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and the Occurrence of Inactivity Traps:
Some Evidence on the French Labor Market**

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Abstract

The aim of this paper is to suggest an economic modeling of labor force participation microeconomic decisions in an inter-temporal framework characterized by the occurrence of a basic incomes/minimum wage scheme. We use the observed probabilities of transitions between different kind of jobs on the French labor market, for different categories of workers (age, sex, skills etc.), and the observed incomes associated to each kind of job, to identify the categories of workers that face inactivity or poverty trap problems. The results show (i) the occurrence of important inequalities between workers concerning the "inter-temporal" return of work and, consequently, the incentive to work, (ii) no obvious link between the occurrence of a static trap (work does not pay in the short run) and incentive to work problems. Moreover the results stress that unskilled male workers do have interest to accept jobs that do not pay, while skilled male workers do not have interest to accept jobs that do pay.

JEL : J21, J22, J31, J32, J62

Keywords : Minimum Income, Poverty Traps, Jobs Transitions

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1. Introduction

Theoretical and applied studies devoted to the analysis of incentives to work problems, and the corresponding economic policy recommendations, essentially relies on a static approach (see for example Laroque & Salanié [2000]). We suggested, in a previous working-paper – Laurent & L'Horty [2002b], presented at USBIG network meeting 2002 – a dynamic evaluation of the benefits associated to job acceptance, that takes into account the inter-temporal nature of the computations made by unemployed workers and the impact of current job acceptance on future jobs perspectives. In such a dynamic framework, which includes workers' mobility between jobs, we showed that a low monetary gain (even negative) associated to the come back to employment is neither a necessary, nor a sufficient, condition to explain the existence of a low level of labor force participation originated in incentive problems.

The aim of the present paper is to suggest an economic modeling of labor force participation microeconomic decisions in an inter-temporal framework characterized by the occurrence of a basic income/minimum wage schedule. We use the observed probabilities of transitions between different kind of jobs on the French labor market, for different categories of workers (age, sex, skills etc.), and the observed incomes associated to each kind of job, to identify the categories of workers that face inactivity or poverty trap problems.

The empirical results of the paper allow us to stress that there is no obvious link between the occurrence of a static trap (work does not pay immediately) linked to the minimum income scheme on one side and, on the other side, incentives to works and labor force participation problems ; in other words : (i) yes, minimum income *can* create a static trap, but (ii) no, this does not *necessary* create incentive to work problems. The labor force participation argument generally advanced against basic income schemes is thus weaker than expected.

The second part of the paper recalls the general framework and addresses some basic unsolved questions to the standard static approach of labor force participation ; the third part develop the dynamic modeling, while the fourth section emphasized the role play by the main economic parameters. Eventually the last part presents some empirical results on the French labor market and associated comments.

2. General framework and questions

2.1. Static analysis

From a static viewpoint, labor supply depends on the marginal disutility of work and the earnings increase associated with a transition between two states on the labor market : inactivity and employment, or part-time and full-time work, for example.

An individual who is offered to work more – going from non-employment to part-time employment, for example – compares what he/she will gain in refusing the offer with what he/she will gain in accepting ; the result of this comparison depends on the difference between earnings associated to each of the two situations.

In such a framework, if the difference between net incomes associated with high and low activity levels is small relatively to the marginal disutility of work, we can say that one get an incentive to work problem : work simply does not pay enough to incite an unemployed worker to accept a job offer.

2.2. French minimum income /minimum wage mechanism

This section propose a quick overview of the three main components of the French minimum income/minimum wage schedule :

National Minimum Income (Rmi)

	Rmi / month
Single	€ 405
Couple	€ 405 + 50%= € 607
Couple with n kids	€ 607 + $n \times 20\%$

The main point here is that, in the long run, one have a perfect substitution between Minimum Income and wages, meaning that + 1 € get from wage implies -1 € from Rmi.

Local monetary assistance (Lma ; restricted to Rmi recipients and locally funded : town, county)

Depends mainly of the town, but in average :

	Lma / month
Single	€ 136
Couple	€ 150
Couple, 1 kid	€ 300
Couple, 2 kids	€ 370
Couple, 3 kids	€ 450

Minimum Wage (Smic) is € 5.4 / hour (net income), thus :

Full time Job (39h/week) => € 969 / month

Part time Jobs (20h/week) => € 484 / month

One notices immediately that a single unemployed with Rmi and local aids earns € 541/month *i.e.* more than a 20h/week part time job worker ; in this case, such individuals should refuse part-time job offers and, consequently, one get an incentive to work problem : low skills/low wages unemployed workers are *voluntary* unemployed because they prefer to get Rmi than part-time jobs ; workers are “trapped” :

- (i) as work “does not pay” they prefer to remain unemployed with Rmi, but
- (ii) long term unemployment imply loss of ability and a decreasing probability to find a better job that would pay

It is the so called “inactivity” or “poverty trap” : people does not accept jobs that do not pay enough, progressively getting trapped into long run unemployment with decreasing

probabilities to find better jobs – due to loss of ability – ending with very low level of qualification and minimum income. Following the standard static economic analysis, depicted before, to solve this incentive-poverty trap problem one need to lower the minimum income level...to “make work pay”.

We will see below that the main limit of this approach is that it drives us to think in a purely static framework – where the problem of incentive to work is restricted to a comparison of the immediate gains associated with work and non-work – whereas consumption/leisure choices are by nature inter-temporal.

2.3. Questioning the data : some basic questions for the static analysis

The 1998 INSEE survey on minimum income recipients (Rmi) provides some elements that question the so-called standard static analysis.

(i) First of all, nearly a third of beneficiaries of the minimum income support, who return to work, claim to have no financial gain : 12.1% claim to be losing, 20.4% claim they are not gaining anything.

(ii) Secondly, although the beneficiaries of the minimum income support generally claim that they are looking for a minimum wage full-time job, a majority have accepted a part-time job : among the 26% of January 1997 minimum income recipients who held employment one year latter, nearly two-thirds have a part-time job (in 90% of cases this part time job is “involuntary”, and people would strictly prefer to work more).

(iii) Finally 28% of those who did receive the National Minimum Income and now have a job, qualify it as “*a first step towards a real job*” (33% claim it is “*a job while waiting for something better*” and 39% claim that it is a “*real job*”).

If one adds to the above observations, the fact that we observed in France, an important raise of the share of low-wage part time jobs in global employment, that shifted from 10% to 15% trough the 90’s, one can complaint that the standard analysis does not give any answers to the two following basic economic questions :

- from the early 90’s we had in France a important growth of low-wage part time job : if these jobs do not pay...why do some people accept such jobs ?
- it seems, from the Annual National Minimum Income (Rmi) Survey, that some workers accept jobs that do not pay, but others do not : why do “identical” rational utility maximizing workers make different decisions ?

The main goal of this paper, is to suggest an economic (non-heterodox) solution to this French labor market puzzle ; the idea is that people are forward looking : if some Rmi-unemployed workers accept “low wage part-time jobs” that do not pay immediately, it is because they think that such a decision will pay... in the future; if some other people do not accept the same jobs it is because they think that it will never pay in the future. Testing this hypothesis, imply to break with the standard *static* analysis to develop a *dynamic* inter-temporal analysis of the “incentive to work” problem : this is the aim of the paper.

3. Dynamic analysis

3.1. General framework

Following the static analysis, in order to accept *versus* refuse a job offer, an unemployed worker only considers the immediate benefit of the job *i.e.* the difference between the corresponding wage and the sum of monetary subsidies lost by accepting the job – National Minimum Income (Rmi) plus Local Monetary Assistance .

A dynamic analysis suggests that, to accept *versus* refuse a job offer, a worker will not only take into consideration the immediate benefit of the job, but also the fact that job tenure increases the probability of access to “better” jobs tomorrow and, therefore, implies higher future expected wages.

The shift from a static approach of the incentive to work problem, to a dynamic one, highlines the importance of the trade-off between current and futures incomes :

- a negative immediate monetary gain, associated for example with a part-time job acceptance, can be over-compensated by very favorable jobs perspectives ; in this case, unemployment incomes are higher than employment ones (static trap), but this gap does not imply any incentive to work problem *i.e.* no dynamic trap : work does not pay in the short run, but pays in the long run
- symmetrically a strictly positive immediate gain associated with a part-time job acceptance can be over-compensated by unfavorable jobs perspectives : in this case one does not have any static trap but a dynamic one and incentive problems : work pays immediately, but does not pay in the long run

The main interest of such a dynamic approach is that it still includes all the components of the static approach, but adds new ones linked to the adoption of an inter-temporal viewpoint : immediate – positive or negative – work benefits and perspectives for future improvements (accumulation of human capital, increasing probability of access to a “better” job, increasing rights to retirement benefits, etc.) are all taken into consideration and, consequently, a low immediate monetary gain can be compensated by favorable wages perspectives.

Turning back to our incentive to work problem, the dynamic analysis suggested above, mainly *breaks the “classic” link between static trap and work incentive problems, and claims that a positive static trap is not necessary damaging in terms of incentive to work.*

As a first approximation, one can identify five main components that will play a key role in the trade-off computations made by an unemployed worker that faces, for example, a part-time job offer :

- the total amount of net incomes earned if remaining unemployed
- the immediate wage associated to the job
- the probabilities to get some better jobs in the future
- the wages associated to these future jobs
- the agent’s preference rate for the present

The last parameter gives the discount rate he/she uses in his/her arbitrage ; the higher the preference rate for the present, the lower the weight attached to future incomes, the higher the weigh attached to immediate earnings *i.e.* the higher the discount rate ¹.

3.2. Modelling

Let us consider a single Rmi unemployed worker facing a part-time job offer (let's say 20 hours/week) that does not pay and who need to make a decision *i.e.* to choose between two strategies – accept *vs* refuse – concerning the job offer ; the problem for him is to compare, not only the immediate earnings these strategies bring about, but rather the present values of the flows of incomes – current and future – associated with the two strategies (*i.e.* the sums of present and expected discounted incomes).

To make this calculus, the agent need to know the probabilities to access to other jobs in the future, conditioned on the strategy he chooses immediately *i.e.* all the possible transitions on the labor market, associated with a decision taken in the current period. For example, and to make it clear, a Rmi unemployed worker facing a part-time job offer, in order to make his decision to accept *vs* refuse the job, will consider the probability to get a full-time lucrative job if he accepts the part-time job, and will compare it to the same probability if he refuses the job offer ; if the former probability is high enough relatively to the latter, he can accept the part-time job despite the fact that it does not pay immediately.

Such probabilities, called transitions probabilities, give a summary of internal labor market flows : from unemployment to part-time or full-time employment, from part-time to full-time employment or unemployment etc. Formally, these transitions can be summarized by a single matrix that gives all the probabilities of transitions between different situations on the labor market : full-time job, part-time job, unemployment. In the example below, we distinguished unemployment and three employment situations : full-time job (more than 35 hours/week), long part-time jobs (between 20 hours and 35 hours/week) and short part-time jobs (less than 20 hours/week) ; the matrix gives all the probabilities to switch, during one period of time, from one situation to any other one.

Situation in date $T+1$ Situation in date T	Job ≥ 35 h	20h \leq Job < 35 h	Job < 20 h	Unemployment
Job ≥ 35 h	0.75	0.15	0.07	0.03
20h \leq Job < 35 h	0.35	0.50	0.10	0.05
Job < 20 h	0.32	0.20	0.38	0.10
Unemployment	0.15	0.18	0.30	0.37

One can see on the table above, that a present unemployed worker, will remain unemployed next year with a probability 0.37, but will find a full-time job with probability 0.15 and a short part-time job with probability 0,3 ; in this example, it is easier for a worker that already get a short part time job, to find a full-time job (probability is 0.32 against 0.15), even if this worker

¹ If one note r the discount rate, or the preference rate for the present, that belong to $]0, \infty[$, the present value of $x \text{ €}$ earned in t years, is $x/(1+r)^t$.

can turn back to unemployment with probability 0.1. Of course the sum of probabilities over a whole line is equal to unity.

Let us now turn to the monthly earnings associated to each possible situation on the labor market ; they can be summarized by a vector that gives the average earnings in each case. For example if the average weekly labor time for long part-time job workers is 24 hours – meaning that average daily labor time is 24/5 h – and that people belonging to this category are paid in average 20% above the minimum income, the monthly (23 days) corresponding wage will be :

$$(24h / 5) \times [5.4\text{€} \times (1 + 20\%)] \times 23 = 715 \text{ €}$$

A similar computation gives the monthly wage for full-time job workers, while unemployed single earnings correspond to the sum of National Minimum Income and Local Monetary Assistance *i.e.* € 541 as seen before.

For short part-time job workers, we need to distinguish two cases :

- (i) Let us assume first, and for example, that average weekly labor time for this kind of workers is 15 hours and that people belonging to this category are paid, as before, in average 20% above the minimum income ; a calculus similar to the previous one gives immediately an average earning of €447 ; as this income is greater than the National Minimum Income (€405), such workers will not perceive any euros from National Minimum Income policy nor from Local Monetary Assistance (which is for National Minimum Income recipients only). The average earnings of this category of workers is thus €447.
- (ii) Let us now assume that average weekly labor time for this kind of workers is no longer 15 hours, but rather 10 hours. A new calculus give immediately a monthly average income of €298 ; as this amount stands under the National Minimum Income, this kind of workers will get (i) a €107 national subsidy to drive them to the €405 level of the National Minimum Income, (ii) will be elected for Local Monetary Assistance programs adding thus an average of € 136 to their income, that reaches then €541.

The situation depicted below correspond to case (i) above :

Job \geq 35 h	R_{FT}	€ 1132
20h \leq Job < 35h	R_{LT}	€ 715
Job < 20h	R_{ST}	€ 447
Unemployment	R_U	€ 541

One can notice, on this simple example, the occurrence of a strictly positive static trap, meaning that work does not pay, at least immediately : $R_U - R_{ST} = \text{€}94 > 0$. The important question is thus following one : does work pay in the long run ? Does an unemployed worker has interest to accept a short part-time job that does not pay immediately, because it will pay in the long run through the interplay of transitions on the labor market. If the answer is yes, we do not have any incentive problem or dynamic trap, despite the occurrence of a static trap.

The transitions' matrix and the corresponding earnings vector, allow us to calculate the payment associated with strategies "I accept short part-time jobs" (S_A) and "I refuse short part-time jobs" (S_R) ; the payments $P(\cdot)$ corresponding to each of these strategies are simply evaluated by calculating the discounted expected value of the present and future incomes implied by the application of each strategy ; the discount rate used for the computation indicates how the individual weights immediate gains and future gains. Eventually, the comparison of the respective returns gives the answer to our question : if the payment of the strategy "I accept short part-time jobs" is greater than the return corresponding to the other strategy, one have no incentive problem nor dynamic trap : work does pay, at least in the long run.

Table 1 below provides a quick overview of all the results, concerning the occurrence of static vs dynamic traps, we can possibly get by comparison of the payments corresponding to the two possible strategies depicted above.

	$R_{ST} > R_U$ Work pays immediately	$R_{ST} < R_U$ Work does not pay immediately
$P(S_A) > P(S_R)$ Work pays in the long run	Static trap Dynamic trap <i>i.e.</i> incentive pb	✓ Static trap Dynamic trap <i>i.e.</i> incentive pb
$P(S_A) < P(S_R)$ Work does not pay in the long run	Static trap ✓ Dynamic trap <i>i.e.</i> incentive pb	✓ Static trap ✓ Dynamic trap <i>i.e.</i> incentive pb

Table 1 : Static/dynamic traps configurations

4. Further considerations

4.1. Transitions : a call for a distinction between different types of workers

One of the main interest of the dynamic analysis suggested above is to underline the key role play by transitions on the labor market, while a static approach of incentive to work problems only focuses on the difference between current earnings associated to work and unemployment. This "new" framework suggests a track to solve the so-called French labor market puzzle and to give some explanations to the two questioning facts depicted in 2.3.

- (i) Why do some people accept short part-time jobs if they do not pay ? Because they "Think different" *i.e.* "dynamic" and not "static" : in an inter-temporal framework a job can pay in the long run, even if it does not pay immediately.
- (ii) Why do "identical" rational utility maximizing workers make different decisions concerning job acceptance ? Because they are characterized by different probabilities of transitions on the labor market or/and different discount rates.

The second point is quite straightforward : if two identical unemployed Rmi workers, facing a same job offer, do not make the same decision (to accept or to refuse the job), it is because the computations they do to make their decisions – *i.e.* the evaluations of the monetary expected returns associated to the two strategies – does not lead to the same conclusion : $P(S_A) > P(S_R)$

for one of the workers, but the opposite for the other ; for identical workers and a same job offer, such a result can only originates in discount rates and/or differences in the probabilities of transitions.

Let us first analyze the role played by the transitions' matrix and turn back latter to the role devoted to the discount rate. It seems rather reasonable to assume that the probabilities of transitions on the labor market, from one employment situation to another one, are not identical for all individuals. For example the probabilities to get a full-time job when you have a part-time job – upward probabilities – is not the same if you are young or old, low skilled or high skilled, man or woman, foreigner or French, leaving in a big city or in a rural area etc. ; more precisely one can have the feeling that upward probabilities for high skills-young-French-urban-men are much more higher than for low skills-old-foreigner-rural-women. This fact can help to explain why the formers accept part-time jobs that do not pay immediately (but will pay in the long run) while the latters are reluctant to do the same (simply because, for *them*, it will never pay).

This intuition is in fact a call to distinguish different kind of workers, characterized by specific transitions matrix, reflecting different choices of human capital accumulation (low skills vs high skills) as well as geographical development inequalities (urban vs rural areas) or also discrimination phenomena on the labor market (men vs women, French vs foreigners) ; it is thus straightforward that the optimal strategy for one type of worker has no reason to be optimal for another type and, thus, that one need to analyze the incentive to work problem specifically for each category of workers.

4.2. Discount rates

Heterogeneity of discount rates is the other side of the coin that explains the occurrence of different job decisions among unemployed workers. Let us assume here, for simplicity, that the set of transitions' probabilities is such that the higher the current weekly hours of work, the higher the probability to get a “better” job and the lower the probability to come back to unemployment or “bad” jobs² ; in such a situation one understands perfectly that an unemployed worker facing a short part-time job offer can accept the offer, even if it does not pay immediately – or may infers a cost – because it opens up perspectives for improvements in the future.

But, for this to work, the individual must be characterized by a low time preference rate (low discount rate), and it is only under this additional condition that the individual values enough future earnings to endure the current loss of income associated to the job offer : in this case, the cost corresponding to the loss of income is simply seen as an investment, the discounted return of which is expected to be greater than the initial cost, thanks to a sequence of future upward transitions on the labor market.

On the other hand, and symmetrically, an unemployed worker with a strong time preference rate does not value enough future expected incomes to accept the temporary cost associated

² Expressions “better” job and “bad” job only refer here to the following implicit ranking : short part-time job < long part-time job < full-time job ; this ranking means that one assumes that people generally prefers to work more in order to get higher wages.

with job acceptance (corresponding to the static trap *i.e.* the fact that short part-time job incomes are lower than those associated to unemployment) ; in this case, *even if he perfectly knows* the perspectives for future job improvements, the individual does not accept the job offer, because he mainly cares about current earnings, and is not concerned enough with future wages.

One see that – for such given transitions probabilities – the greater the discount rate of an individual *i.e.* his time preference rate, the greater the risk to have an incentive problem and the lower the labor force participation.

4.3. Relation between static and dynamic traps : the ICM static trap

Until now, we saw that – in a dynamic framework – three main components drive the conclusion concerning the incentive to work issue *i.e.* the occurrence of a dynamic trap and labor force participation problems :

- (i) the size of the static trap *i.e.* the gap between current earnings corresponding to unemployment *vs* short part-time employment situations : $R_U - R_{ST}$
- (ii) the transitions' matrix
- (iii) the time preference rate *i.e.* the discount rate used by an agent to evaluate the present discounted value of his inter-temporal flow of earnings

One key point here is that for given (ii) and (iii), the higher is (i), the higher the probability for a dynamic trap to occur. The result is quite straightforward : if the size of the static tract is too large, future perspectives of job/wage improvements are unable to balance the negative effect of the static trap, on labor force participation.

This remark stresses the existing link between static and dynamic trap : for given transitions' matrix and discount rate, there always exists a critical value of the static trap such that, under this value there is no incentive problem or dynamic trap, but beyond this point incentive problem and dynamic trap arise ; from now, and for the last sections of the paper, let us call “Incentive Compatible Maximal static trap” – or, to make shorter, ICM static trap – the maximal value of the static trap that does not involve dynamic trap occurrence.

5. Testing for static *vs* dynamic traps occurrence on the labor market

5.1. Empirical background and choices

In order to test the occurrence of work incentive problems, on the French labor market, and the relevance of the distinction between static and dynamic trap, we need first :

- (i) to get, for different categories of workers, their real transitions' matrix and the associated average earnings vectors
- (ii) to identify the main types of workers whose transitions' matrix are really different

Concerning the first point we used the French Employment Surveys (INSEE³), for years 2000 and 2001, restricted to private sector wage earners except apprentices, government assisted workers and students. With this database one knows exactly, for the same set of people, the number of workers at each date, in each of the four employment situations – unemployment, short part-time jobs, long part-time jobs and full-time jobs – and the number of people that shift, during the year, from one specific situation to any other one ; we can thus easily compute the probability transition from, say, situation A to B , as the number of workers that move from A to B between 2001 and 2000, divided by the total number of people belonging to A at time 2000. Doing this for the 16 components of the matrix, we eventually get the whole transition matrix.

Average earnings corresponding to the different job situations, are available from the database. For short part-time job and unemployment, we computed average earnings as described in section 3.2.: for short part-time jobs, we used either the corresponding average income from the database or the €541 earnings associated with inactivity, depending whether or not the former is higher than the €405 National Minimum Income.

We eventually built transitions' matrix for different workers categories, corresponding to the intersection of three of the five following criteria ⁴:

- sex : man vs woman
- skills : high school diploma (or more) vs no high school diploma
- age : young (under 35) vs old (over 35)
- nationality : French vs foreigners
- marital situation : single vs not single

Note that we introduced the last criterion to test the idea that some individual characteristics – like sociability, ability to work with other people, team spirit etc. – that cannot be summarized by a single criterion, can be appreciate both on the labor market and on the “marriage” market ; in this case the personal ability to find a job is logically correlated with the ability to get out of the “single situation”.

After some comparison it turns out quickly that the three leading criteria that drive the properties of transitions' matrix are eventually, and with no big surprise, sex, age and skills ; we thus selected these three criteria, to define eight types of workers, each of them being characterized by specific transitions' matrix and earnings vector (*cf.* appendix).

5.2. Computations and results

The problem now is (i) to compute, for each of the eight selected types of workers, the present discounted values $P(\cdot)$, corresponding respectively to the strategies S_A (“*I accept short part-time job offers*”) and S_R (“*I refuse short part-time job offers*”) and (ii) to compare the two results ; following our speculations, one expects to find $P(S_A) > P(S_B)$ *i.e.* no incentive to work problems

³ National Statistics and Economic Studies Institute

⁴ Given the size of the database – more or less 15 millions people – it becomes tricky to cross more than 3 criteria, if one want to get significant transitions probabilities.

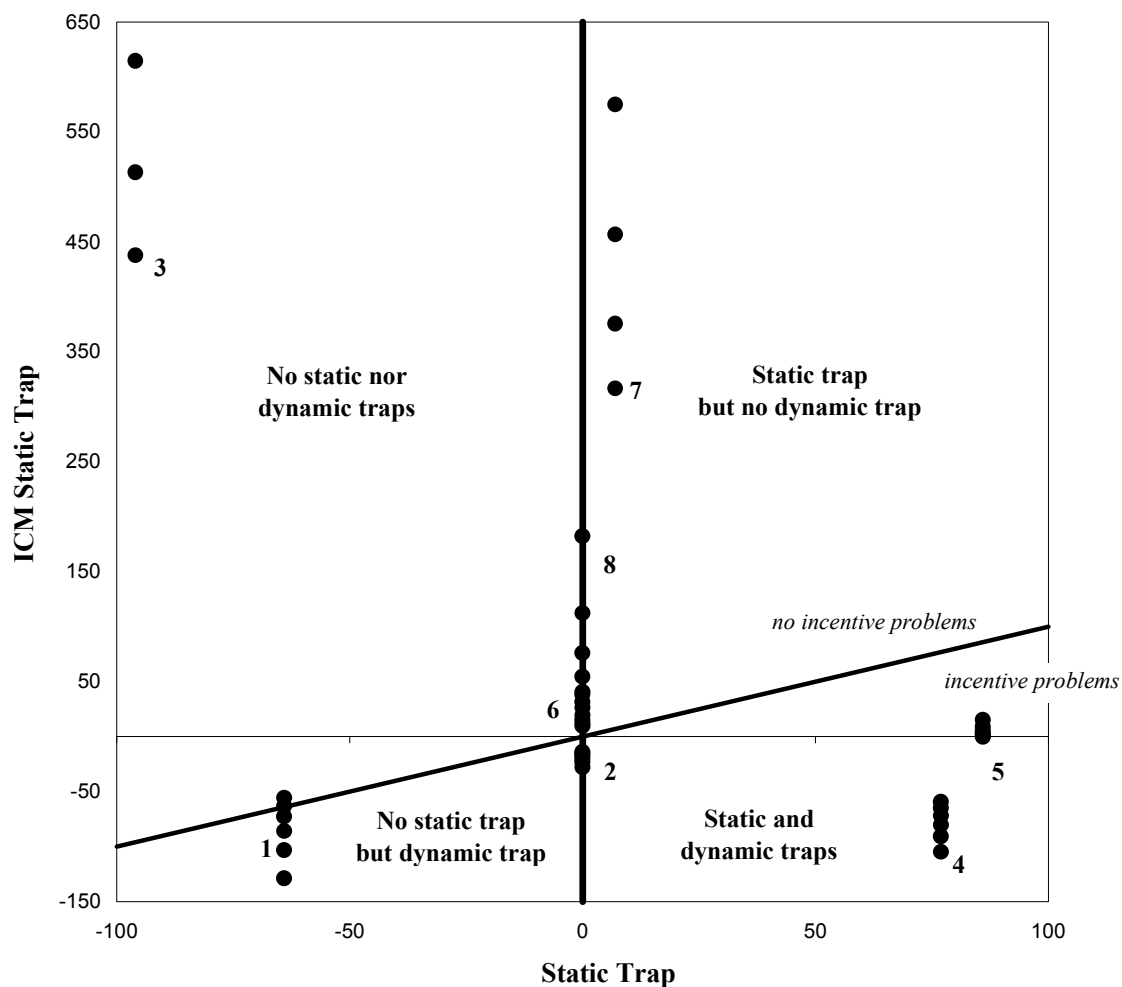
(no dynamic trap) for some types of workers, and $P(S_A) < P(S_B)$ i.e. labor force participation problems and dynamic trap for other categories.

The easiest way to make such comparisons is to compute, for each type of workers, the value of the ICM static trap and simply compare it to the effective value of the static trap : $R_U - R_{ST}$. One can then present all the results in a very simple way by figuring the values (Static Trap, ICM Static Trap) for each categories of workers, on a single 2D graph, with the static trap value on the X-axis and the ICM static trap value on the Y-axis. If the corresponding point lies above the 45° line, then the real value of the static trap is lower than the computed value of the ICM static trap : there is no incentive to work problem nor dynamic trap ; on the other hand, if the (Static Trap, ICM Static Trap) point, lies below the 45° line, it means that the real value of the static trap exceeds the ICM static trap value : we thus have a dynamic trap and incentive to work problems.

Graph 1 presents the results we got for the eight selected types of workers depicted in table 2.

Type	Sex		Age		Skills	
	Men	Women	Young	Old	\geq High school	< High School
1	✓		✓		✓	
2	✓		✓			✓
3	✓			✓	✓	
4	✓			✓		✓
5		✓	✓		✓	
6		✓	✓			✓
7		✓		✓	✓	
8		✓		✓		✓

Table 2 : characteristics of the different types of workers



Graph 1 : Static vs Dynamic traps on the French labor market

One notices immediately that each category of workers is not represented by one single point, but rather by a set of six points⁵, that reflects the specific role played by the discount rate ; in fact, one needs to remember⁶ that the discount rate is one of the main parameters that determines the present discounted value associated with job acceptance strategies and, consequently, the value of the ICM static trap. It is thus straightforward that, for each category of workers, one gets as many ICM static trap values as discount rate levels. Theoretically, we can thus get, for a particular type of workers, three kinds of results :

- no dynamic trap *i.e.* no incentive problems, whatever the level of the discount rate

⁵ Upper points corresponding to categories n°3 and 7 lies out of the graph : computed ICM static trap values corresponding to type 3 workers lies between €438 and €1308 ; between €317 and €1081 for type 7.

⁶ See part 4.2.

- dynamic trap *i.e.* incentive problems, whatever the level of the discount rate
- dynamic trap vs no dynamic trap depending of the level of the discount rate

To investigate the occurrence of these different cases, we computed – for each category – the ICM static trap values corresponding to six different levels of the time preference rate, from 1% to 50%, namely : 1%, 10.8%, 20.6%, 30.4%, 40.2% and 50%.

As seen before, the 45° line, divides the graph in two parts :

- above the line, the real static trap is lower than the computed ICM static trap value and one have no incentive problems *i.e.* no dynamic trap
- the opposite arises under the 45° line, and one notices the occurrence of a dynamic trap and incentive problems.

Identically, the Y-axis divides the graph in two parts :

- on the left side of the axis one have a negative static trap⁷, meaning that $R_{ST} > R_U$ *i.e.* work pays immediately
- on the right side of the axis, symmetrically, one have a positive static trap, meaning that $R_U > R_{ST}$ *i.e.* work does not pay immediately

This eventually allow us to divide the graph in four areas, corresponding to the four traps configurations depicted in table 1.

5.3. Comments

The main point to emphasize, is that all the static/dynamic traps possible configurations occur, as appears on table 3 below :

Type	Workers characteristics						Traps configuration		
	Sex		Age		Skills		Static Trap		Dynamic Trap
	Men	Women	< 35	> 35	≥ High school	< High School	$R_U > R_{ST}$	$R_U = R_{ST}$	$P(S_A) < P(S_R)$
1	✓		✓		✓				✓*
2	✓		✓			✓		✓	
3	✓			✓	✓				✓
4	✓			✓		✓	✓		
5		✓	✓		✓		✓		
6		✓	✓			✓		✓	✓
7		✓		✓	✓		✓		✓
8		✓		✓		✓		✓	✓

(*) occurrence of the dynamic trap depending of the discount rate

Table 3 : Summary of the results

⁷ In this case we say that we do not have a static trap ; in the paper we use the term Static Trap to qualify positive static trap only.

(i) For three categories of workers (n°2, 4 and 5 *i.e.* unskilled men and young skilled women) one does not have any incentive to work problem despite the occurrence of a static trap. For this kind of people, work does not pay in the short run – or even is costly – but pays in the long run thanks to upward job transitions on the labor market ; these results clarify those got from the 1998 INSEE survey on minimum income recipients, stressing that more than 30% of beneficiaries of the minimum income support, who return to work, claim to have no financial gain (see section 2.3) . Contrary to the standard static incentive to work approach, the dynamic framework suggested here, throws a bridge between observed facts and theoretical economic analysis.

(ii) For two categories of workers (n°1 and 3 *i.e.* skilled men) one does have an incentive to work problem despite the fact that work pays in the short run (no static trap). A careful analysis of the corresponding transitions matrix (see appendix), allow us to find some explanation to this surprising result ; one can note immediately that, for these kind of people, the probability to get a full-time job is higher for an unemployed than for a short part-time worker : for example for young skilled men (type 1) the probability to shift from unemployment to full-time is around 52% against 42% (*i.e.* 1/5th less) if coming from a short part-time job.

We thus suggest the following explanation : for skilled workers it is better to refuse short part-time jobs, that pay immediately, because if they do accept such job offers they can be trapped in short part-time jobs : (i) because they “waste” time that could be better used to find a full-time job, (ii) because they signal to employers their lack of self-confidence regarding their capacity to find a full-time job. Symmetrically, for unskilled workers it is better to accept short part-time jobs, that do not pay immediately : because the lack of diploma, employers do not observe their abilities and part-time job is thus a way to signal their own productivity.

(iii) For the last three categories of workers (n°6, 7 and 8 *i.e.* all women except those who are both young and skilled), the static trap is too large to be balanced by future upward transitions on the labor market : we thus have both static and dynamic traps.

(iv) Finally, the discount rate plays an important role concerning the level of the computed value of ICM static trap (for the third category of workers this value goes from €438 to €1308) and is thus a potentially important parameter, to analyze incentive to work problems ; furthermore, one can notice that for the first type of workers the occurrence of a dynamic trap depends of the level of the discount rate.

6. Conclusion

Let us first remember the main theoretical conclusions of the paper ; from a static point of view, the incentive of an unemployed worker to accept a part-time-time job offer, is high when :

- (i) the net wage associated with the job is high
- (ii) replacement incomes are low (basic or minimum income, unemployment benefits, social programs, etc.)
- (iii) the marginal disutility of work is low and/or the valuation of the fact of working is high

Our dynamic modeling stresses that the incentive to accept a job offer is reinforced when the following additional conditions are satisfied :

- (iv) the time preference rate is low
- (v) transitions' probabilities to better jobs are high
- (vi) the number of years before retirement is high⁸
- (vii) the agent's risk aversion is low⁹

The stronger conditions (i) to (iii) hold, the lower the static trap, and the quicker short part-time jobs pay ; the stronger conditions (i) to (vii) hold, the lower the dynamic trap, and the higher the incentive to work.

It is thus straightforward that one can get a static trap without any dynamic trap, if conditions (i) to (iii) are such that a job does not pay immediately, but that the conditions (iv) to (vii) are “strongly” satisfied and do more than counterbalance the influence of (i)-(iii) : for example, a low discount rate associated with strong probabilities of transitions to better jobs, can counterbalance the fact that a job does not pay in the short run and thus encourage an unemployed worker to accept such a job.

Symmetrically, a dynamic trap can occur without any static trap if conditions (i) to (iii) are such that a job pays immediately, but that conditions (iv) to (vii) are “strongly” unsatisfied and do more than counterbalance the (i)-(iii) impact.

The aim of this paper was to stress the weakness of a purely standard static economic approach of labor force participation analysis and, on the other hand, to propose a useful analytical background to develop an inter-temporal approach of incentive to work problems.

⁸ The older, and thus closer to retirement age, an individual is, the more he has incentive to stay unemployed, because the return on investment associated with S_A is not large enough to incite him to accept a short part-time job that does not pay immediately ; on the other hand, young workers should be more likely to make the “investment” of accepting a “bad” job.

⁹ Even if we did not develop this point, workers risk aversion – corresponding to the concaveness of the utility function of payments – plays an important role : the more an individual is risk-averse, the more it is in his interest to adopt strategy S_R securing certain payment (national minimum income), rather than strategy S_A associated with uncertain payment (high return if the upward job transition process works, but low payment if it does not work) ; one can note that, in order to simplify the analysis, we neglected in the paper the influence of risk aversion by supposing a linear utility function.

Concerning the first point, the results presented above drive right to a conclusion that does not suffers any ambiguity : there is no obvious link between the occurrence of a static trap and incentive to work problems *i.e.* the occurrence of a dynamic trap ; for five of the eight categories of workers analyzed, one find either a static trap but no dynamic trap, or no static trap but a dynamic one. This remark underlines the inherent limits of the static approach ; to the question “*Is the minimum income system responsible for labor force participation problems?*” the correct answer should emphasize that the occurrence of a Minimum Income scheme is not a sufficient condition, nor a necessary condition, for incentive problems to arise : some workers can accept jobs that do not pay immediately (because they will pay in the future), and some others can refuse part-time jobs even if they do pay immediately (to avoid to be trapped in part-time employment).

Turning now to the second point, we do think that the dynamic modeling proposed in the paper offers a very simple way to test *(i)* the occurrence of labor force participation problems in different countries and, *(ii)* if they originates in minimum income schemes. Moreover, one of the main interest of the suggested approach is its capacity to distinguish between different kind of workers, and to analyze labor force participation decisions from a specific microeconomic point of view ; this can be useful to economic policy makers.

Appendix

Transitions matrix and average earnings according to workers categories

– probabilities are %, earnings = average income (€), minimum income in bold –

Men, < 35, skilled

Situation in date $T+1$ Situation in date T	Job \geq 35 h	20h \leq Job < 35h	Job < 20h	Unemployment	Earnings
Job \geq 35 h	96.43	0.28	0.00	3.28	1663
20h \leq Job < 35h	47.18	32.90	4.34	15.59	812
Job < 20h	42.56	31.39	15.08	10.98	605
Unemployment	52.33	4.77	0.99	41.91	541

Men, < 35, unskilled

Situation in date $T+1$ Situation in date T	Job \geq 35 h	20h \leq Job < 35h	Job < 20h	Unemployment	Earnings
Job \geq 35 h	93.91	0.52	0.06	5.51	1144
20h \leq Job < 35h	46.74	25.75	0.92	26.59	638
Job < 20h	34.91	33.71	9.64	21.74	541
Unemployment	41.85	4.89	0.90	52.36	541

Men, > 35, skilled

Situation in date $T+1$ Situation in date T	Job \geq 35 h	20h \leq Job < 35h	Job < 20h	Unemployment	Earnings
Job \geq 35 h	97.85	0.08	0.03	2.04	2762
20h \leq Job < 35h	63.13	33.28	0.00	3.59	1248
Job < 20h	26.39	48.51	14.35	10.75	637
Unemployment	30.46	5.74	2.53	61.27	541

Men, > 35, unskilled

Situation in date $T+1$ Situation in date T	Job \geq 35 h	20h \leq Job < 35h	Job < 20h	Unemployment	Earnings
Job \geq 35 h	97.39	0.30	0.05	2.25	1492
20h \leq Job < 35h	41.03	38.56	2.84	17.57	637
Job < 20h	21.12	43.92	14.43	20.53	464
Unemployment	32.12	6.18	1.00	60.70	541

Women, < 35, skilled

Situation in date $T+1$ Situation in date T	Job \geq 35 h	20h \leq Job < 35h	Job < 20h	Unemployment	Earnings
Job \geq 35 h	93.10	1.39	0.28	5.24	1377
20h \leq Job < 35h	53.78	31.12	3.42	11.68	694
Job < 20h	35.16	41.73	7.77	15.33	455
Unemployment	42.52	9.97	2.60	44.90	541

Women, < 35, unskilled

Situation in date $T+1$ Situation in date T	Job \geq 35 h	20h \leq Job < 35h	Job < 20h	Unemployment	Earnings
Job \geq 35 h	86.90	2.97	0.58	9.55	981
20h \leq Job < 35h	34.31	41.18	4.65	19.86	586
Job < 20h	19.60	43.67	15.83	20.91	541
Unemployment	23.06	11.62	3.30	62.02	541

Women, > 35, skilled

Situation in date $T+1$ Situation in date T	Job \geq 35 h	20h \leq Job < 35h	Job < 20h	Unemployment	Earnings
Job \geq 35 h	96.79	0.78	0.09	2.34	1881
20h \leq Job < 35h	54.59	33.31	5.44	6.65	816
Job < 20h	23.53	47.38	18.65	10.44	534
Unemployment	21.17	7.46	3.13	68.25	541

Women, > 35, unskilled

Situation in date $T+1$ Situation in date T	Job \geq 35 h	20h \leq Job < 35h	Job < 20h	Unemployment	Earnings
Job \geq 35 h	94.650	1.120	0.310	3.920	1194
20h \leq Job < 35h	37.330	43.590	4.500	14.580	586
Job < 20h	12.560	39.740	35.360	12.330	541
Unemployment	15.890	9.740	4.640	69.730	541

References

- Bourguignon F. & Chiappori P.A. [1997], “ Fiscalité et redistribution ”, *Notes de la Fondation Saint-Simon*, march-avril.
- Bourguignon F. & Bureau D. [1999], “ L’architecture des prélèvements en France: état des lieux et voies de réformes ”, *Rapport du Conseil d’Analyse Economique*, n°17.
- Castel R. [1999], “ Minima sociaux, Allocation Compensatrice de Revenu et RMI ”, *Notes de la Fondation saint Simon*, february.
- Collin C. [2000], « Les ressources des allocataires du RMI : le rôle majeur des prestations sociales », *Etudes et Résultats*, DREES, n°62, may.
- Dolle M. [1998], “ Minima sociaux : plus de cohérence pour plus de justice ”, *Droit Social*, n°3, march.
- Fleurbaey M., Herpin N., Martinez M., Verger D. [1997], “ Mesurer la pauvreté ? ”, *Economie et Statistique*, n°308/309/310.
- Fleurbaey M., Hagneré C., Martinez M. & Trannoy A. [1999], “ Les minima sociaux en France : entre compensation et responsabilité ”, *Economie et Prévision*, n°138/139, april-september 1999/2-3.
- Fougère, D. & T. Kamionka [1992], « Un modèle markovien du marché du travail », *Annales d’Economie et de Statistique*, n°27.
- Laroque, G. et B. Salanié [2000], « Une décomposition du non emploi en France », *Economie et Statistique*, n°331.
- Laroque, G. et B. Salanié [1999], « Prélèvements et transfert sociaux : une analyse descriptive des incitations financières au travail », *Economie et Statistique*, n°328.
- Laurent, T., Y. L’Horty, P. Maillé ET J-F Ouvrard [2002a], « *Incitations et transitions sur le marché du travail : une analyse des stratégies d’acceptation et de refus d’emploi* », Center for Economic Policy Studies (EPEE), university Paris-Evry, working paper n° 01-04, *Revue Economique*, november.
- Laurent, T. et Y. L’Horty [2002b], « *Revisiting the “Making Work Pay” Issue : Static vs Dynamic Inactivity Trap on the Labor Market* », Center for Economic Policy Studies (EPEE), university Paris-Evry, to be published in "*Welfare Reform: A comparative assessment of french and US experiences*", International social security series, eds Transaction Publishers, New Brunswick (USA) and London (UK).
- Laurent, T. et Y. L’Horty [2001], « *Déqualification ,employabilité et transitions sur le marché du travail : une analyse dynamique des incitations à la reprise d’emploi* », Center for Economic Policy Studies (EPEE), university Paris-Evry, november.
- Laurent, T. et Y. L’Horty [2000], « *Soutien aux bas revenus, réforme du Rmi et incitations à l’emploi : une mise en perspective* », Center for Economic Policy Studies (EPEE), university Paris-Evry, working paper n° 00-04 march.

Laurent, T. et Y. L'Horty [2000], « *Le soutien aux bas revenus : replacer la justice sociale au cœur du débat* », *Les Echos*, may 29th 2000, p. 76.

Piketty T. [1997a], “ L'élasticité de la transition non emploi-emploi : une estimation pour le cas français ”, working paper *CSERC*.

Piketty T. [1997b] “ La redistribution fiscale face au chômage ”, *Revue Française d'Economie*, vol XII.

Piketty t. [1999], “ Allocation Compensatrice de Revenu ou revenu Universel ”, *Notes de la Fondation Saint Simon*, february.

Stewart, M.B et J-K. Swaffield [1998], “Low pay dynamics and transitions probabilities”, *Economica* 66, 23-42.

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