The Multiplier of Public Expenditure on Justice : The Case of Rental Litigation*

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Abstract

This paper investigates the impact of the legal system on the rental housing market in France. We argue that when the eviction procedure is relatively formalized to protect tenants and when the resources allocated to the enforcement of rental contracts are limited, a "rent-distrust spiral" arises. To insure themselves against the default risk of tenants, landlords charge a high rent, thus inducing a lot of involuntary rent non-payments. Since courts have limited resources to deal with rental conflicts, they become congested, which reinforces the perceived risk associated with investing in a rental unit for landlords. They get more distrustful and charge an even higher rent, which causes even more difficult financial circumstances for tenants and make them more distrustful too. We propose to neutralize the perverse effects of a procedure protective towards tenants by slightly raising the resources allocated to the legal system. Our model shows that the positive externalities caused by the behaviour of each agent trigger a multiplier effect which allows significative positive changes in the rental housing market, especially a lower rent, fewer rental conflicts and more trustful individuals.

Keywords: rental housing, legal system, multiplier effect.

JEL classification: K4, R31, D01, D63.

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1. Introduction

A recent survey from the French National Institute of Statistics has revealed that the number of French households having difficulties in paying their rents rose by 30% between 2002 and 2007. 1.372 million households claimed to have difficulties in paying their rents and charges in 2002, whereas they were 1.789 millions in 2006. According to this survey, 289 000 tenants had more than two month rent arrears in 2002, against 495 000 in 2006, i.e. an increase of 71%. When focusing on the private housing market, the situation is even tougher : the number of tenants having rent arrears rose by 96% between 2002 and 2007.

This evolution is first likely to result from an increase in rental prices. In the context of economic crisis and decreasing housing prices, households tend to wait before owning their dwelling and switch to the rental housing market, which may account for part of the increase in rents. Another explanation of the increasing number of defaulting tenants is the rise in charges, particularly in energy and water, which has worsened the financial circumstances of the poorest houselholds. Defaulting on rent payments can have dramatic consequences for them. According to the French Justice Ministry, 105 917 eviction court orders were pronounced in 2007, against 102 967 in 2006, i.e. an increase by 2.8% in only one year. There has been a 32% increase since 2000. The demand for forceful eviction has rapidly increased too, by 6.5% between 2006 and 2007, and by 24.6% since 2000.

This dramatic trend in growth of rent non-payments has drawn the attention of the public opinion and political leaders. Citizens generally feel very shocked when they see poor families defaulting on their rental payments as a result of unanticipated adverse financial shocks (economic crisis, loss of employment income, family problems...) and being subsequently threatened of eviction and deprived of a home. Among the solutions often advocated to deal with the housing issue is a better protection of tenants. However, this kind of response to the problem may be counterproductive because landlords may have incentives to behave inefficiently. As a matter of fact, many orders of eviction are not enforced, which means that a lot of landlords are unable to obtain the eviction of undesirable tenants and to recover forgone rents. Moreover, when a legal eviction decision is finally enforced, it may take a very long time (more than half of the total duration of the

eviction procedure[1]).

It is then worth noting that the rental relation is risky both for tenants and landlords. On the one hand, tenants face a risk of eviction in case they fail to pay the rent and a risk of potentially becoming homeless. On the other hand, landlords face a risk of being unable to recover their property and to be deprived of an important source of income. Wasmer (2008) described the vicious effects of a complicated and long eviction procedure on the rental housing market. A landlord may fail to obtain the termination of a lease and the eviction of a tenant if he/she does not fulfil very carefully every step of the procedure before the trial, during the trial, and even after an eviction has been ordered by a judge. Here is a brief summary of the different stages of the procedure[2]:

When a landlord observes that his/her tenant has defaulted on his/her rent payments, he/she must send him/her a legal act called "*commandement de payer*" established by a process server. If the tenant does not pay his/her debt off in the next two months, the landlord must engage a termination procedure. He/she must write an "*assignation*" delivered to the tenant by the intermediary of the process server at least fifteen days before the date of the hearing. A copy of this legal act must be sent to a representative of the state who will request a social inquiry examined by the judge. After the hearing, the judge takes a written and motivated decision and sends it to both parties (or their lawyers). The judge may decide that the lease will be maintained and may then grant the tenant a delay to pay off his/her debt (24 months to the maximum ; if the tenant does not fulfil the agenda established by the judge, the landlord can request his/her eviction). On the contrary, the judge may call for the eviction of the tenant. The eviction decision will be enforced after the landlord will have sent a "signification de jugement" via a process server. The tenant has then one month to contest the legal decision. The appealing procedure interrupts the eviction procedure except if the judge has called for the immediate application of

[1]Wasmer [2006], according to data published in Djankov et al.[2003]. To compare the average duration of eviction procedures in 109 countries, Djankov et al. (2003) have estimated the French average delay up to 226 days. Thus France ranks 43rd.

[2]The summary is made from three different articles referenced in Wasmer [2006]:

- Confédération Générale du Logement : http://www.cgl92.com/index.asp?ID=358
- FNAIM : http://www.fnaim.fr/bail-habitation/les-litiges-proprietaire-locataire.html
- Mon Immeuble : http://www.monimmeuble.com/interviews/expprocedureexpulsion.htm

the decision. In the latter case, the process server sends the tenant an order to leave the dwelling ("*commandement à quitter les lieux*"). The tenant has two months to do so and/or to request an extra 3-month to 3-year delay to find a new home.

If the tenant does not benefit from a delay and has not voluntarily left two months after the eviction decision has been ruled, a process server goes to the dwelling to ask the tenant to leave. If the tenant refuses, the process server writes a legal act to account for the difficulties encountered with the tenant and the landlord must request a recourse of public force to evict the tenant. In the next two months, a representative of the state asks for a social inquiry and a police report. The police must convince the tenant to leave. According to both the social services and the police inquiry, the representative of the state may either refuse a forceful eviction or accept it. In the latter case, the tenant is evicted in the presence of the superintendent and a locksmith. The process server gives the tenant an eviction statement listing his/her furniture and calling him/her to appear before the "juge de l'éxecution". The tenant has one month to get his/her furniture back in the dwelling. After this stage, the "*juge de l'éxecution*" might grant the tenant a delay again or decide that the tenant will not be allowed to recover his/her furniture. In case a forceful eviction has been refused twice, the landlord must request a compensation from the state. It is finally worth noticing that a French law prohibits any eviction of a tenant from the 15th of November to the 15th of March.

Several comments arise from the description of the eviction procedure. Indeed, it allows us to understand both the relatively small number of evictions compared to the number of eviction decisions and France ranking among countries having the longest eviction procedure (particularly due to enforcement delays). First, the procedure is made up of a large number of steps and a large number of protagonists have to be sollicited (judges, representatives of the state, process server...). It makes the procedure very complicated to fulfill and very costly (lawyers and process server fees, etc) for landlords. They have to be aware of their obligations and rights and also to be very carefull if they want to have a chance to regain access to their dwelling in case of rent non-payment. Then, the procedure is also time-consuming for landlords because each step is potentially associated with delays. Not only delays provided for by the law or decided by the judge but also delays due to

courts congestion because of the large number of cases received, combined with the lack of resources to deal with them. Finally, the eviction procedure is also random because it may never succeed. Indeed, if the tenant refuses to leave after an eviction decision by the judge, the last possibility for the landlord to repossess his/her property is to ask the bailiff for recourse to public force. But as a matter of fact, two requests for recourse to public force out of three are not allowed. In such a case, the tenant stays in the dwelling and the landlord asks the state for compensation. It is not a scarce situation according to the amount of money devoted by the French state each year in order to compensate landlords who have failed to obtain the eviction of a defaulting tenant: 48.4 million euros in 2000, 61.7 millions in 2003, 77.5 millions in 2005.

Generally speaking, the complexity of the procedure is clearly more likely to favour tenants. It seems quite natural and human to design mechanisms to protect tenants encountering difficult financial and social circumstances from an eviction, that is to say to protect them from a traumatizing event in any case. Nevertheless, landlords are also likely to seriously suffer from an aborted eviction procedure, particularly when the collected rents constitute a large part of their incomes. According to a survey from the Sénat (the French upper chamber), most of the landlords own no more than one or two dwellings. They have often saved money for several years before being able to buy a dwelling in order to let it and to constitute extra incomes or a complement to their retirement pensions. They also often use rental payments to pay off the loan they have taken out to buy the dwelling. Those vulnerable landlords are conscious of the risk they take by letting a dwelling because their tenants may default on their rental payments. Landlords inevitably face this risk because they are unable to check the tenants' characteristics affecting their probabilities of defaulting before siging out the lease. The perceived risk is reinforced if the law protects relatively more tenants than landlords. Moreover, it is exacerbated again if the congestion of the legal system due to the lack of resources compared to the huge number of cases received by courts causes delays which put landlords again at a disavantage. If landlords feel that they can rely neither on their tenants, nor on the legal system, which both voluntary (because of the formalism of the procedure) and involuntary (because of the

congestion of courts) favors tenants, they are likely to adopt insurance behaviors which will worsen the rental housing market dysfunctionings and the situation of the poorest tenants. The perverse effects that result from the inefficient enforcement of rental contracts have been highlighted in the literature.

The paper develops as follows. Section 2 discusses how our paper relates to the literature on housing market and legal procedures. Section 3 presents the model. Section 4 derives the market equilibrium. In section 6, the multiplier of expenditure of justice is developed. Section 6 concludes. Proofs of propositions are in the appendix unless statements are obvious from the text.

2. Related literature

By adapting some matching model of the labour market to the housing market, Wasmer [2005] has demonstrated that landlords tend to drasticly screen their potential tenants when they face information asymmetries and when the eviction procedure is costly for them. In some cases, they even may discriminate against applicants, although it is prohibited, according to criteria that they think are correlated to the tenants' probabilities of defaulting, for example race, religion or wealth. A concrete and legal way to screen tenants is to ask for very restricting guarantees such as more than two month security deposits, a minimum wage for the tenant or his/her guarantor.

Another solution adopted by landlords to escape the risk of being unable to separate from an undesirable tenant has been pointed out when landlords who refuse to screen *ex-ante* may prefer to leave their dwellings vacant. To illustrate that, it is worth mentioning that there were 18 600 [3] vacant dwellings in Paris in 2006, while the needs for dwellings was far from being met. This kind of behavior is very likely to contribute to worsen the housing crisis and to increase tensions in the rental market.

The lack of supply of rental units may also increase if investors perceive investment in a rental unit as too risky, and choose to give up buying one, thus preferring to take their investment choices out on less risky assets. Cuff and Marceau [2007] have shown

[3]The number of landlords charged for a tax on vacant dwellings (dwellings not occupied for more than two consecutive years, fit to live in, empty of furniture). The tax does not concern dwellings being vacant regardless of the willingness of landlords. INSEE, July 2008.

that an equilibrium with shortage can arise in the rental housing market if some tenants can unintentionally default on their rents particularly when it is costly for landlords to terminate a lease. The scarce supply of rental units compared to demand may lead to a high rental price and subsequently a high default risk. The authors have also demonstrated in this paper that the probability of failing to pay one's rent is growing with the rental price.

Finally, another part of the literature focusing on rental housing, and which is very relevant for our purpose, investigates the fact that landlords may insure themselves ex-ante by charging a high rent. When investing in a rental unit, a potential landlord expects to benefit from a net return as high as the return of the other assets. The risk associated with this kind of investment depends on the default risk of the tenant perceived by the landlord. The latter charges a all the higher rental price than the tenancy default risk perceived is high. It can be interpreted as if the landlord was asking a risk premium to insure against the default risk. Hence, tenants finally pay the price of the uncertainty faced by landlords in rental relationships. This intuition has been investigated by Casas-Arce and Saiz [2006] examining the strategic behaviour of landlords in the contractual relationship. Wasmer [2005] has demonstrated that the risk premium asked by landlords increases as the duration of the eviction procedure increases. Casas-Arce and Saiz [2006] have argued that if the eviction procedure is costly for landlords, existing tenants have a bargaining power to slow down the increase in rent. They may threaten landlords not to pay if the rent get too high. Landlords agree not to increase rents too much because they would face a high cost if they suied their tenants. However, landlords can anticipate this scenario and insure by charging high rental prices ex-ante, namely before signing out the lease.

Several remarks emerge from this literature. First, we notice that whereas eviction procedures and rules have been generally designed in order to protect tenants, it is actually likely to penalize them because landlords will transfer the risk to them. The poorest tenants may be particularly affected because they will be the first to be excluded from the rental market(if landlords screen them) or to pay high rents (if landlords increase them ex-ante) because they are associated with the highest perceived risks of defaulting. To put it another way, instead of regulating the rental housing sector and protecting tenants,

the eviction procedure will give landlords some incitation to adopt behaviors which will worsen both the inefficiency (because rental units are pathologically scarce and rental prices are pathologically high) and the inequity (because the poorest are at a disavantage) of the rental housing market. This point has to be related to the literature discussing the extent to which governments should interfer into private contractual relationships and pointing out the fact that bad rules or bad procedures (in terms of the incitations they give) are likely to have perverse effects and to worsen the functioning of the sector they are supposed to regulate[4].

Our paper also shares some features with the literature on beliefs or trust as a transmission channel from the legal system to the markets[5]. Considering rental housing, what is of great importance is that landlords are incited to charge higher rents because they perceive the eviction procedure as unreliable. By doing so, they are likely to plunge tenants into defaulting. This has two main consequences. First, tenants will feel more threatened and will tend to ask for more regulation, namely for a more protecting eviction procedure. Referring to the findings of Aghion et al. [2009], we can certainly argue that the more tenants will distrust others in general (and landlords in particular) the more they will ask for regulation. Of course, this is likely to exacerbate landlords' distrust the legal regime supposed to guarantee their property rights. Second, a procedure which deteriorates landlords' confidence and lead them to increase rental prices is likely to account for the bad functioning of the enforcement system. If there are more defaulting tenants because of the high level of rents, more cases will be received by courts. If courts have limited resources to cope with all those new cases, it is likely to create some congestion. It is then worth mentioning that the scarcity of resources allocated to the resolution of rental conflicts closely depends on the eviction procedure and on the landlords' perception of the abiliby of the procedure to protect their property rights. Anyway, if the judiciary system becomes congested and fails to deal with all the cases received, it may make the landlords even more distrusful, which will lead them to ask for even higher rents, worsening the perverse effects we have displayed.

[4]See for example Kerr [1978].
[5]See the literature referenced in Aghion et al. [2009].

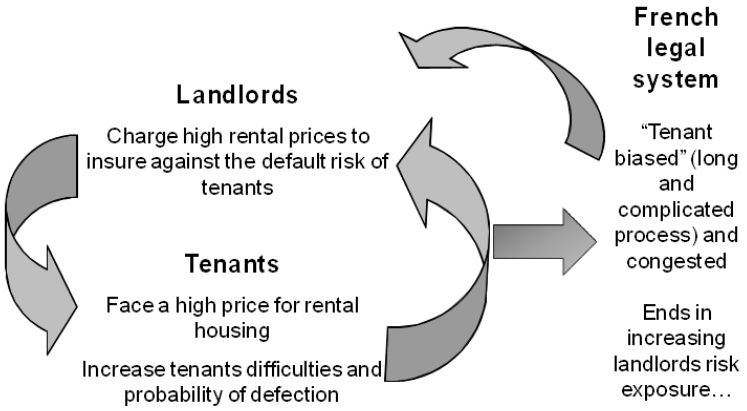

Figure 1. The rent-distrust spiral

Precisely, the purpose of our paper is to propose a new perspective on the problem of the vicious circle charaterized by more and more distrust, higher and higher rents, more and more evictions and more and more congested courts. How to get out of this trap?

At first sight, there are three ways to end the spiral described above. The first solution could be to implement a state control of the rental prices so as to prevent them from increasing beyond a maximal fixed rental price. But it appears not to be a good solution regarding the standard literature[6] showing that rent control is likely to exacerbate the imbalance between demand (which increases) and supply (which decreases) of rental units, and thus the tension and distrust between landlords and tenants[7].

Regarding the mechanisms involved in the rent-distrust spiral, another way to stop it would be to change the procedure, namely the law, to make it more favourable to landlords. But following Aghion et al. [2009], and given the fact that the current procedure seems to be evidence that French tenants are mostly distrustful, relaxing the regulation of rental evictions would bring about an increase in disorder, distrust and demand for new regulation.

The last track we have to think about to get rid of the bad functioning of the rental housing market is the one we explore in this paper. It consists in exogeneouly increasing the resources allocated to the resolution of rental disputes to limit the congestion of courts. We demonstrate that, thanks to a multiplier effect, slightly increasing those resources may

[6]See references in Cuff and Marceau [2007]

[7]Cuff and Marceau [2007] have qualified this result by taking the possiblity of tenancy default into account

induce significant positive changes in the rental housing market, especially a significant decrease in rental prices and a significant decrease in tenancy default rates.

Our intuition is that the multiplier effect happens through two complementary effects. A direct one or mechanic one : as the resources of the judiciary system increase, courts have a greater capacity to absorb the incoming cases. They may increase quantity and/or quality of dealt cases. The second effect is more indirect. It goes through the confidence of people in the legal system. More especially landlords in that case are likely to interpret the increase in the resources of the legal system as a signal that the society is ready to make an effort to protect their property rights. So they will become more trustfull and may adapt their economic behavior in that way. In other words, they are likely to charge smaller rents.

Roussey (2010) tests the role of trust as a transmission channel from the legal system to economic performance in a more general perspective.[8]

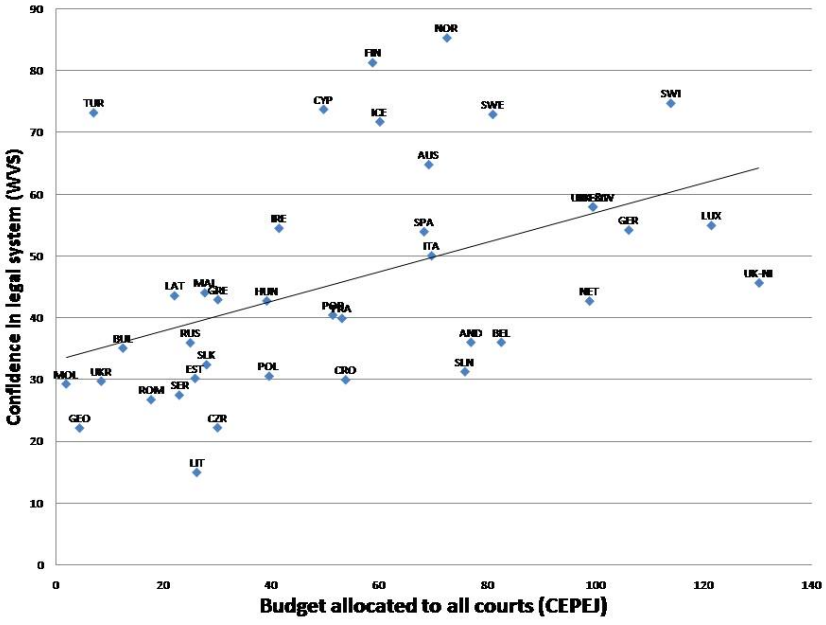

Figure 2. Budget of legal system and confidence in justice

[8]The data on the budgets of European legal systems are coming from the European Commission for the Efficiency of Justice (CEPEJ). Data about the confidence in legal system come from the World Value Survey (WVS).

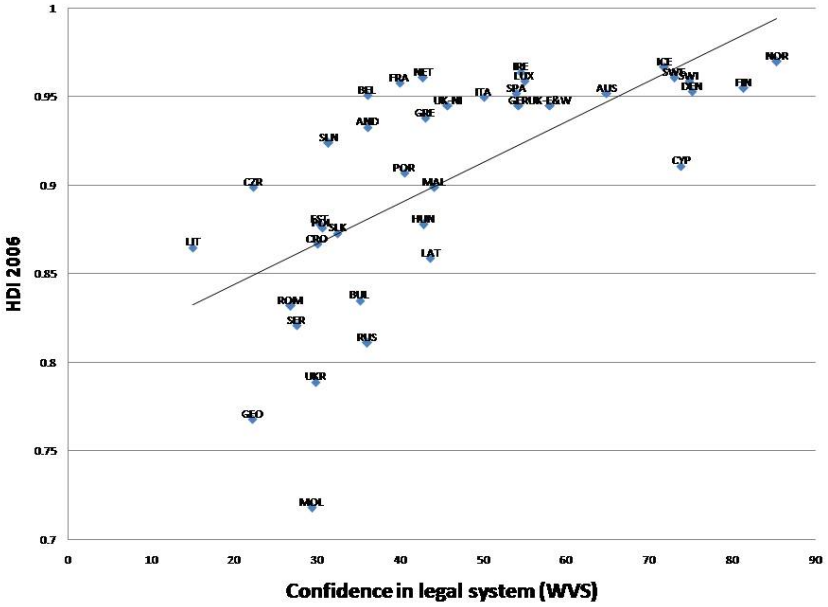

Figure 3. Confidence in justice and HDI

The first figure, displaying the budget allocated to courts and the confidence in justice in 34 countries, reveals a positive trend between the two variables. Countries with a relatively high budget of courts tend to display a high level of trust in the legal system. The second figure shows a positive trend between confidence in the legal system and a socio-economic index, the HDI. Those stylized facts, although they do not give any explanation about the causal mechanisms, encourage to consider trust as a possible missing link between legal institutions and economic performance. Moreover, the resources allocated to the legal system could be considered as a determinant of trust. The originality of this approach is precisely to give analytical evidence of this hypothesis by studying the interactions between landlords, tenants, the legal system and the impact of those interactions on the efficiency of the rental housing market.

3. The model

The model reports the behaviors of three categories of representative agents: landlords, tenants and the legal system. Following Cuff and Marceau [2007], tenants are assumed to be "passive agents", that is to say that they do not behave opportunistically. The main originality of our analysis, compared to earlier studies, is that the legal system plays as

a "rational agent" who has to make some choices while taking resources restraints and also social considerations[9] into account. We present a model with one period with all the agents acting simultaneously.

3.1. Tenants

We consider a rental market with a number N of tenants, indexed by $i \in (1, N)$. They differ in their income Y_i of density fonction $f(Y)$, which allows them to buy a composite good in quantity C_i and to pay a rent R. The price of the composit good is unity, so that the budget constraint of the individual i must satisfy

$$Y_i \geq C_i + R.$$

Like in Cuff and Marceau [2007], we assume that tenants are likely to non voluntary default on their rental payment in the event they undergo an adverse income shock s (loss of employment income, medical problems or family breakdows for example) which reduces incomes of a fraction $(1 - s)$ with s running from 0 to 1. We assume that tenants could not anticipate the shock before signing the lease and that they cannot subscribe an insurance to protect themselves against it. This is why, when this negative income shock is realized, some tenants are forced to default on their rent R to ensure that they will satisfy a minimal consuption level C_0 of the composit good needed for survival. It is the case for tenant i if

$$sY_i < R + C_0.$$

Tenant i' probability q_i of defaulting then satisfies

$$q_i = Pr[sY_i - C_0 < R].$$

Hence the expected probability q of default is given by

$$q = \int_0^{\frac{R+C_0}{s}} f(Y)dY = F(\frac{R + C_0}{s}).$$

[9] Those social considerations are provided for by the law, see pages 3-4.

To simplify, we assume that $F(\frac{R+C_0}{s}) = \Phi(R)$. Thus the probability of default q is

$$q = \Phi(R). \tag{1}$$

The probability of default increases as R or C_0 increase and decreases as Y or s increase.

Result 1 :

$$\frac{\partial q}{\partial R} > 0$$

3.2. The legal system

According to the French eviction procedure described in section 1, when a landlord observes that his/her tenant failed to pay his/her rent, he/she refers the matter to a court to ask for the eviction of the tenant and recover forgone rent. We suppose that landlords never wrongly refer a matter to a court. It seems quite a relevant assumption considering the effort that landlords have to make to see the eviction procedure through to the end. It is so complicated and costly that it deters them from going to court if they do not really suffer rental non-payment. A consequence of this assumption is that it is not possible that a judge orders the eviction of a tenant who used to pay his/her rent. In other words there is no possibility of type I judicial error.

We assume that the legal system includes all the protagonists intervening in the eviction procedure, notably social workers who assess the social and financial situation of tenants, judges who can order the eviction of a tenant or compensate landlords whose tenants are not evicted, and representatives of the state who can order a forceful eviction if tenants do not leave on their own. All the agents who make up the legal system are assumed to be concerned with two main objectives, both reflecting their propensity to behave benevolently i.e. to maximize the social welfare, as argued in the seminal Posnerian analysis.

First, judges do their best to deal with a maximal number of files, namely of landlords' requests. To put it another way, judges expect to be able to examine each case they receive to prevent courts from being congested. Actually it may be a big challenge to take up in the sense that the resources dedicated to the legal system are fixed during the period considered.

Following the previous subsection, the legal system receives qN new cases, which correspond to the number of defaulting tenants. Those cases have to be tackled with A resources available. The unit cost of examining a case is k, thus V cases will be able to be examined during the period.

The optimization program of the legal system is then the following

$$\max \quad p_J = \frac{V}{qN}$$

$$\text{subject to} \quad Vk \leq A$$

with p_J denoting the probability that the legal system will examine landlords' requests. It is immediate that the probability that a matter will be judged within the period according to the number of rental conflicts, the level of resources allocated to the resolution of rental matter and the unit cost of examining a case is

$$p_J = \frac{A}{kqN}.$$

We note that if the number N of defaulting tenants increases but the amount of resources A available to deal with rental conflicts is fixed, the probability that a case will be examined in the period necessarily decreases and some congestion may arise. This framework and finding are closed to some models of crime (Sah [1991]) or tax evasion (Galbiati and Zanella [2008]) which consider some authorities of control or detection with limited resources. Those models show that the probability of detection of the individuals decreases if more people commit crimes or evade taxes while only a fix number of individuals can be controled. However, the difference with our analysis lies in the fact that those models establish that, since the probability of detection decreases, individuals are more incited to commit crimes. It is not the case in our model because tenants are supposed to default non voluntary. [10]

The second mission of the legal system is to deliver a judgement after having exam-

[10] We note that if we had assumed that they could default opportunistically, the congestion phenomenon would be exacerbated because even the tenants who would be able to pay their rent would be incitated to default, since they have a low probability of being judged.

ined a matter. We assume that, to do so, the protagonists of the legal system take a social constraint into account. If it was not the case, since we have assumed that landlords never wrongly refer a matter to a court, the right decision would be to always order the eviction of the tenant. If an eviction decision is always valuable by a landlord facing rent non-payment, it is also true that it will get the evicted tenant into trouble especially if he/she has a low income. For each matter examined, some agents of the legal system investigate the social and financial circumstances faced by the tenant. If the inquiry reveals that the tenant is in a bad situation, the latter is likely to benefit from a lenient decision from the judge who may choose to maintain him/her in the place.

The a priori cost of evicting tenant i, determined after the social inquiry, is denoted by L. It depends on the tenant i' income Y_i. The benefit for a landlord of an eviction decision according to the value W of a dwelling is denoted by $B(W)$.

By assumption,

$$\frac{\partial L(Y_i)}{\partial Y_i} < 0^{11} \quad \text{and} \quad \frac{\partial B(W)}{\partial W} > 0 \quad .$$

The social net cost of an eviction $L_S(Y_i, W)$ is equal to the difference between the *a priori* cost and *a priori* benefit from an eviction decision

$$L_S(Y_i, W) = L(Y_i) - B(W).$$

If a landlord cannot repossess his/her property, he will benefit from a lump allowance D to compensate. Thus, if the social cost of an eviction is lower than D, the judge calls for the eviction of the tenant whereas if it is higher than D, the judge chooses that the tenant will be allowed to stay in the dwelling and the landlord will be compensated.

$$p_E = Pr[L_S(Y_i, W) < D] = G(D)$$

with p_E the conditional probability for landlords (given the case has been examined by a judge) of repossessing their property, and G the cumulative distribution function of $L_S(Y_i, W)$. The non-conditional probability p that landlords facing non-payment of rents

[11] Individuals are more likely to have difficulties in finding a new dwelling after an eviction if they have low incomes. Hence an eviction decision is more costly for low income individuals.

will be able to repossess their dwellings is the product of p_J and p_E

$$p = p_J.p_E = \frac{A.G(D)}{qkN}. \tag{2}$$

This probability p decreases as q, k or N increase, increases as A or $G(D)$ increase (thus as D, Y or W increase).

Result 2 :

$$\frac{\partial p}{\partial A} > 0 \tag{a}$$

$$\frac{\partial p}{\partial q} < 0 \tag{b}$$

3.3. Landlords

Landlords are assumed to be all identical. They own one dwelling of value W (the purchase price) and thus contract with one tenant. They do not know the quality of their tenant, that is to say his/her income Y, but they know the average probability of default q, which they take as given (exogeneous). We are in the short term: the landlords are supposed to have already buy the dwelling. They can not answer to the risk by giving up buying one. The decision that they have to make is how high they will charge the rent R. They cannot discriminate among potential tenants, because it is illegal or they have no mean to do so. We also suppose that they cannot leave their dwelling vacant. Thus the rent they will charge is the only way for them to insure against a default of their tenant and of the legal system. Moreover, they know the probability of an eviction of their defaulting tenant if they go to court p. We will consider that an eviction decision results in the possibility for the landlord to recover the forgone rent R. We also could consider that the landlord does not recover the whole non-paid rent, because of a judicial unrecoverable cost, but it would make the notation heavier without changing the conclusion. The result we display would just be even stronger.

Landlords make a trade-off between yield and risk and determine the rental price R

they will charge so as to satisfy

$$rW = (1-q)R + qpR$$

by taking q and p as given.

Thus the rent charged is

$$R = \frac{rW}{(1-q)+qp} \tag{3}$$

with W the purchase cost of a rental unit, and r the interest rate .

Result 3 :

$$\frac{\partial R}{\partial p} = -\frac{rWq}{((1-q)+qp)^2} < 0 \tag{a}$$

$$\frac{\partial R}{\partial q} = -\frac{rW(p-1)}{((1-q)+qp)^2} > 0 \quad car \quad p < 1 \tag{b}$$

$$\frac{\partial^2 R}{\partial q \partial p} < 0 \quad \textbf{(see appendix for details)} \tag{c}$$

These findings are consistent with those of Wasmer [2005] et Casas-Arce et Saiz [2006].

4. Rental market equilibrium

The market equilibrium can be determined as the solution of the following set of equations

$$q = \Phi(R) \tag{4}$$

$$p = \frac{A.G(D)}{kqN} \tag{5}$$

$$R = \frac{rW}{(1-q)+qp}. \tag{6}$$

The previous set of equations is equivalent to the following one

$$q = \Phi(R) \tag{7}$$

$$p = \frac{A.G(D)}{kqN} \tag{8}$$

$$R = \frac{rW}{1-\Phi(R)+\frac{A.G(D)}{kN}}. \tag{9}$$

The third equation admits a solution, denoted R^*. To see that, call $M(R)$ the right hand side of equation 9

$$M(R) = \frac{rW}{1 - \Phi(R) + \frac{A.G(D)}{kN}}^{12}.$$

Since Φ increases as R increases, M increases as R increases too.

Moreover, we have

$$M(0) = \frac{rW}{1 + \frac{A.G(D)}{kN}} \quad \text{and} \quad M(\infty) = \frac{rW}{\frac{A.G(D)}{kN}} \quad \text{hence} \quad M(0) < M(\infty).$$

Thus, the curve M is growing on the interval $[0; +\infty]$, and is limited on this interval.

Then, a solution R^* to the equation $R = M(R)$ does exist and satisfies

$$R^* = \frac{rW}{1 - \Phi(R^*) + \frac{A.G(D)}{kN}}.$$

Replacing R by R^* in equations 7 and 8, we obtain

$$q^* = \Phi(R^*) \tag{10}$$

$$\text{and } p^* = \frac{A.G(D)}{\Phi(R^*)kN}. \tag{11}$$

The triplet (q^*, p^*, R^*) (with q, p and R which are now endogeneous variables) is then the solution of the equation system, according to exogeneous parameters (A, G, k, N, r, W).

[12]The denominator is never nil. We should have for that $\Phi(R)$ equal to $1+(A.G(D)/kN)$. It is impossible because $\Phi(R)$ runs from 0 to 1. Moreover, it is positive.

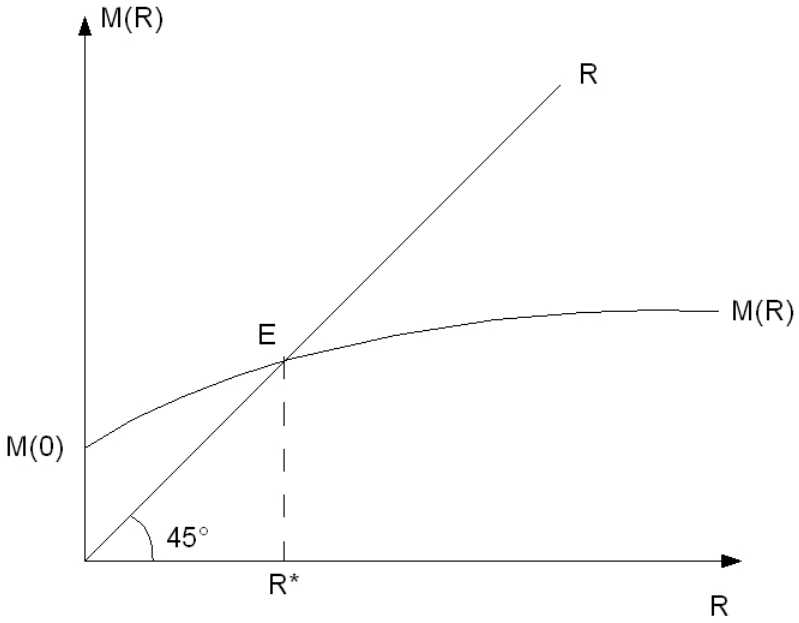

Figure 4. Rental market equilibrium

5. The Multiplier of Expenditure on Justice

We argue that the market equilibrium is likely to be significantly modified when an exogeneous parameter changes.

Let assume an increase in A.

When resources are slightly increased :

1. $\frac{\partial p}{\partial A} > 0$ from result 2.a.

   When resources A increase but the number of conflicts between landlords and tenants N stays the same, more resources can be dedicated to each matter, thus increasing the probability p. The risk associated with letting a rental unit then decreases for landlords: in case tenants default on their rent payment, landlords can more easily obtain the repossession of their property.

2. $\frac{\partial R}{\partial p} < 0$ from result 3.a.

   Since the contractual relation gets less risky for landlords, they agree to charge a lower rental price R.

3. $\frac{\partial q}{\partial R} > 0$ from result 1.

   As rent R decreases, tenants are less likely to default in the event of an adverse income shock.

4. A smaller tenants' probability of defaulting has a double effect :

   - A positive effect on landlords' behaviour, $\frac{\partial R}{\partial q} > 0$ from result 3.b.

     If the risk of defaulting decreases, landlords agree again to decrease the level of rental price R.

   - A positive effect on the legal system, $\frac{\partial p}{\partial q} < 0$ from result 2.b.

     By assumption, an increase in the legal system resources leads indirectly to a decrease in the number of cases received by judges, via a decrease in the tenants' probability of defaulting. Thus, p increases not only because of an increase in A but also because of a decrease in kqN (from equation 2).

5. As p increases, landlords agree again to reduce the rental price R, which subsequently leads to a new decrease in the tenants' probability of defaulting q, an increase in the landlords' probability p of repossessing their properties in case their tenant stops paying the rent, and then a new decrease in the rent charged by landlords R, and so on...

Details of the dynamic process are in the appendix.

Intuition leads us to suppose that the effect of the variation in one variable on another is smaller and smaller, so that the system is likely to converge towards a new rental market equilibrium. From section 4, a new equilibrium must be associated with the new value of the exogeneous parameter A. This new equilibrium is characterized by a lower rental price than in the initial situation, a lower tenant probability of defaulting and an higher probability for landlords to repossess their dwelling in the event of non-payment of rent.

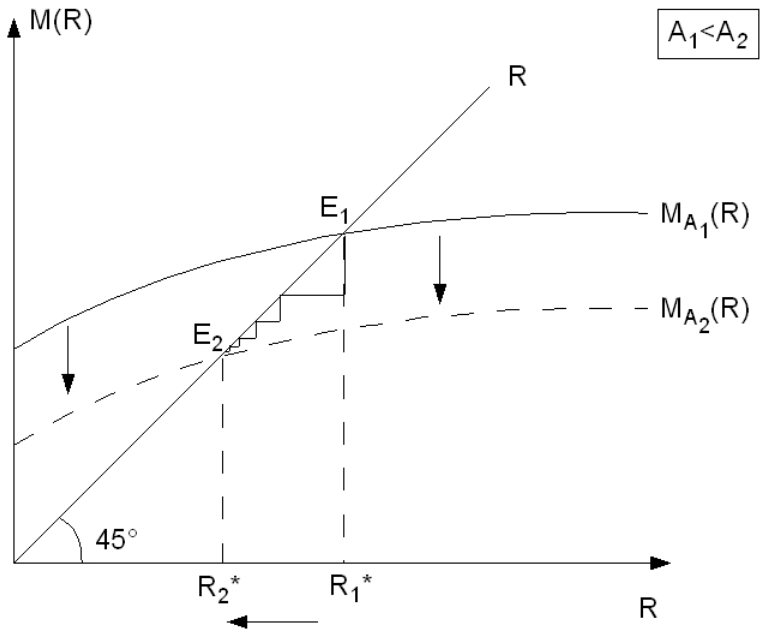

Figure 5. The multiplier of expenditure on justice

Graphically, the transition from a level of judiciary resources A_1 to a higher level A_2 leads to a translation of the curve M to the lower part of the graph. From the equilibrium E_1^*, we go to the equilibrium E_2^* satisfying $R_2^* < R_1^*$.

The new rental market equilibrium resulting from a *slight* raise in expenditure on justice is likely to be associated with a *significantly* lower rental price than in the initial situation thanks to a multiplier effect. A decrease in rent may lead to a decrease in the number of tenants failing to pay their rent and thus a decrease in the number of evictions, which is socially more desirable.

6. Conclusion

One important result of the model is to introduce a possible link between Djankov et al. [2003] and Aghion et al. [2009]. Djankov et al. [2003] have shown that France is characterized by a relatively formalized eviction procedure compared to other countries. By studying more precisely the French eviction procedure, we have found that its formalism favours the protection of tenants. The eviction procedure seems to aim at bringing equity more than efficiency. The rental relationship is thought to be unbalanced in disfavour of

vulnerable tenants who depend on landlords to meet a need as crucial as a home. This is why the procedure is designed to protect them. Aghion et al. [2009] have displayed the fact that people tend to distrust each other and their institutions especially justice. They have also argued that when individuals are relatively distrusful they tend to ask for more state intervention and regulation, even if it is not efficient. By applying this reasoning to the rental housing sector, we may have another piece of explanation to the formalized eviction procedure.

We have given evidence that a strict eviction procedure may induce perverse effects and even have effects which are the opposit of those expected : an increase in rent, in the number of defaulting tenants, a congestion of courts, an increase in the level of distrust towards each other and judiciary institutions. For many scholars, a possible remedy consists in changing rules to make them softer when they are to strict, and when they give bad incitations and induce bad behaviours. But by taking into account beliefs and values to explain the "demand" for legal rules, one can realize that is likely not necessary an efficient solution to change the norms because it may cause a social disorder (i.e. people may be more distrustful towards each other and ask for re-regulation as in Aghion et al. [2009]).

Another way to neutralize the perverse effects which are due to a formalized eviction procedure could be a (limited) growth of resources allocated to the judiciary system. Thanks to positive externalities, a multiplier effect arises and a small rise in resources is likely to have significant positive effects on courts (less congestioned), confidence of parties and finally on the rental housing market. Thus it may be possible to keep a relatively formalized eviction procedure, in order to guarantee the protection of tenants without falling into a negative spiral, by dedicated a few more means to courts.

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Appendix

Section 3.3 : proof of result 3.c

$$
\begin{aligned}
R &= \frac{rW}{(1-q)+qp)} \\
\frac{\partial R}{\partial p} &= -\frac{rWq}{((1-q)+qp)^2} \\
\frac{\partial^2 R}{\partial p \partial q} &= -rW\frac{(1-q+qp)^2 - 2q(p-1)(1-q+qp)}{(1-q+qp)^4} \\
\frac{\partial^2 R}{\partial p \partial q} &= -\frac{rW}{(1-q+qp)^4}(1-q^2(1-p)^2) < 0
\end{aligned}
$$

Section 5 : The Multiplier of Expenditure on Justice

Consider an initial equilibrium $E_1(q_1^*, p_1^*, R_1^*)$ associated with a level of justice expenditure A_1. Parameter A is infinitesimaly increased.

$A_2 = A_1 + \triangle A \quad \text{with} \quad \triangle A > 0$

$p_2 = p_1 + \triangle p \quad \text{with} \quad \triangle p = \dfrac{\triangle A * G(D)}{kq_1N} > 0$

$R_2 = R_1 + \triangle R \quad \text{with} \quad \triangle R = -\dfrac{rWq_1}{(1-q_1+q_1p_1)^2}.\triangle p = -\dfrac{rWq_1}{(1-q_1+q_1p_1)^2}.\dfrac{\triangle A.G(D)}{kq_1N} < 0$

$q_2 = q_1 + \triangle q \quad \text{with} \quad \triangle q = \Phi'(R_1).\triangle R = -\dfrac{\Phi'(R_1)rW.G(D)}{(1-q_1+q_1p_1)^2kN}.\triangle A < 0$

$R_3 = R_2 + (\triangle R)' \quad \text{with} \quad (\triangle R)' = -\dfrac{rW}{(1-q_2+q_2p_2)^2}(p_2-1).\triangle q < 0$

$p_3 = p_2 + (\triangle p)' \quad \text{with} \quad (\triangle p)' = -\dfrac{A.G(D)}{q_2^2kN}.\triangle q > 0$

The decrease in R induces a decrease in q, which causes a new increase in p and a decrease in R and so on...

The rental market converges toward a new equilibrium $E_2(q_2^*, p_2^*, R_2^*)$ associated with A_2 such as $q_2^* < q_1^*$, $p_2^* > p_1^*$ and $R_2^* < R_1^*$.