualified workers employment, a higher bargaining power results in a higher part of qualified workers employed and hence higher growth. Palokangas (2004) obtains the same kind of results with a growth process based on research and development but where the bargaining power is determined by laws and hence by the government.

With respect to the preceding articles, we rather consider search models in which trade is considered as a decentralised activity (Pissarides 2000, Cahuc 2001). In this framework unemployment and vacancies coexist due to imperfect information. Bargaining power is then considered at the worker level and we will consider its impact on the capital stock and on the growth process. Two bargaining games will be considered in turn: one in which firms and bargaining appear independent and one in which there is a hold-up problem. Indeed, following Grossman and Hart (1986) and Grout (1986), we consider in this latter game that firms have do decide investment before bargaining occurs. An increased bargaining power of workers therefore decreases firms' incentives to invest. Regarding growth, we adopt a Romer-style endogenous growth model. A production externality implying non decreasing returns to capital allows an endogenous growth process.

After a presentation of the basic framework, we develop two models of bargaining which will be compared and analysed in a latter section.

1. The basic framework

In this section, we describe the basic framework we will be working with. The structure of the model is based on Pissarides (2000) but introduces an investment externality in the firm technology to allow endogenous growth. There are two broad categories of agents, firms and workers, and time is continuous. The first subsection handles the labor market, a second firm's behaviour whereas the third one deals with consumer behaviour. A last section describes the wage bargain.

Search in the labor market

In all industrialized countries, mobility of the workforce is high. Workers evolve continuously between different states (employment, unemployment, inactivity) as job creation and job destruction processes are simultaneous. Hence, in presence of large flows on the labor market, it may not be adequate to assume that firms and workers can instantaneously locate each other. We rather consider imperfect information in the "meeting" process. In this case, unemployment and vacant jobs may coexist and the equilibrium unemployment appears as the result of these flows (Hall 1979, Pissarides 1979, 2000).

Job termination is the result of an exogenous shock which affects existing jobs at rate λ. This shock can be considered either as a demand or a productivity shock which destroys existing jobs. We thus stick to the initial hypothesis considered in Pissarides (1990) although this hypothesis has been highly discussed and reconsidered when trying to model labor market behaviour (Aghion and Howitt, 1994, Pissarides 2000). Nevertheless, this simplifying assumption can be justified as our purpose is not to focus on the labor market functioning. Moreover, it has also been made in a context of growth process (Pissarides 2000, Postel-Vinay, 1998, Moreno-Galbis, 2005).

Job creation depends on the number of vacancies firms decide to offer and on the efficiency of the matching process. For tractability reasons, we further assume that there is no on the job search neither job-to-job quitting. The hiring decision is the result of a matching function depending on the number of unemployed and vacant jobs:

$$m = m(U,V) = m(uL, vL) \tag{1}$$

where U and V denote respectively the number of unemployed and vacant jobs, u and v the rate of unemployment and vacancies and L is the labor force. The matching function is supposed increasing, concave in both arguments and homogeneous of degree one. This has been confirmed by numerous empirical studies in different countries (Layard et al., 1991, Feve and Langot, 1996, Berman, 1997).

A firm who decides to offer a vacancy is not sure to fill it. Assuming that firms who become successful are selected randomly from the vacancy pool, each vacancy is filled with probability $m(uL, vL)/vL$. As the matching function is homogeneous of degree one, this can be rewritten as $q(\theta) = m(u/v, 1)$ where $\theta = v/u$ stands for a measure of the tightness of the labor market. Other things being equal, more vacant jobs with respect to unemployment result in a lower probability to fill a vacancy ($q'(\theta) \leq 0$). Only unemployed workers are engaged in the matching process and they find a job with probability $\theta q(\theta) = m(uL, vL)/uL$. In this latter case, the tightness of the labor market plays again on the probability to be successful in a job search. Indeed, more vacant jobs with respect to unemployment result in a higher chance for unemployed workers to find a job.

Firms and technological progress

Firms are homogeneous and produce a unique good which is either consumed by households or accumulated. The production process is represented by the following Cobb-Douglas function increasing with capital and labor in efficiency unit:

$$F(K_t, kN_t) = AK_t^{\alpha}(k_t N_t^{1-\alpha}) \tag{2}$$

K_t and N_t are respectively the capital and the employment of the representative firm and k_t the aggregate capital labor ratio which improves the efficiency of labor along the Romer (1986) framework. The production function verifies the usual neoclassical properties and exhibits constant returns to scale in the accumulated factors which allows unbounded growth. The effect of capital accumulation is not internalised by firms and is considered as an unintended by-product. It is then compatible with the existence of a competitive equilibrium.

Due to matching frictions in the labor market, unemployment and vacant jobs coexist. When deriving the critical condition for the supply of jobs, firms take into account that the rate of worker return is $q(\theta)$ and that they lose jobs at the rate λ. Hence, employment in the representative firms varies along the following lines: $\dot{N}_t = q(\theta)V_t - \lambda N_t$.

Representative firm maximises the present discounted value of its expected profits:

$$\max_{I_t, V_t} \int_0^{\infty} e^{-rt}\left[F(K_t, kN_t) - w_t N_t - \gamma_t V_t - I_t\right]dt$$
$$s.c. \begin{cases} \dot{K}_t = I_t \\ \dot{N}_t = q(\theta)V_t - \lambda N_t \end{cases} \tag{3}$$

Firms decide on investment (I_t) and on the number of vacant jobs (V_t) to offer. We suppose that capital does not depreciate and that it is hired at the price of output. No adjustment costs of capital are considered but costs of adjusting employment. In order to fill their vacancies, firms undergo hiring costs (cost of advertising, cost of hiring) which we denote γ_t. Finally, wage is the object of an individual bargaining between firm and worker.

Consumers

Whatever the source of their revenues, agents consume a unique good, either consumed or invested. At this stage, we namely ignore heterogeneity between agents due to their labor market status. This can be justified on the ground that revenues inside families are shared. It is also a useful modelling device to avoid a greater complexity of the model (Pissarides 2000).

An infinite-lived representative consumer seeks to maximise the value of its intertemporal utility which is assumed increasing, concave and of constant marginal utility.

Budget constraint or consumer wealth (W) evolves according to: $\dot{W} = rW - c + R$. It is increasing with the interest rate r and the revenue R, decreasing in consumption c.

The maximisation problem is:

$$\max_{c_t} \int_0^{\infty} e^{-\rho t} \frac{c_t^{1-\nu} - 1}{1-\nu} dt \quad s.c. \quad \dot{W} = rW - c + R \tag{4}$$

Solving this program gives the rate of growth of consumption along the usual Keynes-Ramsey condition:

$$g = \frac{\dot{c}}{c} = \frac{1}{\nu}[r - \rho] \tag{5}$$

The growth rate is higher, the higher the discrepancy between investment return and the rate of time preference. It therefore shows the arbitrage agents have to do to split their revenue between consumption and savings. All variables playing on the investment return will also affect the growth rate of the economy.

Wage bargain

Wage bargain takes place between the worker and the firm. We therefore move away from the collective bargaining problem to consider the impact of the individual bargaining power of the worker. As is commonly used in the labor literature, the wage rate is therefore the outcome of a Nash bargaining process. Both firms and workers have an incentive to agree on a wage rate as they would loose the joint surplus in case of disagreement.

When employed, a worker earns the wage rate w_t and he is searching a job when unemployed. When employed, the worker loses his job with probability λ while when unemployed, his probability to be employed is $\theta q(\theta)$.

Let E_t be the present-discounted value of the expected income of being employed and C_t the same for unemployed. We therefore write: $rE_t = w_t - \lambda(E_t - C_t)$. Interpreting this as asset equations, the market value of being employed is then equal to its return consisting in the wage perceived diminished by the expected return from being unemployed. The same for unemployed is noted: $rC_t = z_t + \theta q(\theta)(E_t - C_t)$ with z_t being the alternative income workers get when unemployed.

On the firms' side, we write J_t the present discounted value of the expected income of having a job occupied and V_t the same for vacant jobs. These two values take the following form: $rJ_t = F'_N - w_t - \lambda(J_t - V_t)$ and $rV_t = -x_t + q(\theta)(J_t - V_t)$. When employed, a job yields a return corresponding to its marginal productivity minus its labor cost. This job incurs a probability λ to be destroyed. When vacant, this job is costly (x_t) but takes a value corresponding to its probability to be filled ($q(\theta)$).

Due to the existence of matching frictions, a global surplus appears from a successful bargain. The outcome of a Nash bargaining game depicts the labor share as a constant share of the global surplus created from a successful match:

$$(E_t - C_t) = \beta(E_t - C_t + J_t - V) \tag{6}$$

The bargaining power of the worker (β) is treated as a constant parameter strictly between 0 and 1. A higher bargaining strength for the worker will then yield him a higher share of the global surplus.

Firms are free to offer vacancies and will do so until all the opportunities of profit are exploited ($V = 0$). Using this condition and the values of E_t, C_t and J_t allow us to write the wage bargained as: $w_t = rC_t + \beta[F'_N - rC_t]$. Finally, using the Nash bargaining solution so as a combination of the asset value equations gives the wage rate as follows:

$$w_t = (1-\beta)z_t + \beta[F'_N + \theta x_t] \tag{7}$$

The wage obtained is a weighted average of the alternative wage and a term noted $[F'_N + \theta x_t]$ which includes the marginal productivity of labor and the mean hiring cost of a vacant job per unemployed. We can justify the presence of this latter term in the wage equation since, if the bargaining is successful, the firm saves some hiring costs. This creates a rent which can be shared between the firm and the worker.

Finally, for a given bargaining power of the worker, a lower tightness on the labor market (lower θ) increases the probability to fill a vacancy and diminishes the expected cost to fill it. This hence results in a lower wage rate.

2. Two models of bargaining

Having set the general framework, we then focus on two bargaining games depending on the sequence of decisions between investment and wage. The models will be analysed along these two frameworks.

Perfect capital market

Let suppose that there is a perfect capital market so that a firm cannot be stuck with capital it cannot use. We then posit that it can always rent it on a second hand capital market without sunk cost. This can be modelled as if bargaining and firm decisions were taken independently.

The bargaining takes place between the firm and the worker as described before, where the cost of a vacant job is depicted as $x_t = \gamma_t$. This represents all the costs a firm incurs to fill its vacant job which we described as cost of advertising, of screening candidates and so on. In a long term perspective, these hiring costs are bound to increase so as the alternative wage workers perceive when unemployed. Along the lines of Bean and Pissarides (1993), we therefore suppose that they evolve according to the capital per capita. Let write $z_t = bk_t$ and $\gamma_t = \gamma_o k_t$ to be on a steady state growth path:

$$w_t = (1-\beta)bk_t + \beta[F'_{N_t} + \theta\gamma_0 k_t] \tag{8}$$

Turning to the firm's dynamic problem (4), we write a Hamiltonian to find the critical conditions for the supply of jobs and capital :

$$H = F(K_t, kN_t) - w_t N_t - \gamma_t V_t + \mu I_t + \eta(q(\theta)V_t - \lambda N_t)$$

where μ and η represent respectively the marginal values of capital and labor. In steady state first order conditions can be rewritten:

$$\begin{cases} r = F'_{K_t} = A\alpha \\ F'_{N_t} - w_t - (r+\lambda)\dfrac{\gamma_t}{q(\theta)} = 0 \end{cases} \tag{9}$$

As usual in a case of investment externality, marginal productivity of capital is constant and equal to $A\alpha$. Marginal productivity of labor is equal to the wage rate plus an additional term representing the actualised mean hiring cost of a vacant job which depends on the tightness of the labor market. Indeed, more vacancies with respect to unemployment result in a lower probability for the firm to fill its vacancy and then to a higher expected cost.

Integrating the wage equation (8) in this latter term, we obtain

$$(1-\beta)(F'_{N_t} - bk_t) - \frac{r+\lambda+\beta\theta q(\theta)}{q(\theta)}\gamma k_t = 0 \tag{10}$$

Simplifying equation (11) with respect to k_t and replacing the interest rate by its value :

$$(1-\beta)\big(A(1-\alpha)-b\big) - \frac{A\alpha+\lambda+\beta\theta q(\theta)}{q(\theta)}\gamma_0 = 0 \tag{11}$$

This job creation equation (labelled JC hereafter) can be solved for the tightness on the labor market and depicts the labor market functioning. Expressed in a (u,v) diagram, this gives an upward line with slope θ. A higher tightness on the labor market increases the expected cost of a vacant job which decreases the opportunity for firms to offer vacant jobs. This tend tends to increase the unemployment rate.

Finally, the job motion equation $\left(\dot{N}_t = q(\theta)V_t - \lambda N_t\right)$ can be expressed in steady state so as to depict the equilibrium unemployment rate. Noting that identical firms all have the same tightness parameter and that labor is supplied inelastically, we write $V = \theta uL$ and $N = (1-u)L$ which can be reexpressed as $\theta q(\theta)uL = \lambda(1-u)L$. Solving for u gives the well-known Beveridge relation (noted UV).

$$u = \frac{\lambda}{\lambda + \theta q(\theta)} \tag{12}$$

By properties of the matching technology, this equation appears as a decreasing and convex curve in a vacancy-unemployment space (Figure 1). More vacancies result in a higher probability for worker to find a job and hence to a lower unemployment rate.

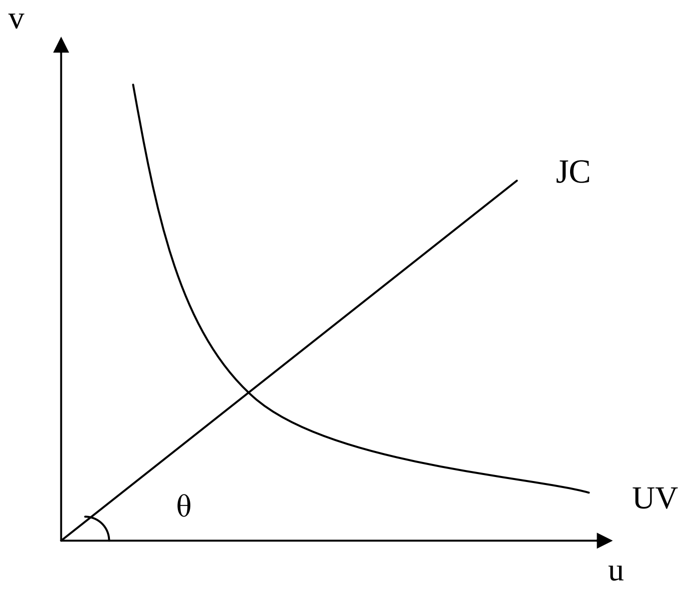

Fig. 1. Labor market equilibrium

Job creation condition and the Beveridge curve determine equilibrium unemployment and vacancies. All conditions modifying labor market functioning such as the alternative wage perceived by unemployed or bargaining power of the worker will move either the curves (JC) or (UV). It will then affect the tightness equilibrium of the labor market.

In summary, the basic equations of the model appear as follows:

$$\begin{cases} g = \frac{1}{\nu}\left[r - \rho\right] \quad (5) \\ r = A\alpha \quad (9) \\ (1-\beta)\left(A(1-\alpha) - b\right) - \frac{A\alpha + \lambda + \beta\theta q(\theta)}{q(\theta)}\gamma_0 = 0 \quad (11) \\ u = \frac{\lambda}{\lambda + \theta q(\theta)} \quad (12) \end{cases}$$

A dichotomy appears between the labor market functioning and the growth process. The interest rate is determined by the marginal productivity of capital, constant in such a model of endogenous growth. The incentive to report consumption is therefore also kept constant which guarantees a continuous growth process.

Investment irreversibility

We move away from the perfect capital market to consider a sequential model in which investment decisions of firms occur before bargaining takes place. This can be justified on several grounds, being that investment is irreversible (Grout 1984, Grossman and Hart 1986) or that bargaining can be reconsidered once investment has taken place (non biding contract). We do not consider that firms have the opportunity to hire capital on a second-hand market.

In these two cases, decisions in the model are taken sequentially, investment taking place in a first step while the wage is bargained in a second step.

Applying backward induction to solve this sequential game, the representative firm decides on the capital stock to install integrating the bargaining result. Let then consider first the bargaining game in this configuration.

Bargaining in a case of investment irreversibility
Whatever the source of the sequential decisions, firms may have capital unemployed in a case of bargaining failure. This cost of unemployed capital has to be taken into account in the bargaining game.

In a case of bargaining failure, a firm who wanted to hire remains with a vacant job. This incurs costs for the firm made of cost of capital and cost of filling this vacancy. This then writes : $x_t = \gamma_t + rk_t$.

The wage equation resulting from the Nash bargaining process $w_t = (1-\beta)z_t + \beta[F'_N + \theta x_t]$ is :

$$w_t = (1-\beta)z_t + \beta[F'_N + \theta\gamma_t + \theta rk_t] \tag{13}$$

As before, the wage bargained is a weighted average of the alternative wage and a term composed of the marginal productivity of labor and the mean hiring cost per worker. An additional term θrk_t appears which stands for the mean capital lost per unemployed. For a given tightness and bargaining power of the worker, a higher investment results in a higher wage bargained as the worker extracts a higher part of the quasi rent of investment. We can finally note that this rent-seeking effect will be higher, the higher the bargaining power of the worker and the lower the unemployment rate.

Investment decision
Due to the sequential process, firms decide on investment before bargaining occurs. This is solved by backward induction taking account of the bargaining result. Firm's dynamic problem therefore writes:

$$\max_{I_t} \int_0^\infty e^{-rt}[F(K_t, kN_t) - w_t N_t - \gamma_t V_t - I_t]dt$$

$$s.c. \begin{cases} \dot{K}_t = I_t \\ \dot{N}_t = q(\theta)V_t - \lambda N_t \\ w_t = (1-\beta)z_t + \beta[F'_N + \theta\gamma_t + \theta rk_t] \end{cases} \tag{14}$$

Writing a Hamiltonian and solving this as before, we obtain the following steady-state equilibrium conditions: $r = F'_K - w'_K N$. In equilibrium, the return of an additional unit of capital is equal to its cost. As before, the return is made of the marginal productivity of capital but this is now diminished by a term showing the influence of capital on the wage bargained. Hence, firms explicitly take into account the effect of its decision on the wage bargained.

$$w'_K = \beta F''_{NK} + \beta\frac{\theta r}{N} \tag{15}$$

In the wage equation, capital exerts an influence on the marginal productivity of labor so as a term representing the rent-seeking behaviour of the worker. The two terms are positive and support the idea that a higher capital stock leads to a higher wage bargained.

Using the production function expression, we then obtain as equilibrium conditions:

$$r = \frac{A\alpha[1-\beta(1-\alpha)]}{1+\beta\theta} \tag{16}$$

Let us first return to the capital equilibrium condition. In a sequential framework, the return of capital is diminished as workers appropriate a part of the quasi-rent of capital. For given labor market conditions, a higher bargaining power of the worker increases the rent-seeking effect and hence reduces the return of capital ($r'_\beta < 0$).

Besides this fact, labor market conditions also play on this rent-seeking behaviour of the worker. This effect increases with the tightness on the labor market ($r'_\theta < 0$). A lower unemployment means that workers extract a higher part of the capital installed. On the opposite, a higher unemployment rate reduces this kind of effect. This then relates conditions on the labor market and return of capital and offer and interesting link between the two.

Employment decision

As in the perfect capital market case, first order conditions for the employment decision of firms appear as follows:

$$F'_{N_t} - w_t - (r+\lambda)\frac{\gamma_t}{q(\theta)} = 0 \tag{17}$$

Making use of the particular wage equations in investment irreversibility (14) and simplifying with respect to k_t, we then obtain:

$$(1-\beta)\big(A(1-\alpha)-b\big) - \beta\theta r - \frac{r+\lambda+\beta\theta q(\theta)}{q(\theta)}\gamma_0 = 0 \tag{18}$$

In this framework, labor market conditions do not solve independently of the rest of the model. The following system determines jointly interest rate and tightness on the labor market:

$$\begin{cases} r = \dfrac{A\alpha[1-\beta(1-\alpha)]}{1+\beta\theta} & (16) \\ (1-\beta)\big(A(1-\alpha)-b\big) - \beta\theta r - \dfrac{r+\lambda+\beta\theta q(\theta)}{q(\theta)}\gamma_0 = 0 & (18) \end{cases}$$

In a case of sequential decision, the dichotomy obtained before is no longer valid. When investment decision intervenes before bargaining occurs, the return of investment and the job creation equation are jointly determined.

These two conditions can be depicted in a (θ, r) diagram. Let denote (KC) the capital equilibrium curve and (JC_2) the job creation curve in a case of investment irreversibility. These two curves are downward sloping in a (θ, r) diagram. More precisely, a higher interest rate results in a higher sunk cost of capital and a higher wage bargained for the worker. This decreases the profitability to offer a vacancy for firms and lead to a lower tightness on the labor market. On the investment side, a higher tightness on the labor market which means that there are more vacant jobs with respect to unemployment, implies that the rent-seeking effect of the worker is greater and hence the interest rate lower. Once again, this results in a downward relation between tightness and interest rate.

The model is therefore depicted by the following equations:

$$\begin{cases} g = \dfrac{1}{\nu}[r-\rho] \quad (5) \\ r = \dfrac{A\alpha[1-\beta(1-\alpha)]}{1+\beta\theta} \quad (16) \\ (1-\beta)(A(1-\alpha)-b) - \dfrac{r+\lambda+\beta\theta q(\theta)}{q(\theta)}\gamma_0 = 0 \quad (18) \\ u = \dfrac{\lambda}{\lambda+\theta q(\theta)} \quad (12) \end{cases}$$

The dichotomy depicted in the preceding game no longer appears. A system determines jointly equilibrium interest rate and tightness. These being solved, the return on capital allows to obtain the growth rate of the economy, this being higher, the higher the investment return. On the other hand, tightness on the labor market determines the equilibrium unemployment rate along the traditional Beveridge curve.

3. **Growth in two bargaining games**

Whereas in the first game a dichotomy appeared between labor market condition and return of capital, a link is established in case of sequential bargaining. After comparing the growth rate obtained, the influence of the bargaining power of worker on the labor market variables and the growth process will then be considered along these two lines.

Comparing growth rates

Investment irreversibility will impact the growth process and clearly depicts a lower growth rate:

$$\frac{1}{\nu}\left[\frac{A\alpha[1-\beta(1-\alpha)]}{1+\beta\theta}-\rho\right] < \frac{1}{\nu}[A\alpha-\rho]$$

This means that the rate of growth in case of investment irreversibility can be durably altered by the rent-seeking behaviour of the worker. By affecting the return of capital, workers play on the incentive to report consumption and hence on the growth rate. The structure of investment or of the employment contract may play a role.

Bargaining power of the worker and growth

In these two games, the influence of the bargaining power of worker also widely differs. In a perfect capital market, a higher bargaining power of the worker would move the job curve (Figure 2) to the right. As the wage increases due to the higher bargaining power of the worker, it is less profitable to offer vacancies in this framework. This then leads to a higher unemployment rate and a lower number of vacant jobs. In this game, the higher bargaining power only impacts labor market performance.

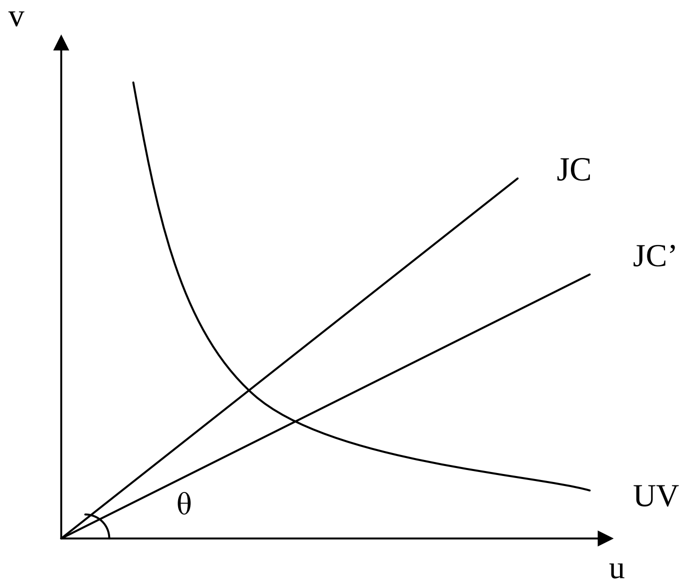

Fig. 2. The impact of an increased bargaining power on the labor market

In a case of investment irreversibility, a higher bargaining power for the worker will both affect employment and investment decisions as they both play on the capital equilibrium curve (KC) and the job creation curve in a case of investment irreversibility (JC_2). In this framework, what is the impact of a higher bargaining power of the worker ?

A higher bargaining power for the worker results in a lower tightness at a given interest rate. More bargaining power will increase the wage bargained and then decrease the opportunity to offer new vacancies. This then result in a move of the job creation curve (JC_2) to the left in Figure 3. On the other hand, a higher bargaining power will also result in a lower interest rate as the rent-seeking effect of the worker might be increased. This moves the capital equilibrium curve to the left.

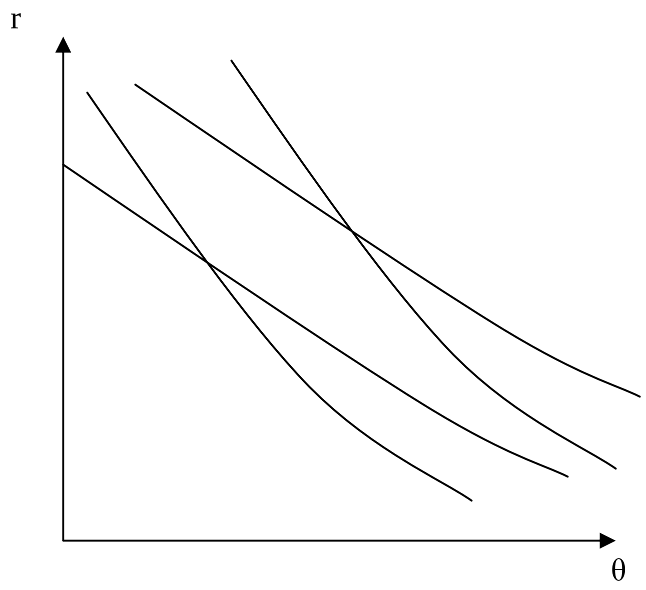

Fig. 3. Labor market and return of capital in a case of investment irreversibility

The result of this higher bargaining power is bound to lead to a lower tightness on the labor market but might be ambiguous on the interest rate.

- A higher bargaining power for the worker decreases the capital return as the rent-seeking effect is reinforced
- At the same time, this higher bargaining power diminishes tightness on the labor market. This then tends to limit the appropriation effect which itself tends to increase capital return.

In a case of sequential decisions, the worker tries to extract the quasi-rent of capital. This effect is higher, the higher the bargaining power of the worker and the tightness on the labor market. As a higher bargaining power tends to decrease tightness, the total effect appears as ambiguous.

4. Conclusion

Economic performances depend on the bargaining structure. Two structures were considered in this paper differentiated by the sequence of investment and wage decisions. In a perfect capital market case, growth is being determined separately from the labor market conditions and does not depend on the bargaining power of worker. An investment decision determined before bargaining occurs induces an integrate functioning of the model. First the growth rate obtained is lower than the one obtained without sequential decisions. Investment structure or bargaining structures therefore matter on the long run economic performance of an economy. We also show that the bargaining power of the worker does not exhibit a clear-cut effect on growth.

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