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A Study of Incentive Effects of Compulsory ALMP in the Danish UI System

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Social Integration and Marginalisation
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Abstract

Denmark has experienced a remarkable constant fall in unemployment from more than 10 per cent in 1993 to a little more than 4 per cent in 2000. Simultaneously, countries such as Sweden, Germany and France have had stagnant or even increasing unemployment levels until 1997. In this paper I argue that the improved performance of the Danish labour market may in part be due to the Danish unemployment insurance system (UI), which was reformed in 1994.

The Danish UI system consists of two finite periods, a passive period followed by an activation period. In the passive period individuals receive benefits without any reciprocal obligation. However, when they enter the activation period, they must participate in labour market training in order to receive benefits. The purpose of the activation period is twofold: 1) activation may improve individuals' qualifications and reintroduce them to the labour market, 2) the compulsory aspect may provide an increased incentive for unemployed workers to look for and return to work. In this way compulsory labour market training may result in effects similar to termination or reduction of benefits, which provides an increased incentive for return to work in countries (such as Canada and the US) where benefits are time limited.

In this paper I estimate this "motivation effect" of compulsory activation using legislative changes in the duration of the passive period. I find that the activation period does result in a significant motivation effect which is comparable in size to the effect of benefit exhaustion found in studies of systems with time limited benefits.

Contents

1 Introduction

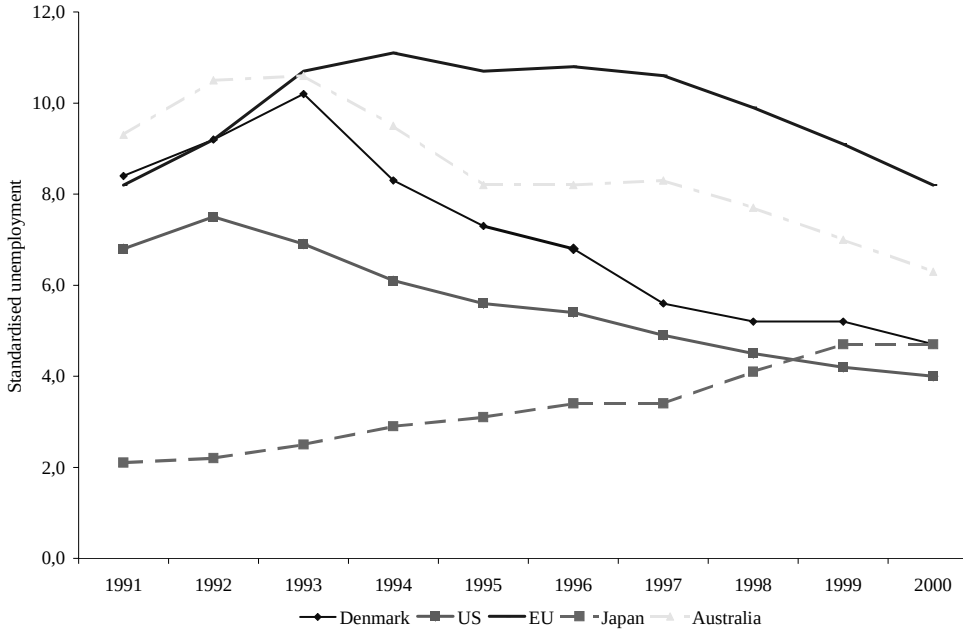
In most western countries unemployment insurance (UI) is an important feature of the labour market. It reduces the variation of income in case of job loss and stabilises the economy during a recession. UI systems typically affect a large proportion of the labour force. In Denmark in 2000 almost 83 per cent of the labour force was insured, cf. Statistics Denmark (2001). And in first quarter of 2002 more than 500.000 or about 18 per cent of the labour force were unemployed for at least one day, cf. Statistics Denmark (2002). The fact that such a large proportion of the labour force is in contact with the UI system makes it all the more important to have a good understanding of how the design of the system affects individuals' labour market behaviour.

The notion that the structure of the unemployment insurance system is important for the labour market seems especially relevant for Denmark from 1993 and onwards. In 1993 Denmark experienced one of its highest unemployment levels ever. When the recession ended in 1993-1994, the unemployment decreased rapidly. Denmark was not the only country with a falling unemployment after 1993. But the rate dropped with a rate higher than for almost any other country, cf. figure 1. There can be many reasons for the steep drop in unemployment. One contributing factor may be the labour market reform which was implemented in Denmark in January 1994 and further expanded over the following years.

The Danish UI system is a voluntary system. It is characterised by easy accessibility and designed with the intend to include a majority of the work force and generally compensate for differences in living conditions between individuals with and without work, cf. Kvist (2002). Before 1994 individuals on UI were only met with very few obligations. Individuals who met the eligibility criteria were entitled to two and a half years of UI. After that, individuals were given the chance of regaining the right to UI through government

supported employment for half a year. In other words, individuals could stay on UI without unsupported employment for a very long period had they first entered the system[1].

Figure 1: Standardised unemployment levels in per cent, 1991-2000. Source: OECD (2002).



Perhaps due to the high unemployment in the beginning of the nineties a shift towards more obligations in UI systems were observed in almost all western countries, cf. Kvist (2002). Denmark was no exception. With the reform in 1994 the re-earning of the UI right through government supported work was removed and replaced with a 7 years UI period. At the same time the focus of the UI system was changed. An active labour market policy was formed which main focus was to improve individuals' qualifications in fields where there is a strong demand for labour. The policy entailed a wide range of activation measures such as education, job training in public or private

[1]Prior to 1994 it was possible to receive UI for up to 9 years without unsupported employment.

firms and support for starting as self employed.

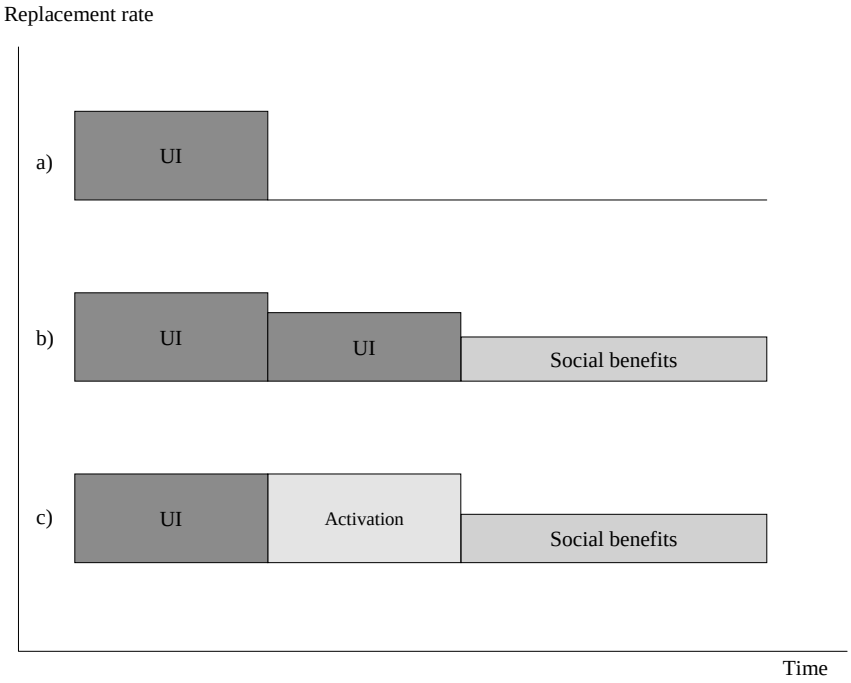
With the reform the unemployment period was divided into a passive period and an activation period. In the passive period individuals are only met with a limited amount of obligations and are, especially in the beginning of the unemployment spell, left to their own job search. If individuals are interested in activation offers in this period, however, they do have access to it. The shift in obligations occurs when individuals leave the passive period and enter the activation period. In the activation period individuals have to participate in activation. If they refuse, they loose their right to unemployment insurance.

Many approaches have been tried in UI systems in order to motivate individuals to search for and accept job offers. One approach is to make the replacement rate dependent on unemployment duration thereby making it less attractive to stay unemployed for a longer period, cf. figure 2 b). This can be found in several UI systems. Examples are the Dutch and British UI systems, cf. Stancanelli (1999). A more extreme motivation construction is a short duration of unemployment insurance either followed up by social benefits at a lower rate or alternatively nothing, cf. figure 2 a). This construction can be found in the US, cf. Rogers (1998). In the Danish unemployment insurance system after 1994 a third version has been implemented. The benefit level stays constant or may even increase slightly if individuals participate in the activation offers, cf. figure 2 c). The motivating factor in the Danish system is therefore only the compulsory activation.

The purpose of the compulsory activation can be regarded as twofold. Individuals who have not been able to find employment in the passive period may need activation in order to improve their qualifications or reintroduce them to the labour market. At the same time the compulsory aspect of activation and hence reduction of leisure may work as a motivating factor in the same way as a benefit reduction for individuals who do not need activation.

Activation thereby makes it possible to motivate some individuals who are able to find employment without punishing all other individuals in the UI system with a benefit reduction.

Figure 2: Three different models for UI systems.



In 1994 when the labour market reform was implemented, the passive period was set to 4 years of unemployment insurance and the activation period was set to 3 years of insurance. Since then the passive period has been shortened. In July 1996 the passive period was shortened to 3 years and in January 1998 it was shortened to 2 years. Between 1995 and 2001 the average number of people in activation has been stable around 300.000. If we assume that the average activation spell is half a year, then about half a million people undertake activation each year[2]. If activation does have a motivating effect on

[2]The duration of activation spells goes from just few weeks for courses to job training programmes which last up to 2 years.

individuals, the total effect on unemployment may therefore be substantial.

When it comes to studies of unemployment insurance, the focus has been on how individuals react either to changes in their replacement rate or prior to running out of unemployment insurance. Only very few studies examine the effect of a softer motivation approach such as compulsory activation. Furthermore, there has not yet been a study which tries to identify the size of the motivation effect in a system such as the Danish one.

One of the major problems when analysing motivation effects in a UI system is identification of the effect. Most often, the available data does not give access to plausible observations of the counter-factuals. In other words, it is difficult to find individuals in the data who only differ in how much time they have left until the motivating event (UI exhaustion or activation). In order to obtain identification, different assumptions have been used in the literature. It has for instance been assumed that individuals do not differ in unobservables over regions with different UI duration or according to how many months they have already spent of their UI period, cf. Geerdsen (2002) for a description of different identification assumptions.

In this paper I will examine individuals' labour market behaviour prior to activation. I will examine whether the prospect of activation has a motivation effect similar to the prospect of running out of UI as analysed in other empirical studies. In order to examine the motivation effect, I perform an estimation of individuals duration in the UI system. I obtain identification of the motivation effect by assuming that the legislative changes in the duration of the passive period is evenly distributed over unemployed individuals in the population. One fact which supports this assumption is that legislative changes are imposed in the same way on every person who is unemployed.

In section 2 I describe the construction of the Danish UI system before and after 1994 as well as the activation policy after 1994. In section 3 I give

a review of the empirical literature on motivation effects in UI systems. I review both studies where the focus has been on individuals' behaviour prior to running out of benefits all together as well as studies where the motivation effect of compulsory labour market training is analysed. In section 4 I describe the theoretical model commonly used to analyse possible effects of a finite UI system and I describe the effects of imposing compulsory activation. I also describe the problems which arise when modelling individuals' expectations on time to the activation period. In section 5 I give a description of the data used in the analysis and in section 6 I describe the findings in data. In section 7 I explain the specification of the hazard model and the identification of the motivation effect. In section 8 I report the estimation results. In order to test the sensitivity of the results I also report estimation results of estimations where different expectation models have been applied. Finally I conclude in section 9.

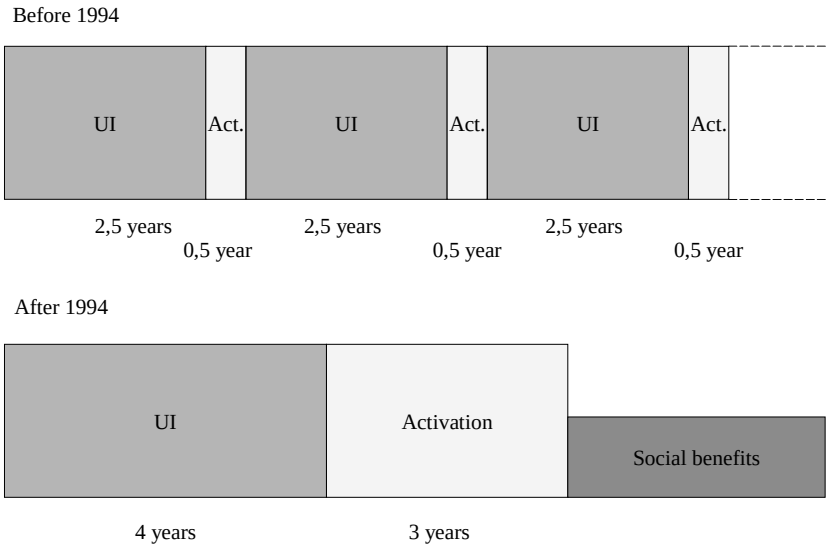
2 A description of the Danish UI system

2.1 The UI system before 1994

The unemployment insurance system before 1994 was a system which had stayed almost unchanged since 1970. The central aspect of the system was that individuals by participating in activation could stay on UI infinitely. According to rules individuals were eligible for unemployment insurance as long as they had more than half a year of employment within the three last years. Participation in activation did count as employment. It therefore became common that individuals received unemployment insurance for 2,5 years followed by half a year of activation thereby regaining the right to UI, cf. figure 3.

The unemployment insurance system was a voluntary system. In order to enter the system one had to be between 18 and 65 years old and have at

Figure 3: The structure of the Danish unemployment insurance system before and after 1994.



least 5 weeks of continuous employment prior to enrolment. The eligibility to benefits was generally obtained after 12 months of membership as well as at least 26 weeks of employment within the last 3 years. Certain groups such as people who had just finished education or apprenticeship obtained the right to UI after only one month of membership and without the employment requirement.

The replacement rate in Denmark was 90 per cent of individuals' previous income and the maximum level of benefits was in 1994 140.000 Dkr. per year. Because of the low ceiling on the benefits most individuals on UI actually had a replacement rate which was lower than the 90 per cent. For individuals who had just finished education or apprenticeship and therefore have no prior wage income, the benefits were set to 82 per cent of the maximum UI level.

These rules of the UI system have only undergone minor changes during the seventies and eighties. The UI system was extended to self employed in 1976, and prolonged to the age of 67 in 1980.

2.2 The UI system after 1994

During the summer of 1993 an amendment[3] to the Law on Unemployment Insurance was proposed and passed. The amendment entailed a total restructuring of the insurance system.

The central change of the system was that re-earning of the UI eligibility through activation was removed. This in fact meant that Denmark broke with the access to unlimited duration of UI which had persisted through more than twenty years, cf. figure 3. The new system with only limited UI duration was paired with a stronger emphasis on activation schemes with both longer duration as well as a stronger focus on improving people's skills for the labour market.

In the new system eligibility to UI was as before based on at least one year of membership as well as at least half a year of employment within a three year period. Also just as before 1994 certain groups such as people who had just finished education or apprenticeship obtained the right to UI after only one month of membership and without the employment requirement.

The new innovation in the UI system was that the insurance period was divided into an "passive" period and an "active" period, also called period 1 and period 2. An unemployed individual who in 1994 fulfilled the UI eligibility criteria had the right to 48 months of passive UI within a 60 months period followed up by 36 months of activation within an 48 months period.

Activation is not only limited to the activation period. Individuals who have been unemployed for more than 12 months within a 15 months period

[3] Lov om ændring af lov om arbjedsformidling og arbejdsløshedsforsikring m.v. Nr. 436 30. juni 1993.

may be offered activation. If they receive an offer and refuse it, their benefits is reduced to 80 per cent of maximum UI.

The benefits received in the UI system are just as before 1994 based on the wage received in employment prior to unemployment[4] as well as the number of months on UI prior to the given month. The replacement rate in the UI system is 90 per cent but with the limit set so low that the majority of unemployed individuals have a replacement rate lower than 90 per cent.

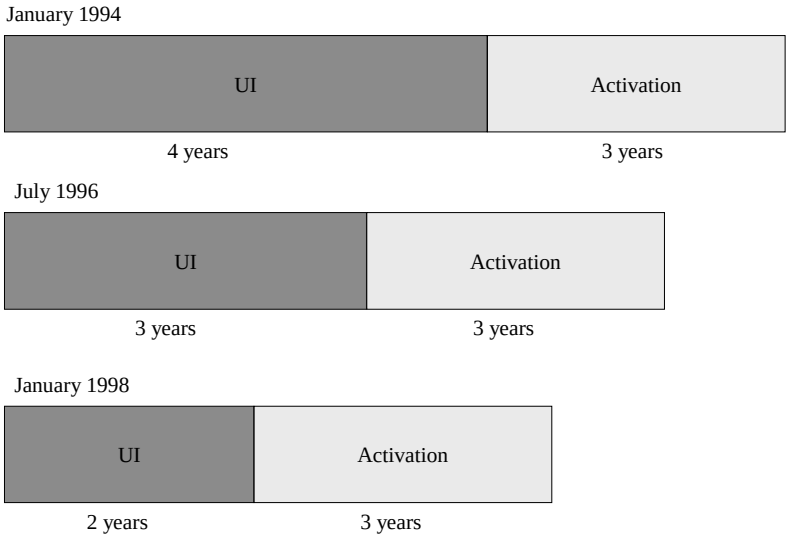
During the nineties this system has undergone several changes. Most importantly, the duration of passive UI has been shortened from 48 months in 1994 to 36 months from July 1996 and further to 24 months from January 1998, cf. figure 4. The shortenings of UI duration affected not only spells starting after the date of change but also individuals who were unemployed when the changes came into effect. In other words there was no "grandfathering" of previous UI durations. One result of these UI shortenings since 1994 is that no person starting on a fresh UI spell between 1994 and 1999 has been able to receive the full number of passive UI months which he or she was entitled to at the beginning of the spell.

With the new rules in 1994 the UI system was left with a tremendous task of fitting all the unemployed into the new rules. This was done accordingly to a departmental order[5]. The UI case workers were according to the order given 5 months to place all unemployed in the new system. The rules are described in appendix A.

[4] Recall that employment is a requirement for earning the right to UI.

[5] Bekendtgørelse om overgangsordninger for medlemmer af anerkendte arbejdsløshedskasser ved ikrafttræden af love om en aktiv arbejdsmarkedspolitik og lov om arbejdsløshedsforsikring m.v. af 1. december 1993, nr. 906

Figure 4: The shortening of the passive period after 1994.



2.3 Activation and the activation period after 1994

In the summer of 1993 a law was passed which in detail sets out the rules for activation under the UI system[6]. The law states the rights as well as the restriction unemployed individuals are met with if they do not accept activation offers. From 1994 and onwards there has been made several changes and amendments to the law. These changes have mostly been either smaller adjustments or tightening of the activation requirements.

After 1994 activation has played an increasing role in the Danish labour market policy. The activation offers consist of a wide variety of offers from education to work training and help to starting as self employed. The activation offers can be divided into the following categories:

[6]Lov om en aktiv arbejdsmarkedspolitik Nr. 434 30. juni 1993.

- Job training in a private firm
- Job training in a public institution
- Education
- Help for self employment

Individuals in both public and private job training receive the minimum wage set by collective bargaining in the given sector. The working hours for individuals on public job training are restricted so that the wage income does not surpass the maximum benefit level. Individuals in private job training can have normal working hours and thereby have an income higher than maximum benefits. The right to private job training was removed April 1995. Individuals on education generally receive income equal to the benefits they received prior to starting on the education offer. Between 1994 and 1998 individuals could also receive economic support for self employment under the rules of activation. The help was given for up to 2,5 years and was 50 per cent of maximum benefits.

About three or four months before individuals enter the activation period they are called to a guidance meeting by the unemployment fund. At the same time the unemployment fund will inform the employment service, which is responsible for the activation, about the individuals' soon entrance to the activation period. This means that individuals at the latest three months prior to the activation period should be aware of their remaining time in the passive period as well the rights and obligations they will have if entering the activation period.

When individuals enter the activation period they are met with both rights and obligations. When the rules were implemented in 1994, individuals had the right to deny activation offers for one year in return for a 20 per cent deduction of their benefits. This rule was quickly changed. From April 1995

individuals in the activation period had both the right and the obligation to receive an activation offer. If they did not do so, they would loose their right to UI[7]. This limitation, though, is based on the condition that individuals in fact do receive activation offers. If that is not the case, then the restrictions do not apply and individuals can stay on passive UI for a longer period. During the shortenings of the passive period (1996,1998) where large groups of unemployed individuals were transferred to the activation period it has been a general rule that activation is offered first to persons with the longest unemployment history[8].

Prior to participating in activation individuals have to have made an action plan[9]. The plan is supposed to describe the future plans for the unemployed individuals regarding employment and shall determine which sort of activation the individual needs. Since an action plan has to be drawn out prior to activation, individuals who are about to enter the activation period will be summoned to a meeting in order to prepare the action plan.

Even though the UI system is divided into a passive period and an activation period, individuals do have access to activation prior to entering the activation period. When the rules on activation where implemented in 1994, unemployed individuals who had been unemployed for at least 12 months within a 15 months period had the right to participate in all the above mentioned activation offers. From April 1995 this access was limited to education and help for self employment[10]. Since January 1998 the right to activation

[7] Lov om ændring af lov om en aktiv arbejdsmarkedspolitikk og lov om arbejdsløshedsforsikring m.v. Nr. 1085 21. december 1994, §1 26. §1 27. §2 4.

[8] See Bekendtgørelse om overgangsordninger for medlemmer af anerkendte arbejdsløshedskasser ved ikrafttræden af lov om en aktiv arbejdsmarkedspolitik og lov om arbejdsløshedsforsikring m.v nr. 906 af 1. december 1993. Bekendtgørelse om gradvis indføring af ret og pligt til tilbud i aktivperioden nr. 1016 af 17. december 1997. Bekendtgørelse om overgangsregler for lediges rettigheder og pligter ved ikrafttræden af lov om ændring af lov om en aktiv arbejdsmarkedspolitik nr. 947 af 16. december 1998

[9] §29 i Lov om en aktiv arbejdsmarkedspolitik Nr. 434 af 30. juni 1993. §1 2. i Lov om ændring af lov om en aktiv arbejdsmarkedspolitik Nr. 1059 af 20. december.

[10] Lov om ændring af lov om en aktiv arbejdsmarkedspolitik Nr. 1059 af 20. december 1995.

has been limited to educational offers.

3 Literature

3.1 Literature on motivation effects in finite UI systems

Most empirical studies of motivation effects have focused on UI systems without activation. Especially the US unemployment insurance system with its finite insurance period has been the subject of a couple of studies. One of the earliest studies is Moffit (1985). He uses administrative data from 12 different states in the US for the period 1978-1983. Moffit presents Kaplan Meier estimates of the hazard out of unemployment insurance and finds clear spikes around the time of UI exhaustion. The same data set has been further explored by Meyer (1990). He estimates a semi parametric proportional hazard model on the data conditioning on a spline function for remaining weeks until UI exhaustion. Meyer finds that the hazard of leaving insured unemployment increases with approximately 65 per cent from 6 to 2 weeks from UI exhaustion and further 100 per cent when individuals have only one week left on UI. In total the hazard increases with approximately 200 per cent from 6 to 1 week from UI exhaustion. These results are backed up by later studies on the data, cf. Katz & Meyer (1990). Rogers (1998) has used the same data to estimate the hazard out of unemployment insurance. Roger chooses to sample the data differently from Meyer and Mofitt which may explain some of the differences in the results. Rogers only samples men from Pennsylvania and she limits the sample to the period July 1980 to August 1984. Also the men have to be married and under 55 years of age when they begin their unemployment spell. Finally she only includes one unemployment spell per man and only spells where the individuals have fully gained or regained the right to UI. She finds a motivation effect but the percentage increase in the hazard is not as high as found by Meyer (1990) or Katz & Meyer (1990). The

increases in the hazard when individuals enter to the last weeks of UI is in Roger's analysis typically around 25 per cent.

Canadian data has also been used in studies of the motivation effect. Ham and Rea (1987) use administrative data from January 1975 to December 1980. They find indications of a motivation effect prior to exhaustion of benefits just as in the US studies. A later study also on Canadian data is Jones (1995). Jones uses quasi experimental data. In the study Jones analyses a UI reform implemented in Canada April 1993. The reform entailed shorter duration for individuals who entered the UI system after April 1993, where as individuals who entered earlier continued to receive UI according to the old rules. The data used by Jones describe two samples. The first includes individuals who began receiving UI between January 31 and March 7. The second sample includes individuals who began receiving UI between April 25 and June 5. In spite of the good data set, Jones is not able to find an effect on the duration in unemployment from the shortening of the UI period.

The same lack of a motivation effect is found by Stancanelli (1999). She uses British UI data describing UI spells starting between July 1983 and August 1983. She uses a piecewise constant proportional hazard model where the time to benefits exhaustion is modelled with time varying dummies.

One reason for the lack of motivation effects in these later studies may be that UI exhaustion in the analysed labour markets does not result in a significant drop in the income for individuals. In England, for the period Stancanelli analyses, individuals may be able to receive means tested social benefits when their UI runs out. Benefits which according to Stancanelli is almost at the level as UI. Even though Stancanelli does have information on individuals' savings when they begin the UI spell, these savings may have been used when UI runs out thereby making individuals eligible for social benefits

3.2 Literature on motivation effects in UI systems with activation

The empirical literature on motivation effects of activation is very limited. So far there has only been published one study on Swedish data and two primarily descriptive studies on Danish data. Carling et al. (1996) estimate the motivation effect of activation on Swedish data. The data they use is based on inflow into the unemployment registers for the period February, May and August 1991. In this period individuals were offered activation as a way of regaining the right to UI. If individuals refused to participate in activation their right to UI would end and they would instead receive social benefits at a rate which is substantially lower than UI. They specify a competing risk model between entering activation and employment. The model is a proportional hazard model with unrestricted baseline hazard very similar to the one used by Meyer (1990). Carling et al. do find that the hazard into employment increases when UI is about to run out[11] but the estimate is insignificant at the 5 per cent level. They indicate that the insignificant result may be due to very few observations around the time of UI exhaustion.

Kyhl (2001) examines the Danish UI system from 1996 to 1998. He uses a 10 per cent sample of individuals who have been in contact with the Danish UI system in those three years. He estimates a mixed proportional hazard model with piece wice constant base line hazard. Kyhl finds that the baseline hazard decreases in the first couple of months and thereafter is almost flat. Around the time where passive UI is supposed to run out and be replaced with activation offers the baseline hazard displays peaks. This may indicate that the activation period does have a motivating effect on individuals in the UI system.

[11] Carling et al. find that being less than four weeks from UI exhaustion increases the baseline hazard with approximately 170 per cent.

4 Theory

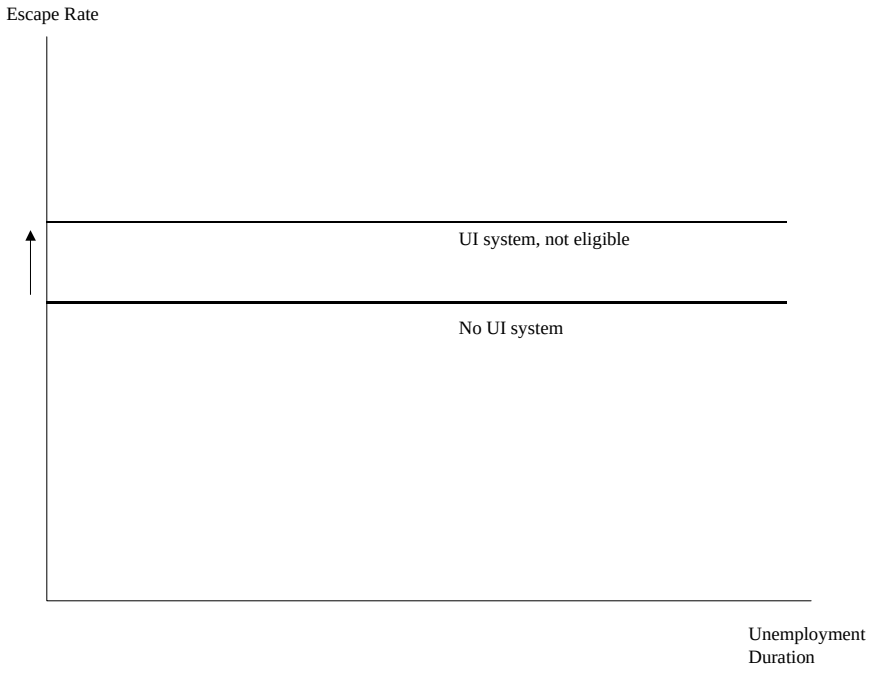
The standard job search model seems to be a very good framework for analysis of UI systems. It is used as a theoretical framework in most empirical articles about unemployment insurance systems and motivation effects, cf. among others Meyer (1990), Rogers (1998). The job search framework gives in its basic form a partial analysis of the labour market focusing on the decision making of unemployed individuals. It is based on a market with imperfect wage information where the job possibilities of an individual worker can be characterised by a distribution over possible wage offers. It is assumed that the distribution is known and that workers search by sampling from this distribution in a sequential manner. The optimal strategy for workers is then to accept the first offer obtained greater than some reservation wage. The reservation wage is the wage that maximises the expected present value of the future earning stream in such a way that the cost of search equals the expected gain in future income attributable to search.

One particular article which is often cited in empirical studies of unemployment insurance is Mortensen (1977). Using standard job search framework with fixed wage offer distribution Mortensen analyses the effects of an unemployment insurance system where insurance benefits have a finite duration and where new entrants or workers who quiet jobs do not qualify for unemployment insurance directly. Mortensen's general finding is that the total effect on the reservation wage and search intensity from the introduction of unemployment insurance is ambiguous. Still, the analysis gives helpful insight to the behaviour of individuals on the labour market. One important finding is that the introduction of unemployment insurance splits the labour force into those who do and those who do not have access to benefits resulting in different labour market behaviour.

For individuals who are not eligible for benefits, the effect of introducing an

unemployment insurance system is clear in this model. Since access to benefits can only be gained through employment, it is profitable for individuals to accept work at a lower wage rate than without the unemployment insurance system. Individuals outside the system will therefore reduce their reservation wage as well as increase their job search and hence experience an increase in their escape rate out of unemployment, cf. figure 5.

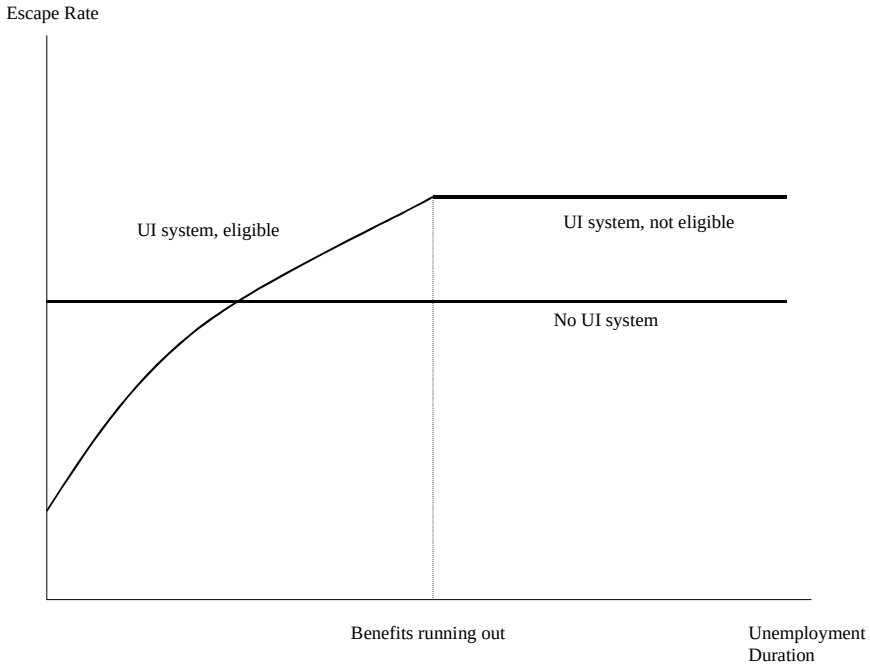
Figure 5: The escape rate out of unemployment for individuals not eligible for benefits.



For individuals who are eligible for benefits, there will be two opposing effects. Access to benefits will have the standard disincentive effect on employment (increase in reservation wage and decreasing search intensity). This is because benefits increase the value of staying unemployed and thereby makes it less costly to prolong the search for a high wage job. Since benefits can only be received for a finite period, however, the disincentive effect will be

dominating in the beginning of the unemployment spell, cf. figure 6. When individuals are approaching the end of their benefit period, they will gradually reduce their reservation wage and increase their job search. This is due to the prospect of an income drop which makes future search more costly. On top of that, the fact that eligibility to UI can be regained through employment amplifies the effect on the job search rate and reservation wage as benefits are about to run out.

Figure 6: The escape rate out of unemployment for individuals eligible for benefits



So, Mortensen finds that individuals' reservation wage goes down and search intensity up as they approach benefit exhaustion which in a restricted setup (as Mortensen's) results in an increasing escape rate which alternatively would have stayed constant. In a more flexible model where job offer arrival rate and wage offer distribution can fluctuate, the escape rate is unlikely to

stay constant over the unemployment spell in the absence of finite benefits. It is therefore not possible to predict whether the escape rate will be displaying an increasing trend over the spell when finite benefits are introduced. Mortensen's result, however, does make it clear that finite benefits will result in a higher escape rate prior to exhaustion than in the absence of finite benefits. This difference is exactly the motivation effect which empirical studies are trying to estimate.

Due to the long UI period in Denmark[12] only a fraction of individuals on UI ever get close to the end of their entitlement period. The motivation effect of a reaching the end of the benefit period as described by Mortensen does therefore most likely not play a significant part in the reduction of the Danish unemployment from 1993 and onwards. But the activation period may have the same effect. When individuals receive activation in the Danish UI system they are entitled to the same income as on passive UI. A search model which only analyse effects of UI through a maximisation of income will therefore not reveal any effects prior to activation. It seems very unlikely, though, that individuals will not respond to a change in the requirements they are met with in return for receiving UI even though the benefits they receive stay unchanged.

The expectation of an activation requirement in return for benefits may influence individuals' reservation wage and search intensity in a both negative and positive direction.

- In activation individuals are forced to work or study for the same income previous received without working[13]. The fact that individuals have less free time for the same income in the activation period may result in a reduction of the reservation wage and increasing job search intensity.

[12] Up to 7 years on UI with both passive period and activation period.

[13] In private job training individuals have the possibility of earning more than their benefits. Private job training only constitutes a small share of the activation spells, though.

- Individuals may think that employers will regard activation as a signal of low productivity. This effect is called scarring or stigma in economic literature, cf. among others Heckman & Borjas (1980). If this results in less and worse job offers, the prospect of activation may result in a lowering of the reservation wage and increase of the job search prior to the activation period.

- Activation may result in less time to job search and thereby less job offers. The prospect of less job offers while on activation may also increase the job search intensity and reduce the reservation wage prior to activation.

- Individuals may perceive activation as a chance to improve their human capital as well as contact to the labour market. In contrast to all the other effects this effect may result in a reduction of the job search intensity and increase of the reservation wage prior to activation.

4.1 Individuals' expectations on activation

In the search model by Mortensen individuals are assumed to know the duration until their benefits run out. This assumption, though, may not hold in a UI system as the Danish one. First of all, the passive period in Denmark in the analysed period is long compared to in almost any other country in the world (up to 4 years). Individuals may therefore over the UI spell loose track of how many months of benefits they have left. Secondly, their expectations may be further confused by the change in rules for regaining the UI right. Between 1994 and 1996 half a year of unsupported employment within a three year period resulted in a regaining of the UI right. From 1997 and onwards the necessary employment was increased to one year within a three year period. Thirdly, the passive period has been shortened twice between

1994 and 1998. First from four to three years in July 1996 and second from three to two years in January 1998. It may be that individuals do not take account of these shortenings in their expectations from the beginning of their UI spells.

Because of all these circumstances it may be more correct to model individuals with uncertainty in the UI system. In order to include uncertainty in the search model one has to model both the probability of receiving UI in the given month as well as the probability of receiving UI in future months since the reservation wage is a function of the expected duration of remaining UI. It is possible under certain conditions to retain the qualitatively same results in such a model as in the perfect foresight version of Mortensen (1977). Thereby meaning that a expected shortening of remaining UI will result in a lowering of the reservation wage just as a known shortening of remaining UI will in Mortensen (1977).

Even though we can show that we, given the same assumptions, can make the results of the theoretical model hold independently of uncertainty, the choice of expectation model is still important for the empirical estimation of the motivation effect. Assume that individuals actually lower their reservation wage when they believe they have 3 months or less to activation. In order to estimate the effect of this, it is crucial to correctly model when individuals actually believe that they are 3 months away from activation. An incorrect specification will result in a watering down of the estimated effect[14]. This can be illustrated with the following three different expectation models:

- Perfect foresight model: In this expectation model I assume that individuals from the beginning of the unemployment spell are aware of the shortenings of the passive UI period which will occur. In other words, individuals know how many months they have left until the activation

[14] This point was made by Rogers (1998).

period from the beginning of the spell.

- System foresight: In this expectation model I assume that individuals first learn about changes in the passive UI period when they are either introduced or implemented. Individuals following this expectation model may therefore experience discreet shortenings of their expected months to the activation period.

- No foresight: In this expectation model individuals do not learn about shortenings of the passive period until they enter the activation period. Individuals following this model may therefore believe that they have a positive number of months left until the activation period where after they are informed that this is not the case.

For all three models individuals' expectations about remaining passive benefits can be represented with the following accounting equation

$$R(t) = E - t + RJ(t)$$

where R is remaining UI until the activation period, E is entitlement at the beginning of the spell, t is time period elapsed since the beginning of the spell and RJ is realised jumps in entitlement after beginning of spell.

In order to describe the difference between the three models, let us look at an example where individuals begin a spell with UI entitlement equal to, say, 20 months. 6 months later this entitlement is shortened with 12 months. In the *perfect foresight model* individuals will form their expectations and corresponding labour market behaviour according to the following equation

$$R(t) = 20 - t - 12,$$

which describes that individuals from the beginning of the spell know about any shocks which may occur during the spell.

If individuals follow the *system foresight* model, their expectations on remaining months to activation period will be:

$$R(t) = 20 - t \qquad for\ t < 6$$
$$R(t) = 20 - t - 12 \qquad for\ t \geq 6.$$

Notice the discreet shortening of the expected remaining months when the legislative change is implemented.

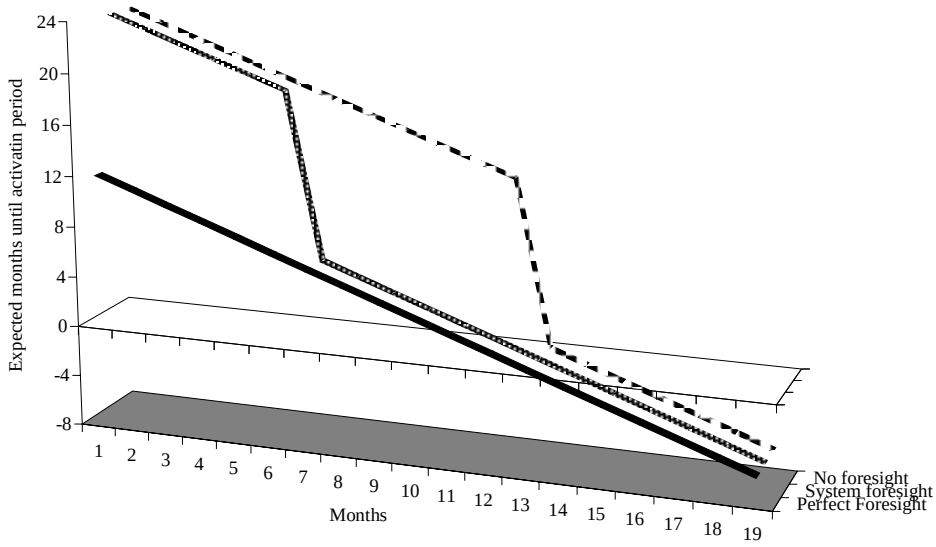
A third alternative is the *no foresight* model where individuals do not at all gather information about the UI system and as such do not know about changes until it affects them. In this model individuals will not find out about the changes until they are noticed about upcoming activation and the equation will be:

$$R(t) = 20 - t \qquad for\ 20 - t - 12 > 0$$
$$R(t) = 20 - t - 12 \qquad for\ 20 - t - 12 \leq 0.$$

In figure 7 the example of the three expectation models are presented. Notice that the perfect foresight model does not reveal any discreet jumps since individuals already from the beginning of their UI spell realise the shortening. In the two other expectation models expectation are updated as the UI spell evolves. We therefore see discreet jumps in the expected remaining UI in both of the models. The difference between the models is based on when the discreet jumps occur.

One important result of the three different expectation models in the example above is that individuals' belief about their time to activation differs. Using an incorrect model will therefore mean that individuals' reaction to

Figure 7: Expected remaining UI according to three different expectations models.



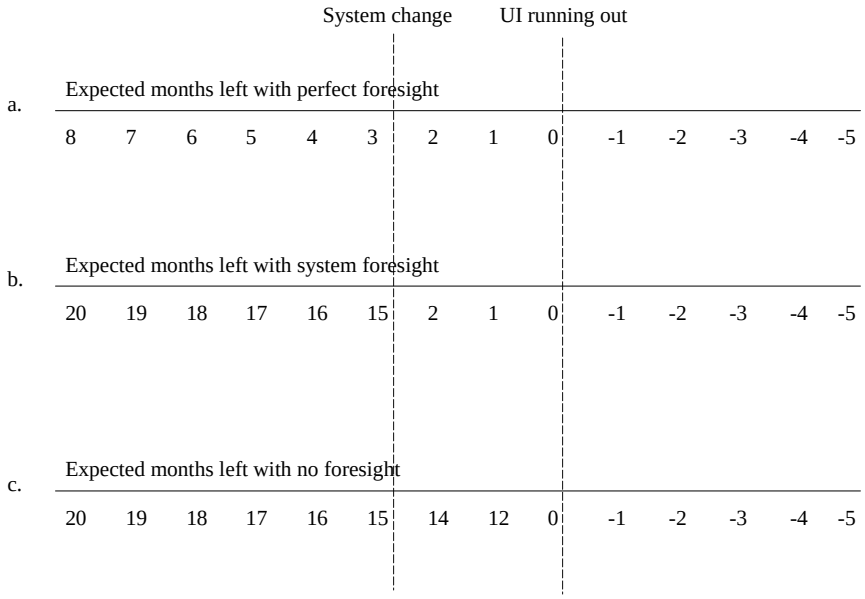
their expected time to activation will be associated with the wrong months. In figure 8 the three different expectation models are illustrated. Notice the difference in expected remaining UI (R). If individuals have perfect foresight and expectations are modelled with, say, no foresight, then any effect prior to activation that we may be estimating will be diluted due to the misspecification of the Remaining UI-variable.

In the accounting equation presented above I have described entitlement (E) as a constant which is set when individuals commence their UI-spell. Under certain conditions that may not be the case. In order for it not to be the case, individuals have to:

1. have perfect foresight, and

2. be in a situation where they can use more months of passive UI than the future legislative change will allow.

Figure 8: Expected months of remaining passive UI (R) according to three different expectation models.



As an example let us construct an individual with perfect foresight who has received passive UI for 3 years. A legislative change is announced which in a year will shorten the passive UI period from 4 to 3 years. Within the next year this person's months of entitlement will fall with 1 each month independently of whether he receives UI or not. The reason for this is that he with his 3 years on passive UI knows that he will enter the activation period directly when the legislative change is employed and his entitlement is therefore simply counting down until that date arrives.

This special situation is extremely rare in the data set which I will use below and I will therefore not go further in my analysis of the case and its possible implications.

5 Data

The data used in the following estimations comes from different administrative databases. In Denmark every person is from birth or immigration given a unique personal code called a CPR-number (Central Personal Register). This code is used in government and municipal institutions for administrative purposes to register people's use of different services. Statistics Denmark uses its access to the different administrative registers to create merged data sets which describe the entire population. The data sets are created in accordance with demand from government, municipalities, different organisations on the labour market, the press etc. The access to the merged data is limited by law. The data is not allowed outside Statistics Denmark and Statistics Denmark removes the CPR- number as well as checks that individuals cannot be recognised in the data before releasing data for analysis.

Since these merged data sets are maintained and renewed by Statistics Denmark on a yearly basis, it is possible to track individuals in some of these data sets more than twenty years back in time. This gives researchers a unique access to very long and detailed panels. Statistics Denmark retains the CPR numbers of any individuals who appears in the merged data sets. This makes it possible to further merge the different data sets both with each other but also with various surveys as well as other original administrative data sets which are not used by Statistics Denmark.

5.1 Data sources

The estimation of the motivation effect in the Danish UI system is based on variables describing 1) duration of UI spells, 2) time to activation period and 3) demographics. These variables are constructed using register data supplied by Statistics Denmark. In order to construct these variables I have used information on

1. Use of unemployment insurance

2. Use of activation offers

3. Employment

4. Demographic information on education, family composition and gender

Individuals' use of passive unemployment insurance has been drawn from a Statistics Denmark data set named The Coherent Social Register (SSHS)[15]. The purpose of SSHS is to give a coherent view over the number of people which for each year receives one or several forms of income replacing benefits. SSHS is constructed by merging different administrative registers which again is based on different basis registers. Informations about insured unemployed individuals are collected from The Central Register for the Labour Market (CRAM). CRAM is constructed from information reported by the unemployment funds and is based on the records according to which unemployed individuals are paid benefits. The UI information in the data set is saved as number days on UI each month.

Informations on activation on UI after 1994 are collected form a register called Register on Labour Market Measures (AMFORA). This register is primarily used for labour market surveillance by municipalities and ministries. The information on UI activation in this data set comes from a core data set called the Labour Market Agency's Labour Market Policy Register (AMPO). The information in the AMPO register is based on reports from the employment services and the unemployment funds which administrate these schemes. These reports state when individuals begin and end activation. This information has in the data set been transformed to number of days in activation each month.

[15] In the following I will translate the name of the different registres but use the Danish abbreviations, hence the obvious disproportion between the two.

Information about activation earlier than 1994 is taken directly from an administrative register called the Job Offer Data Set (ATB). The data set has been used by the employment services to keep track of individuals' participation in activation. The data set contains information about when individuals begin and end training. The data set goes back to 1980 and end in 1994 where the new activation legislation was implemented.

Information on employment is taken from a Statistics Denmark register called IDA. The register contains two variables on employment. One variable which describes individuals' employment in November month each year, and one variable which describes how many months out of the year individuals have been employed. In order to find out when individuals are employed over the months, I have used information on any other state which individuals could be in over the year and located the employment in the residual months. This is possible since data on other states such as different leave schemes, unemployment insurance, activation, early retirement, social benefits etc. are available either on a monthly or weekly basis.

The variables describing gender as well as family composition are taken from the IDA register. The variable originates from the CPR register. The variable on family composition describes the family on a yearly basis. The variable describing individuals' level of education is also drawn from the IDA register. This variable is constructed by Statistics Denmark. The original source is the Integrated Student Register which is based on yearly reports from all educational institutions in Denmark.

5.2 Construction of sample and variables

For the analysis I have used a 10 per cent sample of the Danish population between the age 17 and 67 in the analysis. The 10 per cent limitation has been imposed mainly in order to save resources since Statistic Denmark, as already

mentioned, do have observations for the whole population of the variables used in the analysis. The sample has been constructed as a panel from 1980 to 1998. Individuals who reach 68 years of age, who leave the country or who die between 1980 and 1998 all leave the sample. In order to maintain representativeness on a yearly basis, the sample is supplemented each year with 10 per cent of all individuals who becomes 17 years of age or immigrate to Denmark in the particular year. For the estimations I have restricted the sample further to unemployment spells beginning between January 1994 and January 1998. This is done in order to focus on the unemployment spells which are influenced by the labour market reform and adjustments in 1994, 1996 and 1998. In table 6 some descriptives are presented on the data.

Table 1: Descriptives.

Variable	Min	Max	Mean	Standard deviation
1=man			46.30	
1=spouse			64.76	
1=children			52.88	
1=university degree			16.87	
Spell length	1	57	5.28	6.59
Number of spells	1	20	3.56	2.08
Initial Prior unemployment (months)	0	46.13	5.33	6.95

Number of spells=94,869, Number of individuals=33,431
Number of right cencored spells=1277

In order to construct the unemployment insurance spells for the analysis, I have assumed that an unemployment spell consists of minimum 15 days of unemployment within a month. A spell is broken if an individual is not receiving UI or for more than 2 weeks in a month or if an individual regains the right to a new unemployment insurance period midspell. Notice that the individual does not necessarily have to find employment in order to leave the spell. When individuals end their spell they can just as well move into maternity leave, other leave schemes, social benefits, early retirement, disability

pension or education. Since my data is not precise enough to fully track individuals' movement out of unemployment, I have chosen only to focus on the fact that individuals leave unemployment and not where they go to after that.

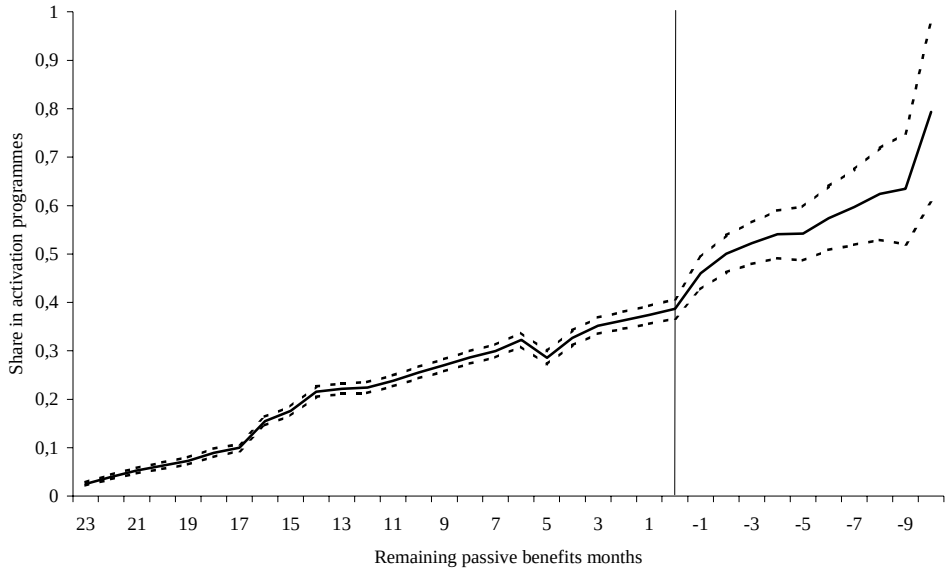
Another variable crucial for the analysis is time left until activation period begins. In order to construct this variable it, has been necessary to replicate the process which case workers have gone through with each unemployed person first time they are placed in the new UI system after January 1994. With the implementation of the new UI system in Denmark 1994 a departmental order on how each individual should be placed in the system were given . Through this placing it was decided how much passive UI the individual unemployed person was entitled to before entering the activation period. In other words, individuals did not necessarily start with the right to 4 years of UI in 1994. In general the more activation, the more UI and the less employment prior to 1994, the shorter time the unemployed individual is granted in the passive period. The rules are described in detail in appendix A.

6 A descriptive analysis of data

Before looking at individuals' departure from unemployment, let us take a look at the activation offers. As stated in section 2.3 individuals have access to activation prior to the activation period. That individuals also make use of this possibility is clear from figure 9. Please also recall that if individuals are offered activation after one year on passive UI and refuse, then benefits are reduced. This may also have an effect on the increasing activation share in the passive period.

Just as not everybody are passive in the passive period not everybody are activated in the activation period. As a matter of fact, the share is only slightly higher than for individuals in the last months of the passive period,

Figure 9: The share of individuals in activation as a function of time remaining until activation period begins.



however increasing throughout the period. The reasons for this are:

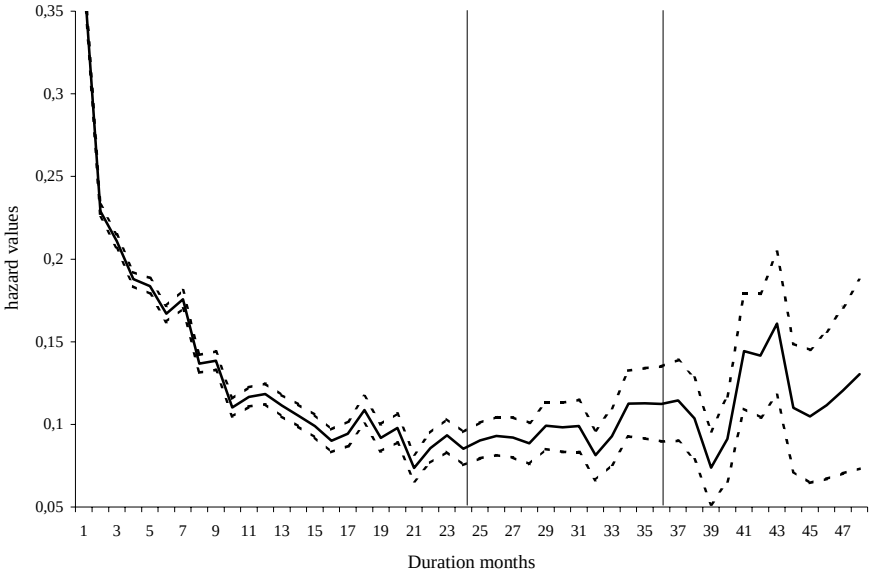
1. Individuals have to have made an action plan before starting in activation. For most individuals this may not happen before the activation period has actually commenced. For this reason actual participation in activation will be moved well into the activation period.

2. Individuals may have to wait for openings at education institutions or job training positions. Also education may start at specific dates during the year which results in waiting periods without activation.

3. Until April 1995 individuals in the activation period could refuse to participate in activation for up to one year without loosing the right to UI.

4. Due to the sheer number of individuals who have had to be allocated in activation the authorities have had to prioritise between the unemployed

Figure 10: Kaplan Meyer estimates of the hazard out of unemployment insurance, 1994-1998.

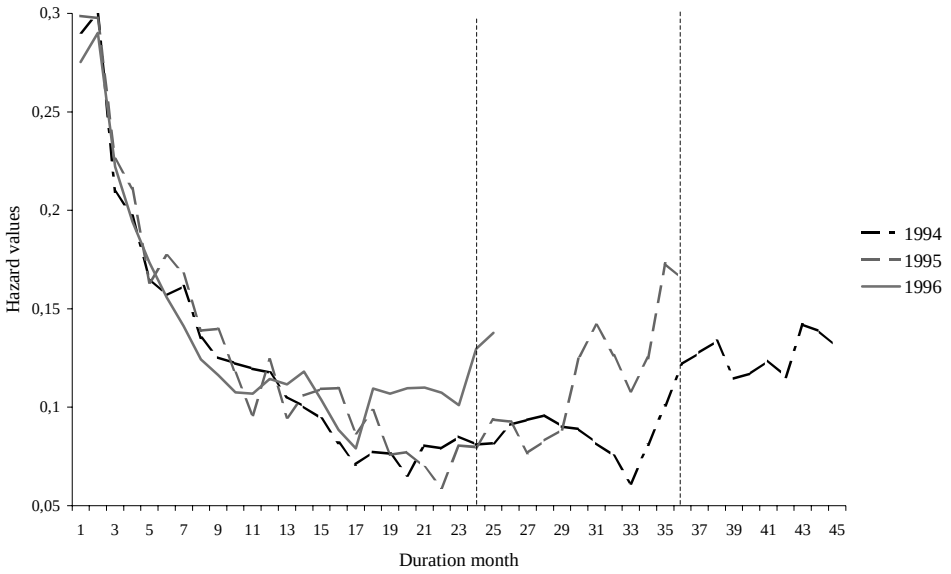


individuals. This has been especially relevant just after introduction of rule changes such as January 1994, June 1996 and January 1998. As described in the section above, the law dictates that the activation effort should be targeted first on the unemployed individuals with the highest "seniority" in the unemployment system. This means that especially individuals who have just entered the activation period may be able to avoid activation (if they want to) for a period.

From figure 9 it is not clear that entering the activation period should necessarily have any significant motivation effect. Even though the activation share is higher in the activation period, it is still far less than 100 per cent and it therefore seems likely that individuals can avoid activation if they want to. Still, the mere fact that individuals in the activation period may be offered activation and will loose their UI either immediately[16] or eventually

[16] After April 1995

Figure 11: Kaplan Meyer estimates for spells beginning in 1994, 1995 and 1996.



may influence individuals' reservation wage and search behaviour. Finally, the activation share seems to increase sharply about 8-9 months into the activation period. This may indicate that this is the maximum duration that individuals can stay in the activation period before they are forced to enter some sort of activation scheme.

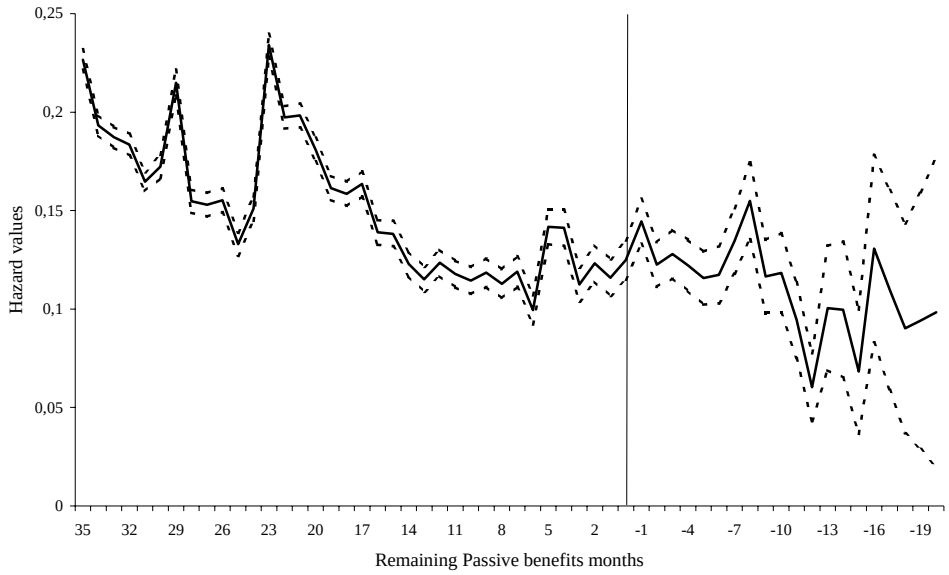
In figure 10 the hazard out of unemployment for all individuals in the sample is illustrated. The graph displays a sharp decline in the hazard over the first year. After the second year it appears that the hazard is increasing weakly. It is not clear from this graph that individuals do react to the activation period, but the weak increase in the hazard may indicate that they do.

In figure 11 the unemployment spells have been divided into spells beginning in 1994, 1995 and 1996. Because of the shortenings of the passive UI in 1996 and 1998, a division of spells by starting years should, given the exis-

tence of a motivation effect, results in a hazard increase which moves closer to 24 months over the samples. This is exactly what is illustrated in figure 11. The hazard increase seems to be stronger and begin earlier for spells starting in 1995 than for other spells. One explanation for the stronger increase compared to earlier spells may be that individuals facing exhaustion of passive UI on average have been unemployed for a shorter period in the 1995 sample than in the earlier sample and as such may have better chances of finding a job in light of possible activation. The reason for the earlier hazard increase in the 1995 sample compared to the 1994 sample may be due to the fact that more individuals run into the 24 months passive UI constraint in this sample than in the earlier sample. The 1996 sample does not display and increase in hazard as strong as the other samples but at the same time does never reach as low a level. The reason why this sample does not show as clear an increase may be due to the fact that I only have observations on individuals in this sample for 2 to 3 years. It is therefore likely that the motivation effect in this sample exist beyond the data period (up to 1998) I have access to.

These preliminary findings do to some extend indicate that the hazard out of unemployment increases when passive UI runs out. In figure 12 the hazard out of UI unemployment is described as a function of the constructed variable "remaining passive UI". The graph, in contrast to the two previous graphs, does not clearly show any motivation effect of the activation period. The fluctuation in the curve give us a hint why this is so. In this figure duration dependency may play an important part. Since individuals can begin an unemployment spell with less than full passive UI remaining, duration dependency effects will be spread out in the figure. A good example is the hazard increase around 24 months of remaining passive UI displayed in the graph. This may primarily be due to the fact that individuals starting a fresh unemployment spells after January 1998 only have the right to 24 months of

Figure 12: Kaplan Meyer estimates as a function of time to activation period.



passive UI and therefore enter the figure at 24 months remaining instead of 36 months remaining.

7 Empirical Specification and Estimation

In order to test for the motivation effect, I have modelled the hazard out of UI unemployment. In this setup the hazard is equal to the probability of leaving UI unemployment in a given month conditional on the unemployment spell up to that month. I have assumed that data can be represented by a discreet logistic specification,

$$h(t, R_{it}, E_{it}, X_{it}) = \frac{1}{1 + \exp\{-y(t, R_{it}, E_{it}, X_{it})\}},$$

where h is the hazard at a given spell length t, y is a linear function of t duration in spell, R time remaining until the activation period, E Entitlement initial in the spell and X other exogenous variables.

The central variable to identify in the model is "remaining passive bene-

fits" (R) which will show whether there are any indications of a motivation effect. As described in section 4 remaining passive UI (R) can be described as a function of initial entitlement (E), duration (t) and realised jumps in passive UI duration (RJ)

$$R = E - t + RJ.$$

As the equation indicates, identification of the variables "remaining passive benefits" (R) is only possible if at least one of the right hand side variables of the equation do not have an effect on individuals' hazard out of unemployment and therefore is not included in the hazard model. In order to disentangle duration dependency from the motivation effects it is important to condition on duration (t) in the hazard estimation. The same goes for initial entitlement (E) since this variable may be correlated with individuals' labour market attachment. The duration variable (t) will be modelled fully flexible with a dummy construct but the entitlement variable (E) will only be modelled using a parametric form (linear and squared term). The reason for this is partly to keep the degrees of freedom reasonable high, partly to allow estimation of models with expectation models where there is no realised jumps (RJ). Geerdsen (2002) shows that using a parametric form of (E) instead of a dummy construct does not result in any significant changes in the estimatited hazard model. This means that the source of identification comes from 1) any realised jumps (RJ) which may appear according to the expectation model we choose and 2) the parametric form of the entitlement variable (E).

Since identification in this estimation is almost solely dependent on the variation of the "realised jumps" variable (RJ) it is all the more important to pick an expectation model which correctly describes how individuals form their expectations on their benefits and the structural changes which occur. In the following I will assume that individuals have no foresight about the

changes which occur in the passive benefits duration in the sample period. As described in section 4 this means that individuals do not realise any shortenings of the passive period until they are informed about their soon entrance to the active period by the unemployment funds. This assumption is based on surveys made on Danish unemployed individuals which indicate that most individuals have only very little knowledge about their location in the unemployment insurance system, cf. Bjørn & Dohlmann (2001). As described in section 2.3 when individuals are about three months from the activation period they are called to a meeting and informed about their prospect of activation. According to legislation, individuals who are closest to benefits exhaustion will also be targeted with most activation. When the passive period is shortened due to legislative changes, individuals may find themselves moved up to 12 months closer to benefits exhaustion. Since location in the activation period affects the individual's probability of receiving activation and since individuals by law will be informed about this, it is assumed here that these discreet jumps into the activation period are known to the unemployed individual.

In the estimation I condition on gender, family composition and level of education as well as initial passive UI entitlement (E), remaining passive UI (R), and duration of the UI spell (t). All variables apart from initial entitlement (E) are all modelled using dummies. This is done in order to impose the least restrictions on the parametric form of the model which potentially could result in "false" indications of a motivation effect. The duration dummy variables go from 1 month to 60 months due to the fact that the sample span 5 years[17]. The variable "remaining passive UI" is modelled with 26 dummy variables representing each month from 12 months remaining of the passive period to more than 12 months into the activation period. The omitted

[17] Actually the 3 last duration months do not appear in the estimations simply because no individuals had that long unemployment spells.

dummy variables are: for family construction "single without children", for education "primary school only", for gender "woman", for duration "month 1" and for the "remaining passive UI" variable (R) it is "more than 12 months remaining".

8 Results

In table 2 some of the parameter values of the hazard estimation are presented. The parameters on family composition indicate that couples with children have the highest hazard out of UI unemployment followed by couples without children, singles with children, and singles without children. The fact that

Table 2: Hazard Estimates of Demographics and Entitlement.

	Parameter values	Standard error
Secondary degree	-0.1962	0.0236
Upper secondary school	0.0436	0.0110
Vocational training	0.0216	0.0207
Shorter University degree	0.0461	0.0215
Bachelor degree	-0.0688	0.0233
Graduate degree	-0.1591	0.0128
Single with children	-0.0002	0.0178
Couple without children	0.1079	0.0131
Couple with children	0.1653	0.0110
Male	0.0384	0.0095
Entitlement	0.0141	0.0019
Entitlement^2	-0.0004	0.0000

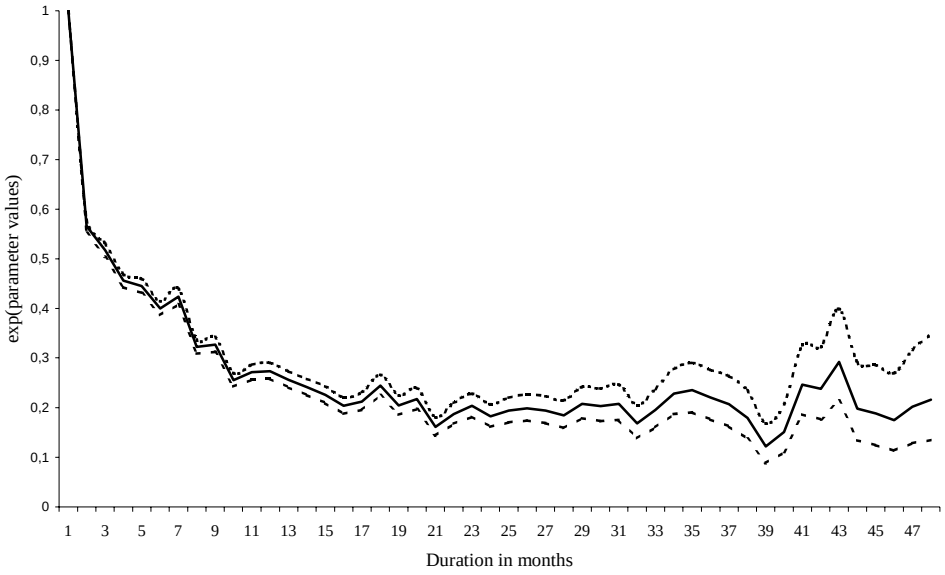
singles with children have a lower hazard than couples without children may be due to the fact that employment will not increase the net income substantially for this group due to the income tax and the subsidies given to them. For the

different education groups it appears that individuals with shorter university degree have the highest hazard followed by the upper secondary school group. The fact that bachelor degree and graduate degree does not result in an increase in the hazard compared to individuals with only primary school is surprising and not readily explainable. Both entitlement end entitlement squared are significant. According to the estimates individuals with around 18 months of entitlement have the highest hazard.

In figure 13 the parameter values of the duration dummies are displayed. The dummies display a sharp drop in the hazard over the first year of unemployment. After that it appears that the hazard stabilises with minor fluctuations. The estimation results of the duration dependency concur well with the Kaplan Meyer estimates of the hazard in figure 10 and 11 which also displays a sharp decline in the hazard over the first months of unemployment. Notice that the duration dummies do not pick up much of the increasing hazard which is also displayed in the two Kaplan Meyer graphs mentioned before. This indicates that the increase may indeed be due to a motivation effect.

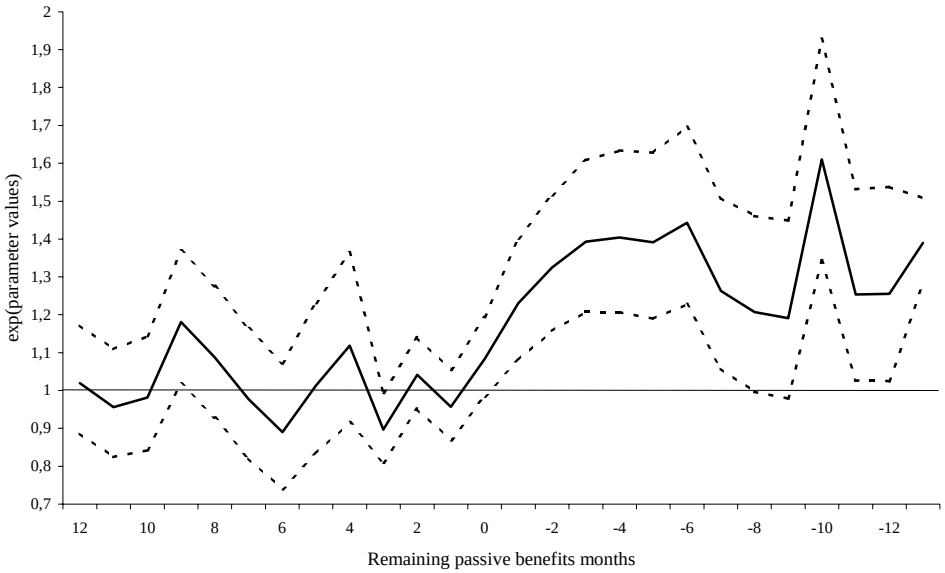
In figure 14 the dummies for remaining benefits are displayed. From the estimation it appears that the motivation effect slowly begins from approximately when passive benefits run out and then increases up to six months into the activation period. Even though the variance is large it appears that the effect is significant. For instance, six months into the activation period the hazard is increased with approximately 40 per cent due to the motivation effect. Even though it may seem odd that the motivation effect does not peak before well into the activation period, this actually does make sense. When individuals enter the activation period they have to have made an activation plan (as described in section 2.3). In this plan the case worker together with the unemployed individual writes down which activation the unemployed individual will have to participate in and they find out when the individual can

Figure 13: Effect of duration in unemployment.



begin at the activation schemes. At the meeting the unemployed individual will therefore learn exactly how much time he or she has left before the activation starts. Given that, it seems very likely that unemployed individuals do not increase their job search and reduce reservation before well into the activation period as the parameters indicate. In figure 15 I have used the parameters of the estimation to construct the hazard value for a representative person. The unemployed individual is assumed to be male, be married with children and have an upper secondary education. I have assumed that the individual has 24 months of passive benefits entitlement when beginning the unemployment spell. The full line describes the hazard values as they are without the motivation effect and the dotted line is the hazard values when the motivation effect is included. The figure indicates that the increasing hazard from the Kaplan Meyer estimates displayed in figure 10 and 11 are almost all due to the motivation effect. It appears that the motivation effect results in an increase in the hazard which is somewhere between 3 and 5 percentage

Figure 14: The motivation effect of activation, measured as the exponent of the parameter values.



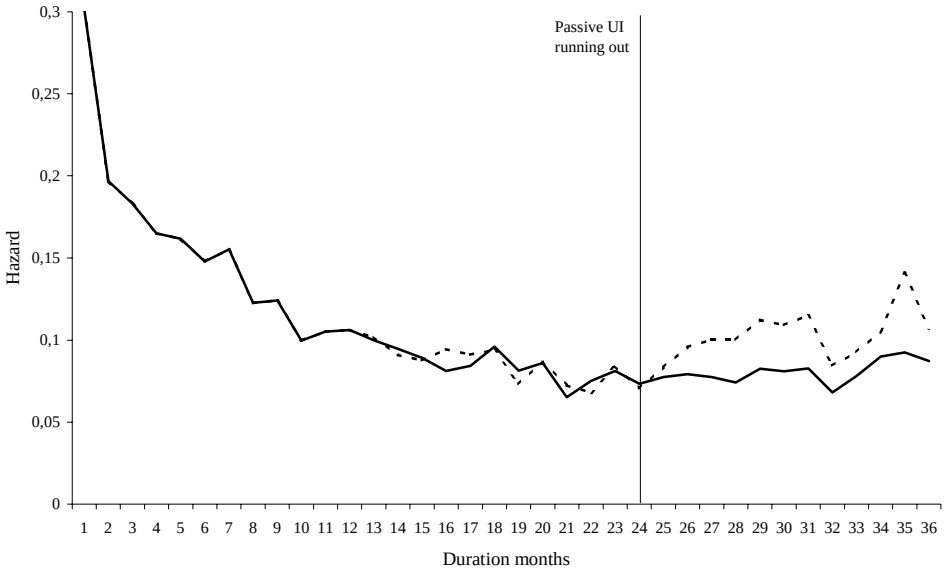
points and somewhere between 30 and 40 per cent.

8.1 Sensitivity to different expectation models

In order to test robustness of the estimation result I have performed similar estimations using other expectation models. I have estimated 8 different expectation models. The models are based on the following structures regarding expectations on time to the activation period prior to running into the activation period:

- Perfect foresight model: In this expectation model I assume that individuals from the beginning of the unemployment spell are aware of the shortenings of the passive UI period which will occur. In other words, individuals know how many months they have left until the activation period from the beginning of the spell.

Figure 15: Estimated hazard values for male with family, children, upper secondary education and 24 months of entitlement.



- System foresight I: In this expectation model I assume that individuals in mid 1996 learn about both the changes in 1996 and 1998.

- System foresight II: In this expectation model individuals do not learn about changes before they are fully implemented. This means that they learn about the 1996 change in 1996 and the 1998 change in 1998.

- No foresight: In this expectation model individuals do not learn about shortenings of the passive period before three months prior to entering the activation period.

When the passive period is shortened, some individuals may already have used more passive benefits than they are entitled to. This is the case, for instance, for all individuals who in January 1998 have used more than 2 years in the passive period. These individuals will according to the law be moved well "into" the activation period with the number of months they have over

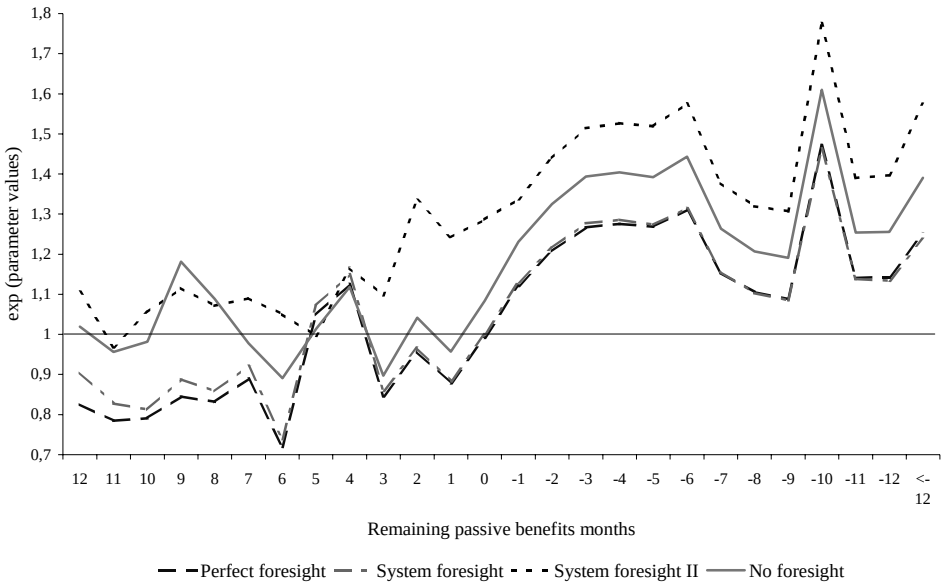
spent in the passive period. Since the law dictates that individuals who are furthest into the activation period should be activated first, individuals who are moved into the activation period will have a higher risk of activation than individuals who are just in the beginning of the activation period. In order to test whether individuals do actually take account of this risk in their expectations, I will use the four different expectation models described above in two different versions:

- Activation foresight A: I here assume that individuals know if they are moved further into the activation period because of a shortening of the passive period.
- Activation foresight B: I here assume that individuals only take account of the fact that they have entered the activation period and subsequently how many months they spend in the activation period.

As described in section 4 the sources of identification of the motivation effect will vary as we change the expectation model. If we assume perfect foresight the changes in the passive period will have no effect on the identification. In practise some limited identification arises from construction of dummies which results in rounding differences between the variables who would otherwise be perfectly colinear. The majority of the identification comes from the variable "initial passive period remaining" (E) which in the estimations has been modelled with a linear and squared term. Imposing this restrictive form on (E) makes it possible to identify the motivation form. All the remaining expectation models have discreet jumps in the variable "remaining passive benefits" (R) which is used to identify the motivation effect.

In figure 16 the four different expectation models for individuals taking account of the movement into the activation period are described (activation foresight A). In general it appears that the expectation models produce very

Figure 16: Estimation result of motivation effect using different expectation models and assuming knowledge about movement into activation period (activation foresight A).

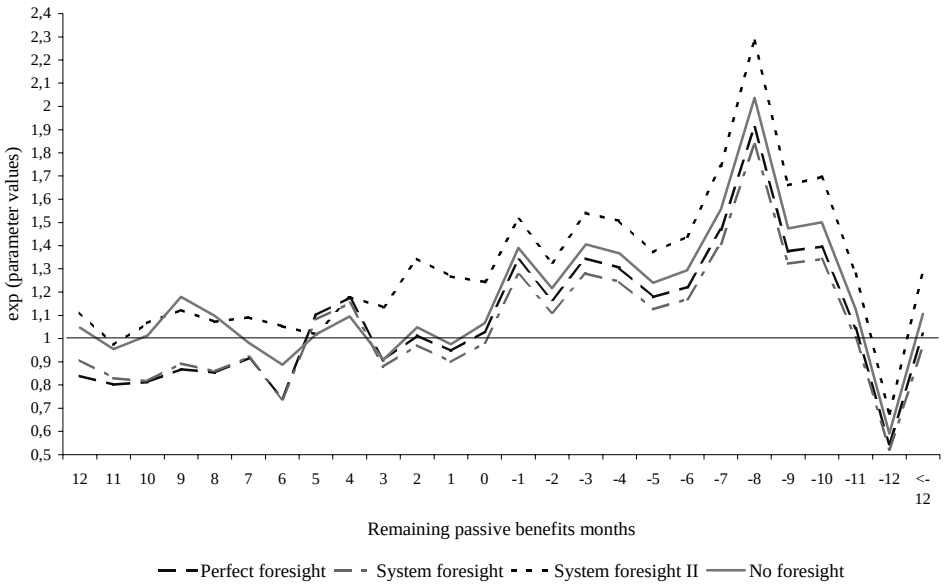


similar results. The system foresight II model seems to produce the strongest results. This indicates that this expectation model gives the most precise picture of individuals expectations. Interestingly, this model indicates that the motivation effect starts well before individuals run out of passive benefits. A result which is not found in any of the other expectation models.

In figure 17 I have displayed the estimation results for the four different expectation models where individuals do not take account of the movement into the activation period (activation foresight B). The estimation results are similar to the results found for the other four expectation up till the beginning of the activation period just as they should be[18]. In the activation period, however, the later models produce a spike in the estimated motivation effect when individuals are 8 months into the activation period. This can be seen

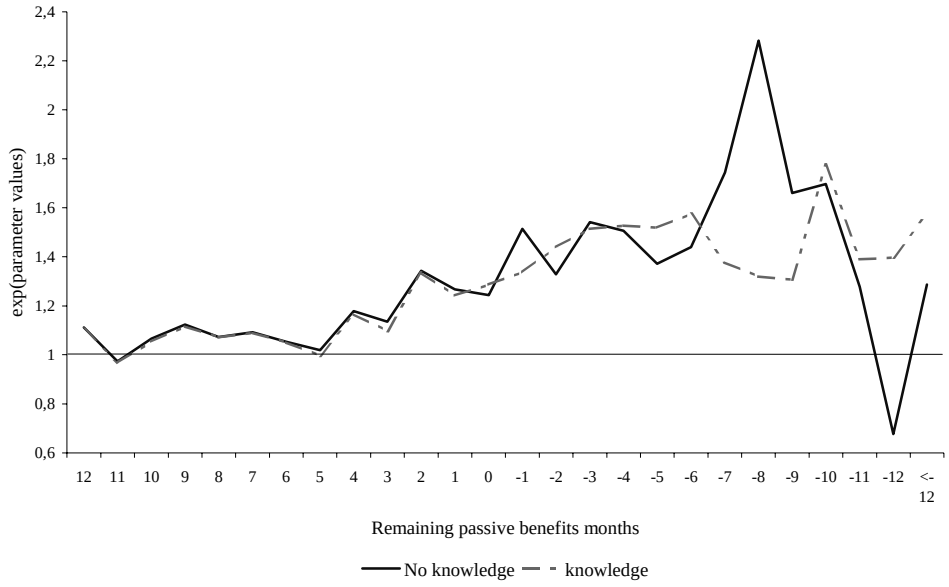
[18] Due to the construction of the expectations.

Figure 17: Estimation result of motivation effect using different expectation models and assuming no knowledge about movement into activation period (activation foresight B).



more clearly in figure 18 where the system foresight II model in the two different activation foresight versions are compared. This spike concurs well with the knowledge we have about the activation period. Since individuals first have to have made an activation plan, it is possible for individuals who wish to avoid activation to postpone it for up to about a year, cf. figure 9. This means that the final deadline for leaving the UI system in order to avoid activation seems to be a little less than 1 year into the activation period, which is also exactly what we find in the estimation with the spike after 8 months. The following drop in the motivation effect can be explained by the fact that after a year into the activation period, almost every individual who do not wish to participate in activation have left the UI system. After that, almost all remaining individuals participate in activation and therefore reduce their job search (lock in effect). The fact that this spike can not be found

Figure 18: Comparison of the estimation results from the no foresight model with the activation foresight model A and B.



in the model where individuals are assumed to have knowledge about the movement into the activation period (activation foresight A) does indicate that this model is not as good at explaining individuals' expectations and consequently behaviour.

9 Concluding remark

In this chapter I have analysed whether the activation period introduced in to the Danish UI system in 1994 has a motivating effect similar to the effects found in insurance systems where individuals are motivated by the prospect of loosing their right to benefits all together. In general I find that activation do have a motivating effect. I find that activation results in a significant motivation effect. The hazard out of insured unemployment is found to increase when individuals enter the activation period and continue well into the activation period. The reason for this is most likely that individuals can con-

tinue for a while in the activation period before they are forced to participate in some sort of activation. The motivation effect appears first time somewhere between 0 and 4 months prior to the activation period and continues aproximately 12 months into the activation period.

An important aspect of modelling the motivation effect is how individuals form their beliefs about time to the activation period. Applying a wrong expectation model will result in a watering down of the estimated motivation effect. Different expectation models were estimated. The results indicate that individuals do not update their expectations regarding time to the activation period before legislative changes are implemented. This is even though these changes may be announced well before the implementation. Furthermore, when the passive period is shortened, people who have been staying in the passive period longer than the new rules allow are according to UI rules moved into the activation period with the number of months they have "over used" in the passive period. Since the risk of activation according to rules should be positively correlated with how many month a person is into the activation period, individuals may take account of this. The estimations indicate that this is not so. The expectation models where individuals only take account of how many months they have actually spend in the activation period give the strongest motivation results. By using the expectation models which gives the best fit of the motivation effect I find that the motivation effect first appears aproximately 5 months prior to the activation period with a 20-40 per cent increase, cf. figure 18. The effect peaks 8 months into the activation period with a 130 per cent increase in the hazard. This is followed by a lock in effect for the remaining individuals who reduce their job search effort due to participation in activation.

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A The placing of unemployed according to the new rules from 1994

The implementation of the UI rules from 1994 means that anybody who receives UI after 1 January 1994 has to be given an "unemployment seniority". The seniority desides the remaining UI as well as activation for the individual. Below I give a short description of the rules that has been used for this purpose. The rules below are taken from the departmental order "Bekendtgørelse om overgangsordninger for medlemmer af anerkendte arbejdsløshedskasser ved ikrafttræden af love om en aktiv arbejdsmarkedspolitik og lov om arbejdsløshedsforsikring m.v." from 1 december 1993, nr. 906.

A.1 Calculation of unemployment seniority

- A members unemployment seniority is determined the first time after 1 january 1994 the member claims UI. If the member is unemployed at 1 january 1994, the seniority has to be determined within 5 months.

- No unemployment which is located prior to the last time a person fulfilled the UI eligibility criteria by non supported employment is counted in the seniority.

- For a member who have not been in activation, unemployment which has ocurred up till three years prior to the determination of seniority is included.

- For a member who have participated in activation schemes, the unemployment starting from the first day after the last activation spell is counted in the seniority.

- For members who have participated in activation once, unemployment prior to the activation is counted in the seniority as twenty four months

irrespective of the unemployments actual length. The activation period it self is counted in the seniority with its actual duration.

- Members who have participated in two activation periods are placed in the activation period.
- For members who has discontinued an activation period, the period is counted in the seniority as a completed period with duration equal to what the member has completed.

B Tables

Table 3: Hazard estimates of the four expectation models with activation foresight model I.

Variables	Perfect foresight parameter	St.error	System foresight I Parameter	St. error
t=1	0.0000		0.0000	
t=2	-0.5668	0.0120	-0.5687	0.0120
t=3	-0.6531	0.0132	-0.6563	0.0132
t=4	-0.7758	0.0148	-0.7810	0.0148
t=5	-0.7958	0.0160	-0.8027	0.0160
t=6	-0.8962	0.0179	-0.9046	0.0178
t=7	-0.8369	0.0189	-0.8460	0.0189
t=8	-1.1080	0.0223	-1.1172	0.0222
t=9	-1.0915	0.0236	-1.1016	0.0236
t=10	-1.3339	0.0274	-1.3440	0.0274
t=11	-1.2705	0.0284	-1.2832	0.0283
t=12	-1.2457	0.0301	-1.2640	0.0300
t=13	-1.3138	0.0327	-1.3284	0.0326
t=14	-1.3745	0.0354	-1.3883	0.0353
t=15	-1.4386	0.0384	-1.4544	0.0382
t=16	-1.5386	0.0421	-1.5549	0.0418
t=17	-1.4952	0.0434	-1.5136	0.0431
t=18	-1.3439	0.0433	-1.3640	0.0430
t=19	-1.5424	0.0491	-1.5582	0.0488
t=20	-1.4754	0.0503	-1.4923	0.0499
t=21	-1.7590	0.0595	-1.7765	0.0591
t=22	-1.6100	0.0583	-1.6265	0.0578
t=23	-1.5227	0.0591	-1.5407	0.0586
t=24	-1.5689	0.0663	-1.6399	0.0643
t=25	-1.4955	0.0683	-1.5747	0.0661
t=26	-1.4726	0.0710	-1.5448	0.0686
t=27	-1.5173	0.0750	-1.5709	0.0726
t=28	-1.5609	0.0804	-1.6106	0.0781
t=29	-1.4621	0.0812	-1.4842	0.0802
t=30	-1.4163	0.0867	-1.4286	0.0860
t=31	-1.5367	0.0913	-1.5560	0.0906
t=32	-1.7679	0.1042	-1.7901	0.1035
t=33	-1.5158	0.1041	-1.5312	0.1033
t=34	-1.3653	0.1021	-1.3830	0.1012
t=35	-1.3315	0.1087	-1.3481	0.1078
t=36	-1.3878	0.1160	-1.4108	0.1151
t=37	-1.4441	0.1248	-1.4699	0.1240
t=38	-1.5819	0.1379	-1.6100	0.1372
t=39	-1.9676	0.1668	-1.9979	0.1662
t=40	-1.7471	0.1606	-1.7782	0.1599
t=41	-1.2562	0.1437	-1.2869	0.1429
t=42	-1.2860	0.1555	-1.3178	0.1547
t=43	-1.0834	0.1597	-1.1134	0.1588
t=44	-1.4752	0.1986	-1.5034	0.1979
t=45	-1.5200	0.2145	-1.5487	0.2138

Table 3: Continued.

Variables	Perfect foresight parameter	St.error	System foresight I Parameter	St. error
t=46	-1.5933	0.2218	-1.6214	0.2211
t=47	-1.4436	0.2313	-1.4712	0.2304
t=48	-1.3719	0.2433	-1.3993	0.2425
t=49	-1.6328	0.2955	-1.6615	0.2948
t=50	-1.4738	0.2977	-1.5048	0.2971
t=51	-1.8624	0.3710	-1.8940	0.3705
t=52	-1.3137	0.3259	-1.3468	0.3253
t=53	-0.9594	0.3202	-0.9936	0.3196
t=54	-1.3726	0.4054	-1.4065	0.4049
t=55	-1.2519	0.4408	-1.2874	0.4403
t=56	-2.0821	0.7314	-2.1176	0.7312
t=57	-2.5664	1.0212	-2.6021	1.0210
R=12	-0.1927	0.0322	-0.1006	0.0340
R=11	-0.2425	0.0339	-0.1892	0.0354
R=10	-0.2345	0.0356	-0.2083	0.0370
R=9	-0.1686	0.0366	-0.1187	0.0371
R=8	-0.1847	0.0388	-0.1530	0.0388
R=7	-0.1168	0.0396	-0.0816	0.0391
R=6	-0.3300	0.0442	-0.3037	0.0436
R=5	0.0473	0.0399	0.0688	0.0391
R=4	0.1179	0.0419	0.1396	0.0411
R=3	-0.1675	0.0481	-0.1521	0.0472
R=2	-0.0448	0.0481	-0.0344	0.0470
R=1	-0.1299	0.0515	-0.1241	0.0503
R=0	-0.0088	0.0512	-0.0004	0.0499
R=-1	0.1143	0.0682	0.1219	0.0672
R=-2	0.1881	0.0708	0.1953	0.0697
R=-3	0.2365	0.0749	0.2447	0.0739
R=-4	0.2435	0.0792	0.2512	0.0782
R=-5	0.2378	0.0821	0.2416	0.0811
R=-6	0.2701	0.0845	0.2732	0.0835
R=-7	0.1430	0.0923	0.1448	0.0914
R=-8	0.1001	0.0991	0.0980	0.0984
R=-9	0.0837	0.1016	0.0813	0.1008
R=-10	0.3866	0.0938	0.3810	0.0929
R=-11	0.1316	0.1036	0.1293	0.1028
R=-12	0.1335	0.1049	0.1256	0.1041
R<=-13	0.2239	0.0462	0.2133	0.0426

Table 3: Continued.

Variables	Perfect foresight parameter	St.error	System foresight I Parameter	St. error
Single w.ch.	-0.0004	0.0155	-0.0004	0.0155
Couple without c.	0.1232	0.0112	0.1249	0.0112
Couple w.ch.	0.1777	0.0094	0.1803	0.0094
Male	0.0627	0.0081	0.0617	0.0081
Secondary	-0.1867	0.0204	-0.1872	0.0204
Upper secondary	0.0676	0.0095	0.0682	0.0094
Vocat. training	0.0651	0.0174	0.0665	0.0174
Shorter univers.	0.0862	0.0178	0.0850	0.0178
Bach. degree	0.0004	0.0190	-0.0001	0.0190
Grad. degree	-0.1482	0.0113	-0.1511	0.0113
Entitlement	0.0253	0.0026	0.0104	0.0019
Entitlement2	-0.0007	0.0000	-0.0002	0.0000
Constant	-1.0449	0.0368	-0.9618	0.0314

Table 4: Hazard estimates of the four expectation models with activation foresight model I.

Variables	System foresight II parameter	St.error	No foresight Parameter	St. error
t=1	0.0000		0.0000	
t=2	-0.5712	0.0120	-0.5704	0.0120
t=3	-0.6614	0.0132	-0.6597	0.0132
t=4	-0.7886	0.0148	-0.7860	0.0148
t=5	-0.8139	0.0160	-0.8102	0.0160
t=6	-0.9207	0.0178	-0.9158	0.0178
t=7	-0.8650	0.0188	-0.8588	0.0188
t=8	-1.1399	0.0222	-1.1324	0.0221
t=9	-1.1276	0.0235	-1.1186	0.0234
t=10	-1.3753	0.0273	-1.3643	0.0272
t=11	-1.3188	0.0282	-1.3054	0.0281
t=12	-1.3131	0.0298	-1.2963	0.0296
t=13	-1.3789	0.0324	-1.3618	0.0322
t=14	-1.4446	0.0351	-1.4222	0.0349
t=15	-1.5156	0.0380	-1.4893	0.0378
t=16	-1.6192	0.0416	-1.5925	0.0414
t=17	-1.5813	0.0430	-1.5503	0.0427
t=18	-1.4396	0.0428	-1.4082	0.0424
t=19	-1.6267	0.0487	-1.5893	0.0482
t=20	-1.5751	0.0498	-1.5276	0.0493
t=21	-1.8789	0.0591	-1.8268	0.0586
t=22	-1.7341	0.0578	-1.6763	0.0572
t=23	-1.6548	0.0586	-1.5926	0.0579
t=24	-1.7682	0.0645	-1.7008	0.0634
t=25	-1.6990	0.0663	-1.6419	0.0652
t=26	-1.6920	0.0688	-1.6175	0.0676

Table 4: Continued.

Variables	System foresight II parameter	St.error	No foresight Parameter	St. error
t=27	-1.7270	0.0729	-1.6406	0.0716
t=28	-1.7748	0.0785	-1.6902	0.0769
t=29	-1.6765	0.0811	-1.5722	0.0774
t=30	-1.6844	0.0869	-1.5942	0.0826
t=31	-1.6467	0.0921	-1.5715	0.0874
t=32	-1.9260	0.1048	-1.7812	0.1003
t=33	-1.7790	0.1047	-1.6343	0.1009
t=34	-1.6762	0.1027	-1.4793	0.1006
t=35	-1.6430	0.1094	-1.4482	0.1072
t=36	-1.6626	0.1171	-1.5128	0.1146
t=37	-1.6801	0.1238	-1.5767	0.1235
t=38	-1.8218	0.1369	-1.7182	0.1366
t=39	-2.2119	0.1659	-2.1077	0.1657
t=40	-1.9966	0.1596	-1.8902	0.1594
t=41	-1.5103	0.1425	-1.4006	0.1423
t=42	-1.5463	0.1543	-1.4353	0.1541
t=43	-1.3425	0.1585	-1.2298	0.1583
t=44	-1.7377	0.1977	-1.6218	0.1975
t=45	-1.7894	0.2136	-1.6702	0.2134
t=46	-1.8685	0.2210	-1.7452	0.2208
t=47	-1.7338	0.2305	-1.6019	0.2302
t=48	-1.6644	0.2426	-1.5312	0.2423
t=49	-1.9272	0.2949	-1.7938	0.2946
t=50	-1.7715	0.2972	-1.6380	0.2969
t=51	-2.1609	0.3706	-2.0274	0.3704
t=52	-1.6142	0.3254	-1.4806	0.3252
t=53	-1.2614	0.3197	-1.1277	0.3195
t=54	-1.6744	0.4049	-1.5405	0.4048
t=55	-1.5558	0.4404	-1.4220	0.4402
t=56	-2.3862	0.7312	-2.2524	0.7311
t=57	-2.8707	1.0210	-2.7368	1.0209
R=12	0.1007	0.0424	0.0191	0.0713
R=11	-0.0324	0.0451	-0.0446	0.0756
R=10	0.0533	0.0445	-0.0184	0.0778
R=9	0.1089	0.0448	0.1665	0.0755
R=8	0.0687	0.0464	0.0846	0.0811
R=7	0.0862	0.0473	-0.0228	0.0892
R=6	0.0486	0.0501	-0.1159	0.0947
R=5	-0.0039	0.0535	0.0132	0.0994
R=4	0.1528	0.0532	0.1117	0.1016
R=3	0.0927	0.0577	-0.1085	0.0523
R=2	0.2891	0.0564	0.0409	0.0461
R=1	0.2165	0.0611	-0.0438	0.0495
R=0	0.2519	0.0637	0.0807	0.0491
R=-1	0.2906	0.0667	0.2077	0.0664
R=-2	0.3643	0.0691	0.2813	0.0688
R=-3	0.4147	0.0733	0.3317	0.0730
R=-4	0.4231	0.0774	0.3394	0.0772
R=-5	0.4180	0.0803	0.3305	0.0801

Table 4: Continued.

Variables	System foresight II parameter	St.error	No foresight Parameter	St. error
R=-6	0.4546	0.0827	0.3669	0.0825
R=-7	0.3199	0.0907	0.2336	0.0905
R=-8	0.2773	0.0977	0.1880	0.0975
R=-9	0.2673	0.1002	0.1748	0.1000
R=-10	0.5746	0.0924	0.4762	0.0921
R=-11	0.3289	0.1024	0.2264	0.1021
R=-12	0.3343	0.1039	0.2274	0.1035
R<=-13	0.4541	0.0432	0.3292	0.0416
Single w.ch.	-0.0015	0.0155	-0.0014	0.0155
Couple w.out ch.	0.1250	0.0112	0.1254	0.0112
Couple w.ch.	0.1792	0.0094	0.1794	0.0094
Male	0.0626	0.0081	0.0632	0.0081
Secondary	-0.1877	0.0204	-0.1880	0.0204
Upper second.	0.0665	0.0094	0.0675	0.0094
Vocat. training	0.0657	0.0174	0.0663	0.0174
Shorter univers.	0.0818	0.0178	0.0840	0.0178
Bach. degree	-0.0025	0.0190	-0.0011	0.0190
Grad. degree	-0.1513	0.0113	-0.1508	0.0113
Entitlement	0.0182	0.0019	0.0127	0.0018
Entitlement2	-0.0003	0.0000	-0.0002	0.0000
Constant	-1.2037	0.0347	-1.0781	0.0348

Table 5: Hazard estimates of the four expectation models with activation foresight model II.

Variables	Perfect foresight parameter	St.error	System foresight I Parameter	St. error
t=2	-0.5672	0.0120	-0.5689	0.0120
t=3	-0.6536	0.0132	-0.6565	0.0132
t=4	-0.7770	0.0148	-0.7816	0.0148
t=5	-0.7973	0.0161	-0.8033	0.0160
t=6	-0.8981	0.0179	-0.9049	0.0178
t=7	-0.8398	0.0189	-0.8467	0.0189
t=8	-1.1116	0.0223	-1.1180	0.0222
t=9	-1.0972	0.0236	-1.1037	0.0236
t=10	-1.3403	0.0274	-1.3460	0.0274
t=11	-1.2783	0.0284	-1.2855	0.0283
t=12	-1.2553	0.0301	-1.2663	0.0300
t=13	-1.3243	0.0328	-1.3305	0.0326
t=14	-1.3876	0.0355	-1.3916	0.0353
t=15	-1.4523	0.0385	-1.4569	0.0382
t=16	-1.5537	0.0422	-1.5570	0.0419
t=17	-1.5096	0.0435	-1.5135	0.0432
t=18	-1.3599	0.0434	-1.3639	0.0430
t=19	-1.5659	0.0493	-1.5634	0.0488

Table 5: Continued.

Variables	Perfect foresight parameter	St.error	System foresight I Parameter	St. error
t=20	-1.4981	0.0505	-1.4952	0.0500
t=21	-1.7846	0.0597	-1.7804	0.0592
t=22	-1.6345	0.0585	-1.6279	0.0579
t=23	-1.5473	0.0594	-1.5403	0.0587
t=24	-1.6084	0.0667	-1.6460	0.0644
t=25	-1.5511	0.0687	-1.5938	0.0663
t=26	-1.5227	0.0714	-1.5574	0.0688
t=27	-1.5578	0.0754	-1.5736	0.0727
t=28	-1.5935	0.0808	-1.6054	0.0782
t=29	-1.4919	0.0816	-1.4746	0.0804
t=30	-1.4510	0.0872	-1.4222	0.0861
t=31	-1.5968	0.0917	-1.5720	0.0907
t=32	-1.8256	0.1046	-1.8021	0.1036
t=33	-1.5698	0.1046	-1.5383	0.1035
t=34	-1.4052	0.1026	-1.3741	0.1014
t=35	-1.3832	0.1092	-1.3490	0.1079
t=36	-1.4316	0.1164	-1.4042	0.1152
t=37	-1.5601	0.1231	-1.5379	0.1219
t=38	-1.5773	0.1367	-1.5569	0.1355
t=39	-2.0119	0.1657	-1.9934	0.1647
t=40	-1.7591	0.1601	-1.7444	0.1590
t=41	-1.1982	0.1445	-1.1865	0.1433
t=42	-1.2481	0.1576	-1.2396	0.1564
t=43	-1.2299	0.1626	-1.2240	0.1614
t=44	-1.8195	0.2024	-1.8185	0.2015
t=45	-1.6102	0.2223	-1.6077	0.2214
t=46	-1.5485	0.2336	-1.5464	0.2327
t=47	-1.2356	0.2496	-1.2318	0.2488
t=48	-0.6927	0.2749	-0.6820	0.2743
t=49	-1.4179	0.3157	-1.4011	0.3144
t=50	-1.2687	0.3182	-1.2544	0.3170
t=51	-1.6572	0.3877	-1.6436	0.3866
t=52	-1.1082	0.3448	-1.0963	0.3436
t=53	-0.7537	0.3394	-0.7430	0.3382
t=54	-1.1669	0.4206	-1.1560	0.4197
t=55	-1.0458	0.4549	-1.0368	0.4540
t=56	-1.8760	0.7400	-1.8670	0.7395
t=57	-2.3602	1.0273	-2.3515	1.0270
R=12	-0.1760	0.0323	-0.0984	0.0340
R=11	-0.2216	0.0340	-0.1870	0.0355
R=10	-0.2079	0.0357	-0.2023	0.0370
R=9	-0.1418	0.0368	-0.1138	0.0371
R=8	-0.1592	0.0391	-0.1536	0.0389
R=7	-0.0877	0.0400	-0.0832	0.0392
R=6	-0.2946	0.0445	-0.3016	0.0437
R=5	0.0961	0.0403	0.0786	0.0392
R=4	0.1625	0.0424	0.1419	0.0411
R=3	-0.0976	0.0481	-0.1297	0.0468
R=2	0.0133	0.0485	-0.0284	0.0469

Table 5: Continued.

Variables	Perfect foresight parameter	St.error	System foresight I Parameter	St. error
R=1	-0.0552	0.0516	-0.1070	0.0498
R=0	0.0300	0.0516	-0.0182	0.0498
R=-1	0.2913	0.0521	0.2433	0.0500
R=-2	0.1544	0.0586	0.1078	0.0567
R=-3	0.2960	0.0610	0.2466	0.0590
R=-4	0.2657	0.0665	0.2189	0.0646
R=-5	0.1641	0.0733	0.1186	0.0715
R=-6	0.2006	0.0777	0.1569	0.0758
R=-7	0.3841	0.0791	0.3419	0.0770
R=-8	0.6471	0.0803	0.6080	0.0781
R=-9	0.3189	0.0978	0.2794	0.0959
R=-10	0.3330	0.1051	0.2946	0.1032
R=-11	0.0434	0.1247	0.0041	0.1231
R=-12	-0.6065	0.1743	-0.6481	0.1735
R<=-13	0.0201	0.1214	-0.0366	0.1184
Singl.w.ch.	-0.0002	0.0155	-0.0003	0.0155
Couple w.out.ch.	0.1223	0.0112	0.1247	0.0112
Couple w.ch.	0.1771	0.0094	0.1803	0.0094
Male	0.0627	0.0081	0.0618	0.0081
Secondary	-0.1867	0.0204	-0.1874	0.0204
Upper Secondary	0.0671	0.0095	0.0682	0.0094
Vocat. train.	0.0647	0.0174	0.0665	0.0174
Shorter Univ.d.	0.0856	0.0178	0.0849	0.0178
Bach. degr.	-0.0008	0.0190	-0.0001	0.0190
Grad. degr.	-0.1477	0.0113	-0.1511	0.0113
Entitlement	0.0355	0.0031	0.0117	0.0021
Entitlement2	-0.0009	0.0001	-0.0002	0.0000
Constant	-1.1713	0.0421	-0.9782	0.0339

Table 6: Hazard estimates of the four expectation models with activation foresight model II.

Variables	System foresight II parameter	St.error	No foresight Parameter	St. error
t=2	-0.5714	0.0120	-0.5707	0.0120
t=3	-0.6615	0.0132	-0.6598	0.0132
t=4	-0.7890	0.0148	-0.7865	0.0148
t=5	-0.8142	0.0160	-0.8106	0.0160
t=6	-0.9207	0.0178	-0.9159	0.0178
t=7	-0.8654	0.0188	-0.8593	0.0188
t=8	-1.1403	0.0222	-1.1329	0.0221
t=9	-1.1294	0.0235	-1.1203	0.0235
t=10	-1.3772	0.0273	-1.3660	0.0272
t=11	-1.3211	0.0282	-1.3073	0.0281
t=12	-1.3155	0.0298	-1.2980	0.0296

Table 6: Continued.

Variables	System foresight II parameter	St.error	No foresight Parameter	St. error
t=13	-1.3808	0.0324	-1.3630	0.0322
t=14	-1.4477	0.0351	-1.4245	0.0349
t=15	-1.5181	0.0380	-1.4909	0.0378
t=16	-1.6217	0.0417	-1.5942	0.0414
t=17	-1.5815	0.0430	-1.5496	0.0427
t=18	-1.4400	0.0428	-1.4071	0.0425
t=19	-1.6322	0.0487	-1.5927	0.0482
t=20	-1.5785	0.0499	-1.5291	0.0493
t=21	-1.8834	0.0591	-1.8293	0.0586
t=22	-1.7361	0.0578	-1.6767	0.0573
t=23	-1.6552	0.0587	-1.5912	0.0580
t=24	-1.7757	0.0646	-1.7057	0.0635
t=25	-1.7200	0.0664	-1.6592	0.0653
t=26	-1.7070	0.0690	-1.6282	0.0678
t=27	-1.7323	0.0730	-1.6420	0.0717
t=28	-1.7716	0.0786	-1.6843	0.0770
t=29	-1.6691	0.0812	-1.5620	0.0774
t=30	-1.6799	0.0870	-1.5860	0.0827
t=31	-1.6688	0.0921	-1.5824	0.0875
t=32	-1.9431	0.1048	-1.7918	0.1004
t=33	-1.7929	0.1047	-1.6342	0.1010
t=34	-1.6688	0.1028	-1.4703	0.1007
t=35	-1.6464	0.1093	-1.4497	0.1073
t=36	-1.6462	0.1169	-1.5060	0.1146
t=37	-1.7451	0.1216	-1.6425	0.1213
t=38	-1.7690	0.1353	-1.6641	0.1350
t=39	-2.2127	0.1645	-2.1052	0.1643
t=40	-1.9686	0.1588	-1.8571	0.1585
t=41	-1.4174	0.1431	-1.3017	0.1428
t=42	-1.4789	0.1562	-1.3594	0.1558
t=43	-1.4698	0.1612	-1.3445	0.1608
t=44	-2.0671	0.2013	-1.9413	0.2010
t=45	-1.8665	0.2212	-1.7359	0.2209
t=46	-1.8117	0.2326	-1.6769	0.2323
t=47	-1.5045	0.2487	-1.3652	0.2484
t=48	-0.9693	0.2742	-0.8222	0.2739
t=49	-1.7134	0.3147	-1.5546	0.3143
t=50	-1.5680	0.3172	-1.4090	0.3168
t=51	-1.9574	0.3868	-1.7983	0.3865
t=52	-1.4106	0.3438	-1.2514	0.3435
t=53	-1.0577	0.3384	-0.8985	0.3381
t=54	-1.4706	0.4198	-1.3114	0.4196
t=55	-1.3520	0.4541	-1.1927	0.4539
t=56	-2.1824	0.7396	-2.0231	0.7394
t=57	-2.6668	1.0270	-2.5075	1.0269
R=12	0.1056	0.0424	0.0462	0.0706
R=11	-0.0272	0.0451	-0.0467	0.0756
R=10	0.0640	0.0444	0.0123	0.0769
R=9	0.1162	0.0448	0.1652	0.0754

Table 6: Continued.

Variables	System foresight II parameter	St.error	No foresight Parameter	St. error
R=8	0.0695	0.0465	0.0939	0.0805
R=7	0.0877	0.0473	-0.0181	0.0887
R=6	0.0520	0.0500	-0.1202	0.0941
R=5	0.0181	0.0531	0.0178	0.0984
R=4	0.1639	0.0526	0.0913	0.1010
R=3	0.1274	0.0565	-0.0943	0.0518
R=2	0.2954	0.0557	0.0474	0.0459
R=1	0.2369	0.0595	-0.0248	0.0489
R=0	0.2182	0.0625	0.0643	0.0489
R=-1	0.4147	0.0495	0.3294	0.0491
R=-2	0.2837	0.0561	0.1958	0.0558
R=-3	0.4325	0.0585	0.3407	0.0581
R=-4	0.4094	0.0641	0.3129	0.0636
R=-5	0.3161	0.0710	0.2146	0.0705
R=-6	0.3640	0.0753	0.2582	0.0747
R=-7	0.5563	0.0765	0.4429	0.0760
R=-8	0.8251	0.0778	0.7113	0.0770
R=-9	0.5070	0.0956	0.3887	0.0949
R=-10	0.5287	0.1030	0.4057	0.1023
R=-11	0.2457	0.1229	0.1181	0.1223
R=-12	-0.3910	0.1734	-0.5264	0.1729
R<=-13	0.2521	0.1189	0.1011	0.1180
Singl.w.ch.	-0.0015	0.0155	-0.0013	0.0155
Couple w.out.ch.	0.1246	0.0112	0.1251	0.0112
Couple w.ch.	0.1790	0.0094	0.1793	0.0094
Male	0.0628	0.0081	0.0634	0.0081
Secondary	-0.1878	0.0204	-0.1882	0.0204
Upper Secondary	0.0664	0.0094	0.0675	0.0094
Vocat. train.	0.0657	0.0174	0.0663	0.0174
Shorter Univ.d.	0.0820	0.0178	0.0841	0.0178
Bach. degr.	-0.0030	0.0190	-0.0013	0.0190
Grad. degr.	-0.1510	0.0113	-0.1507	0.0113
Entitlement	0.0209	0.0021	0.0145	0.0021
Entitlement2	-0.0003	0.0000	-0.0002	0.0000
Constant	-1.2453	0.0377	-1.1035	0.0382

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