

# Experimental Evidence on the Effects of Early Meetings and Activation \*

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## Abstract

We analyse the effects of four randomised social experiments, involving early and intensive active labour market policy, conducted in Denmark in 2008. The experiments entailed different combinations of early and intensive treatment in terms of meetings and active labour market programs. The effects are remarkable; frequent meetings between newly unemployed workers and case workers can increase employment rates over the next two years by 10%, corresponding to 5 weeks. For men, we find evidence of a threat effect of having to participate in early active labour market programs, while no such effect is found for women. In general, we find large differences between men and women, especially in the exact timing of the effects. We conduct a cost-benefit analysis of each of the four experiments and find that meetings yield the largest net benefits.

JEL-Codes: J64, J68

Keywords: Randomized social experiment, treatment effect, active labour market policy, cost-benefit analysis

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# 1 Introduction

We present results from four randomized social experiments involving early and intensive active labour market policies. The experiments were conducted on newly unemployed unemployment insurance (UI) benefit recipients in Denmark in 2008. The experimental treatments consisted of dramatic increases in the frequency of early counseling and monitoring, and of early mandatory active labour market programs (ALMPs). The experiments shed light on the nature of active labour market policy impacts, and in particular on their differential effects on men and women, but we also investigate differential effects between young workers and older workers, across different cyclical conditions, and impacts on unemployment and job durations. We find that counseling and monitoring, through meetings between caseworkers and unemployed workers, are the most effective instrument in the active labour market policy toolbox, and that the threat of ALMPs have a dramatically large positive effect on the employment of men but a small negative one on women. Finally, we conduct a rudimentary cost-benefit analysis of the various policies.

In 2005, the first Danish randomized labour market policy experiment was conducted<sup>1</sup>, Quickly Back to Work (QBW1, hereafter), see Gravensen & van Ours (2008), Rosholm (2008), and Vikström *et al.* (2011). It involved a dramatic intensification of active labour market policies in the sense of providing newly unemployed workers with a sequence of treatments at a very early stage of unemployment. This experiment involved a number of active labour market policy instruments, i.e. job search training courses, frequent meetings with caseworkers, and early mandatory activation. The results were overwhelming: those who were randomized into the treatment group experienced a 3 week reduction in unemployment duration compared to those in the control group, and a cost-benefit analysis conducted by the Danish Economic Council (2007) demonstrated large net gains. However, there was uncertainty concerning the actual source of the success; was it the combined package of treatments, or were certain elements of the package crucial? Could even better results be obtained by focusing on single elements of the package, or could similar effects be obtained at lower costs? To shed light on these questions, a new set of four randomized experiments were designed, Quickly Back to Work 2 (QBW2, henceforth). These experiments were designed in such a way that they would yield estimates of the

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<sup>1</sup>Strictly speaking another randomized experiment was conducted already in 1994 although the target group was different, for more on this experiment see Rosholm and Skipper (2009).

effects of single elements of the QBW1 package. The treatments consists of weekly group meetings between a group of unemployed workers and 1-2 case workers (A), bi-weekly individual meetings between one unemployed worker and one case worker (B), early program participation (C), and a combination of group meetings and program participation (D). The randomized experiments, which are often referred to as a gold standard within the literature (see e.g. Kluve, 2010), create an ideal setting for trying to resolve the issue of the most effective treatment design. Essential problems such as selection into treatment and uncertainty about the contents of treatment can be avoided or are at least less problematic using a carefully designed randomized experiment.

As an aside, QBW1 and QBW2 mark an interesting paradigmatic change in the way policy makers approach active labour market policy making in Denmark: While it has not yet been fully implemented, it is the stated intention that policy changes should now be preceded by the collection of empirical evidence on its likely impact. For example, since the QBW2 experiment in 2008, further 8 sets of experiments have been or are being conducted, intended to foster further refinement in the use of active labour market policies in Denmark. For this reason alone, we believe that it is appropriate to refer to Denmark as a laboratory for active labour market policies.

Active labour market policies are a pivotal element in the so-called Flexicurity model for the labour market, which the EU commission recommends to its member states, referring to Denmark as a model case (European Commission, 2007). The Flexicurity model consists of three components; 1) flexible hiring and firing rules and regulations (that is, low levels of employment protection legislation), similar in spirit to those in Anglo-Saxon countries 2) a generous and universal unemployment insurance and social assistance system, similar to that in other Scandinavian welfare economies, and 3) *a very active labour market policy* ensuring the availability and the qualification level of the workforce. In the 1980s, when unemployment rates were persistently high, the first two features of the Flexicurity model - flexibility in the labour market and a tight social safety net - were already present in the Danish labour market, but active labour market policies (ALMP) were only in their infant stages and not nearly as intensive as they have become today. In the 1990s the equilibrium unemployment rate fell parallel with an increasing intensification of ALMP and therefore, many observers have seen intensive active labour market policies as *the* crucial component in the Flexicurity model (see e.g. Andersen & Svarer, 2007). Our paper also sheds further light on the validity of such an assessment.

We find large positive effects of some of the policy components investigated, and there

are enlightening differences, especially with respect to the type of policy, the gender of the unemployed worker, the age of the participants, and the cyclical conditions. Counseling in the form of individual meetings between caseworkers and unemployed workers has very large effects, arising much later for men than for women, while mandatory ALMPs have a large (threat-) effect for men, while there is a small negative effect for women. Moreover, the threat effect is only present when labor market conditions are good - we show this point by exploiting that the experiment was conducted right during the tipping point of the business cycle in 2008. Hence, differences in the week of enrollment into the experiment (week of inflow) reflect different cyclical conditions. The analysis demonstrates that early and frequent meetings with unemployed workers is the most efficient way of assisting newly unemployed workers. According to e.g. Card *et al.* (2010), an often neglected aspect of policy evaluation is a consideration of program costs against its prospective gains. We conduct a cost-benefit analysis and find that individual meetings are also the most beneficial instrument from an economic point of view.

Our paper contributes to the literature on active labour market policy effects in several ways. First, we provide results based on four different ways of conducting labour market policy during the early phases of unemployment, using high-frequency and high-quality data from administrative registers, focusing on accumulated weeks on employment two years after entry into the experiment. Our evaluation presents evidence on the effects of group meetings and compare these to the effects from individual meetings - we have not seen such an evaluation before. Second, although active labour market policy evaluation literature has a long tradition, the effects of meetings between case workers and unemployed workers have not been given much attention in the literature. We focus explicitly on meetings, we survey the literature of meetings and provide detailed experimental results regarding their overall effects, and we also study variations if the effects across gender, age, and cyclical conditions. Third, we provide solid evidence on the presence of threat effects, and in particular on their variation across gender, age and cyclical conditions. Fourth, we provide a more detailed account on the sources of the differential impacts by studying the effects on unemployment and employment durations, taking due account of dynamic selection problems. Finally, we conduct a cost-benefit analysis, something which is rarely done, most likely due to lack of data.

The rest of the paper is organized as follows: first, we provide a brief overview of the literature on active labour market policy effects with a special emphasis on the effects of meetings between caseworkers and clients, as there already exists several surveys and

summaries of the impacts of activation programs. In section 3 we describe the social experiments, and the data used for the analysis is presented along with some descriptives of the actual treatments administered. Section 4 contains a presentation of our main results and we also discuss the presence of heterogeneous effects with respect to the business cycle and age. In section 5 we present results from a two-state duration model of employment and unemployment in order to investigate the dynamic nature of the treatment effects. In section 6 we perform a cost-benefit analysis of each experiment. Finally, section 7 contains a discussion of further research, policy implications, and a conclusion.

## 2 A brief review of related literature

There exists an extensive literature on the impacts of 'traditional' active labour market policies in the form of activation programs, which has been surveyed by e.g. Heckman *et al.* (1999), Card *et al.* (2010), and Kluge (2010). These surveys show that policy impacts are usually very modest and not always positive in the sense of increasing subsequent employment.<sup>2</sup> The type of active policies that have the best effects are (private sector) employment subsidies, while training programmes sometimes have positive effects when aimed at less skilled workers or workers with problems beyond unemployment (e.g. single mothers, immigrants, etc.). Public job creation rarely shows positive effects and often negative effects, possibly due to so-called lock-in effects. One important aspect of activation policy schemes is the presence of *ex ante* effects. For instance three observational studies based on Danish data and one on German data shows that unemployed workers tend to leave unemployment faster when the probability of activation increases (Geerdsen, 2006; Geerdsen & Holm, 2007; Rosholm & Svarer, 2008; van den Berg *et al.*, 2009). Hence, *ex ante* effects may change our conclusion on the overall effectiveness of active policies towards a more positive view.

One less analyzed aspect of active labor market policies is that of meetings between caseworkers and the unemployed. A meeting potentially implies different effects conditional on its contents. Studies of ALMPs have often neglected meetings or categorized them with other policy instruments (e.g. sanctions or job search courses).<sup>3</sup> As three of

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<sup>2</sup>For example, Card *et al.* (2010) find that, in the short term, only 39% of the surveyed studies found significantly positive effects. In the medium term, effects were slightly better, with 50% being significantly positive, and only 10% significantly negative.

<sup>3</sup>Kluge (2010) finds that modern types of programs in the category "Services and Sanctions" are

the four experiments in our study has an explicit focus on meetings, we provide a brief survey of studies that deal with the effects of meetings held between caseworkers and their clients (the unemployed).

## 2.1 Meetings

Meetings between case workers and unemployed workers constitute a cornerstone of active labour market policies: First, unemployed workers typically register their entry into unemployment at meetings, where also their eligibility for receiving income assistance, be it UI benefits, unemployment assistance, or other social welfare transfers, is assessed. Second, the search effort of the unemployed is typically monitored at meetings, where the unemployed worker often is required to provide documentation of job search efforts. Often, the case worker has to provide a subjective assessment of whether the unemployed person is really available for work. If there is some sort of non-compliance, either in the form of no-show or insufficient search and/or availability, a sanction may then be issued. Third, counseling takes place at meetings. Counseling can be help with the creation of a CV and writing applications, coaching - where the unemployed is assisted in making career choices, advice regarding job search techniques, use of different search channels, general job search assistance etc. Fourthly, direct referral to vacant jobs will also often take place at meetings between case workers and unemployed workers. Finally, it is typically the case that future participation in ALMPs is discussed and planned at meetings.

In many cases, meeting attendance at certain regular intervals during unemployment periods is mandatory, and no-show may lead to a (temporary) loss of transfer income. In this sense, meetings have the potential of affecting individual behavior *ex ante* (due to, say, the fear of a sanction being imposed) as well *ex post* (via search requirements, job search assistance, and potential behavioral effects stemming from the knowledge of future activation). In the following, we study first *ex ante* effects, then we look at *ex post* effects in the forms of both counseling and monitoring, and finally we investigate other aspects of interactions between caseworkers and their clients. It is obviously difficult to separate counseling and monitoring aspects of meetings, but we focus on the stated intention of these meetings as there are potentially strong differences between attending a meeting with a stated intention of counseling or monitoring.

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particularly effective. This motivates a more explicit focus on the specific elements in this category.

## 2.2 *Ex ante* effects of meetings

The literature on the *ex ante* effects of meetings is rather new. Generally we find that there are *ex ante* effects, although this does not seem to be the case for long term unemployed workers. Hägglund (2006) reports from a randomized experiment conducted in Sweden and shows that, for a broad group of unemployed workers, an invitation to a meeting, aimed at monitoring search activity and assisting with more effective job search, led to an increase in the exit rate into employment by 46% already before the meeting took (or should have taken) place.

Cockx & Dejemeppe (2007) analyze the effect of a reform in Belgium in 2004 leading to more intensive monitoring of job search activities of workers with more than 7 months of unemployment. A letter was sent out to the unemployed informing them of this reform, and in general the authors find no impact. However, for better educated workers they do find significantly positive *ex ante* effects.

Black *et al.* (2003) study a profiling tool aimed at identifying workers at risk of long term unemployment (LTU). Workers with a high estimated LTU-risk were invited to a meeting with the aim of placement in an activation program. Due to capacity constraints, not all workers at risk of LTU could be invited, and the selection of whom to invite was randomized. The authors show that workers at risk of LTU reacted to an invitation by increasing job finding rates right after receipt of the letter. Unemployment duration was shortened by 2.2 weeks, and the income of workers receiving the letter was higher than for the controls during the year after receipt of the letter. Finally, this led to cost savings worth 143\$ per unemployed worker. These findings correspond, as already mentioned, quite well with the conclusion from three observational studies based on Danish data and one on German data showing that unemployed workers tend to leave unemployment faster when the probability of activation increases (Geerdsen, 2006; Geerdsen & Holm, 2007; Rosholm & Svarer, 2008; van den Berg *et al.*, 2009).

## 2.3 *Ex post* effects of meetings: Counseling

Studies analyzing *ex post* effects from counseling are generally reporting positive effects in the sense of reduced subsequent unemployment duration and/or increases in employment rates, although there is a tendency that the group of long term unemployed respond less favorably.

Gorter & Kalb (1996) report results from a randomized experiment conducted in a

number of Dutch cities, where the treatment consisted of increasing the time allocated to counseling at meetings between caseworkers and clients. They find positive but insignificant effects on the exit rate from unemployment. Blundell *et al.* (2004) analyzed the introductory part of New Deal for Young People, called the Gateway. It consisted of frequent (fortnightly) meetings with a mentor with the aim of encouraging and effectivising job search. The study exploits the implementation as a pilot-project before the nationwide implementation to construct a difference-in-differences estimator of the impact of the Gateway. They find an increase in the employment rate of 5%-points 4 months after entry into the Gateway.

Crepon *et al.* (2005) analyze the effect of a reform implemented in France in 2001, which increased counseling without altering the amount of monitoring. At the first meeting, the unemployed are screened with the aim of offering them one of four treatments, which differed by their treatment intensity and whether they were aimed at strong or weak groups of unemployed workers. They found a tendency that programs aimed at 'better' workers increased the exit rate from unemployment, and that all programs increased subsequent employment duration.

Hägglund (2009) analyze the effect of a social experiment conducted in Sweden, where unemployed youth were offered counseling. He found that in two municipalities, where the treatment was aimed at all unemployed youth, there were positive effects on the exit rate from unemployment, while this was not the case in two other municipalities where the treatment was only aimed at long term unemployed youth. This corresponds quite well with results from a randomized Danish study, Rosholm & Svarer (2009b), where intensive counseling to long term welfare recipients did not - in general - lead to more employment.

Meyer (1995) report results from 5 U.S. experiments aimed at better counseling. Four out of the five experiments led to significant reductions in subsequent unemployment, and the reductions in unemployment ranged from 0.5 to 4.3 weeks. Meyer (1995) does point out that it is not obvious whether the effects stem from the increase in counseling or whether there are monitoring effects as well.

Dolton & O'Neill (1996; 2002) analyzed the effect of the ReStart program; In England, an offer of meetings every six months for workers with more than six months of unemployment was introduced in 1989. The aim of the meetings was effectivisation of search behavior (counseling part) and assessment of availability for work. In connection with the introduction of the ReStart program, a randomized experiment was conducted by excluding 600 workers from the meetings. These would then constitute the control



group. Dolton & O’Neill (1996) showed that this led to a 30% increase in exit rate from unemployment, and Dolton & O’Neill (2002) showed that 5 years after entry into the program, the treated still had significantly less unemployment than the controls.

## 2.4 *Ex post* effects of meetings: Monitoring

There are quite a few studies analyzing the effect of increasing the rate of monitoring of unemployed workers. These generally find positive or zero effects in the sense of reduced subsequent unemployment duration and/or increases in employment rates.

Ashenfelter *et al.* (2005) report from a U.S. randomized experiment conducted in four job centres (Connecticut, Massachusetts, Virginia and Tennessee). The number of meetings were unchanged, but the search requirements were stricter for the treatment group. The increase in monitoring was only implemented during the first couple of weeks of unemployment. There was no effect of the increased monitoring on neither unemployment duration nor on the costs of unemployment benefits.

Klepinger *et al.* (2002) study another U.S randomized experiment, where unemployed workers are randomized into one of four treatments (or into a control group), which involved closer monitoring of different degree and type. Unemployment duration was reduced by 5-7%. Johnson & Klepinger (1994) find similar results based on another U.S. experiment.

Van den Berg & van der Klaauw (2006) reports from a randomized experiment in Rotterdam with monthly meetings involving increased monitoring and planning of future job search. They found a switch from informal to formal search channels as a result of the search and documentation requirements, and positive but insignificant effects on the exit rate from unemployment to employment. Keeley & Robins (1985) find something similar for the U.S. using observational data.

McVicar (2008) exploits exogenous variation in the number of meetings held with the aim of monitoring search activity in the U.K. The exogeneity comes from cancellation of meetings due to reconstruction work on the buildings used by the case workers. He found that the exit rates from unemployment fell when meetings were cancelled due to reconstruction.

Petrongolo (2009) and Manning (2009) both analyze the Job Seekers Allowance programme implemented in the U.K in 1996. This involved frequent meetings with a case-worker to document job search activity. They use observational data and some exogenous

variation in the timing of the treatment relative to the start of unemployment and find increasing exit rates out of unemployment. However, this is mainly caused by an increased exit rate into incapacity benefits.

## 2.5 Other aspects of meetings

Other aspects of meetings include *ex post* effects from the match between a case worker and an unemployed and also effects from increasing the quality of the meetings. Finally it also includes effects from actions taken by the case workers in relation to meetings, for instance job assignments and sanctions.

Behncke *et al.* (2008, 2010a, and 2010b) investigate the importance of the case worker, using a survey among Swiss case workers, which has subsequently been linked with a data set on their unemployed workers. They use propensity score matching to investigate the importance of the case workers' characteristics/attitudes/strategies on the employment of their clients. They find impressive effects. In the first paper, they show that unemployed workers who have a case worker with a strong network among employers have 3%-points higher employment rates subsequently. In the second paper, they show that unemployed workers assigned to case workers who are less 'cooperative' have 2%-points larger employment rates subsequently. Finally, in the third paper, they show that if case workers and clients are similar with respect to age, gender, and educational level, then the unemployed worker has a 4%-point higher subsequent employment rate. This trilogy of studies therefore adds further insight into the importance of meetings via case worker contacts; case workers provide contacts to potential employers; they put pressure on unemployed workers to search harder, and they can relate to their situation and provide useful insights on job search. These findings therefore suggest ways for policy makers to improve *ex post* effects of meetings.

In an analysis on German data, Hainmueller *et al.* (2009) report results from a pilot study, where 14 job centres were allowed to hire more case workers so as to reduce their case load from 100 to 50 unemployed workers per caseworker. They use matching techniques at the job centre level to investigate the impact on the local unemployment rate. They find that the increase in the number of caseworkers reduced the local unemployment rate by 0.5%-points and the number of SC III unemployed by 10%. Reporting a few more details from the same pilot study, Hofman *et al.* (2010) show that the impact was larger if all the additional resources were devoted to either dealing with the unemployed workers through

meetings or improving the employer network, while there was absolutely no effect if the resources were devoted to strengthening the organizational structure of the job centre.

Fougere *et al.* (2009) perform a microeconomic analysis of the impact of job assignments (by caseworkers) using French data. They find that job assignments reduce the search effort of unemployed workers, but they also find that the assignments themselves more than outweighs this reduction, such that job finding is faster with job assignments. They find particularly strong effects for the unskilled. Engström *et al.* (2009) find no effects of assignments in a Swedish context.

Finally, if unemployed workers do not show up for meetings, or if their search efforts are deemed insufficient, sanctions can be issued; in this sense sanctions are also a result of the contacts between unemployed workers and their case workers. A number of studies have investigated the effects of sanctions. Lalive *et al.* (2005) and Arni *et al.* (2009) both find that warnings that a sanction may be imposed increases the job finding rates of unemployed workers. Van den Berg *et al.* (2004), Abbring *et al.* (2005), Lalive *et al.* (2005), van den Berg & Vikström (2009), Røed & Weslie (2008), and Svarer (2011) all find that sanctions issued increase the subsequent job finding rate dramatically. The range of the effect on the job finding rate is from 25% to 100% depending on the country and the severity of the sanction. Finally, Arni *et al.* (2009) and van den Berg & Vikström (2009) show that those who are sanctioned find less favorable employment than the unsanctioned in terms of wages and job duration.

## 2.6 Equilibrium effects

Meetings may have important general equilibrium effects, such as substitution effects and other side effects of having meetings with some workers and not with others. General equilibrium effects could result in negative effects on untreated individuals due to increased competition in the labor market from the treated individuals - this would imply that the control group performs worse than they would have done without the presence of treatment. Positive effects could come from equilibrium responses from firms who increase the number of vacancies due to the lower mean duration of a vacancy (as treated individuals search more - or better). However, the literature on this issue is rather small.

Crepon *et al.* (2011) implement a two level randomized experiment of a job seeker counseling program in France directed towards young graduates that spent at least 6 months in unemployment. The two level approach consists of a randomization at the job

centre level in the proportion of individuals (P) selected into treatment (0%, 25%, 50%, 75% and 100%) besides a "normal" randomization scheme within job centres into treatment and control groups. The research design allow the authors to test for externalities on untreated workers (comparing untreated workers in areas with treatment to workers in areas with no treatment), but also to investigate whether the actual treatment effect varies with P. They find no evidence of negative externalities or displacement effects. The target population of the experiment is, however, a very small fraction of the total stock of unemployed, which might explain the lack of negative side effects.

Gautier *et. al.* (2012) analyze general equilibrium effects of the QBW1 experiment in Denmark, using the fact that it was only implemented in 2 out of 15 counties (recall that this treatment does not only consist of meetings but a mixture of policy instruments, see the introduction). They compare control group workers in the treatment region with workers in unaffected regions using a difference-in-difference approach. They also use propensity score matching to select the most comparable counties in a robustness analysis. The authors find some evidence that the job finding rate of the control group workers decline due to the treatment. Furthermore, they construct and estimate a structural search model to determine the effects of implementation of the treatment on a country wide basis and find that negative congestion effects are present and lowers the overall treatment effect, which is however still positive and leads to lower equilibrium unemployment.

Overall we still know relatively little about the presence of general equilibrium effects and their size with respect to for instance the actual policy implemented. Even further it could be the case that the general equilibrium effects from meetings differ between whether the stated intention of the meetings are counseling or monitoring - likely favoring the former. Our knowledge concerning the presence of general equilibrium effects and their size with respect to for instance the actual policy implemented is thus still very limited.

## 2.7 Summary of literature review

We find that meeting effects are remarkably large - and consistently so; of the 37 studies referred to above, 29-31 had significantly favorable effects, and only 6-8 had no effects. None of the studies found significantly unfavorable effects on employment outcomes. There are *ex ante* effects of meetings, counseling effects, monitoring effects, job

assignment effects, and there are important aspects of the case workers that could be exploited, and finally, sanctions - which are a result of contacts between case workers and unemployed workers - have dramatic effects on job finding rates.

We argue that this evidence on the importance of meetings and caseworkers is much more consistent, and the effects are much larger, than that obtained from the analysis of traditional activation policies. Meetings (and, thus, case workers) appear to be crucial components in reducing the structural rate of unemployment.

### **3 The Danish labour market and the experiments**

This section presents the experimental design and puts it into the context of the Danish labour market in general. First, however, we will briefly describe the organization of the Danish labour market with a particular focus on the active labour market policy.

In general, the Danish labour market is characterized as flexible with less employment protection legislation than most continental European countries. The Danish labour market has a tight social security net with near-universal eligibility for (some type of) income transfers. Moreover, active labour market policies are among the most intensive in OECD, with around 1.5% of GDP spent per year on active policies.

There are two types of benefits for unemployed workers, UI benefits and social assistance. Approximately 80% of the labour force are members of a UI fund and therefore eligible for UI benefits, while the remaining 20% may receive social assistance (given that they do not have a partner who can provide for them and do not have any savings). UI benefits are essentially a flat rate. As this paper is only concerned with UI benefit recipients, we shall present the policies that apply to them.

The mutual "rights and obligations" principle is a key principle in the current Danish labour market policy. This implies the right of individuals to compensation for the loss of income, but also the obligation to take action to get back into employment. The authorities have an obligation to help the individual improve her situation and has the right to make requirements of the individual concerned.

Under the current rules, an individual who becomes unemployed and is eligible for UI benefits has to register at the local job centre. She then has the obligation to attend a meeting with a caseworker at least every 3<sup>rd</sup> month. She has the right and duty to participate in an activation program after 9 (6 if below 30 years old) months of unemployment and subsequently every 26 weeks. These are the labour market policies that

will be faced by individuals in the control groups of the four experiments, who will receive this 'treatment as usual'.

### 3.1 The experiments

The set of randomized experiments analyzed in this paper consists of four separate experiments, each with its own treatment and control groups. They were conducted in four different regions in Denmark. They are summarized in Table 1.

TABLE 1: OVERVIEW OF THE 4 EXPERIMENTS IN QBW2

Experiment	Content	Region	Jobcentres
A	Group meeting each week	Northern Jutland	Frederikshavn, Brønderslev, Hjøring
B	Individual meeting w. case workers every other week	Copenhagen & Sealand	Gribskov, Roskilde, Ishøj-Vallensbæk Holbæk, Vordingborg
C	Early activation (after 13 weeks)	Mid Jutland	Aarhus
D	Group meeting each week and early activation	Southern Denmark	Esbjerg, Vejle

The subjects of the experiments are individuals becoming unemployed during weeks 8-29 in 2008 who are eligible for UI benefits. Once an individual registers as unemployed, she is randomized into treatment or control group based on her date of birth. Individuals born on the 16<sup>th</sup>-31<sup>st</sup> are assigned to the treatment groups, while those born on the 1<sup>st</sup> to the 15<sup>th</sup> are assigned to the control groups. No information was given to the unemployed workers on the selection rule.

The individuals randomized into the treatment groups then receive a letter, during the first week of unemployment, explaining the new treatment to which they will be exposed.<sup>4</sup> This information letter marks the start of the treatment, since the worker may react to the information on the new regime from the day the letter is received. It was not possible to escape treatment by leaving unemployment for a short while and then re-enter later

<sup>4</sup>The unemployed is not informed that she is participating in a randomized experiment, but rather that she has been chosen to participate in a pilot study.

on. In that case, a worker would re-enter the experimental treatment at the stage where she left it.

In all four experiments, the control group receives 'treatment-as-usual' (*tau*) as explained above. There may be local variations in the intensity of *tau*, which will be documented below. Starting from the bottom of Table 2, the experiment labeled 'D' is a sort of reference experiment - partially intended to mimic the QBW1 experiment from 2005-6, although there are some important deviations. Contrary to QBW1, the meetings are group meetings and there is no two-week JSA course included in the treatment as in QBW1. Hence, this 'reference experiment' consists of less intensive interaction between case workers and the unemployed than was the case in QBW1. The experiment was conducted in the region of Southern Denmark (consisting of Funen and the southernmost part of Jutland). During the first 13 weeks of unemployment the unemployed worker must attend group meetings with a case worker and a number of other unemployed workers (typically around 10). If, after 13 weeks of open unemployment, she has not found employment, she has to participate in an ALMP of at least 25 hours per week for at least 13 weeks. After 6 months of unemployment, the experimental treatment ends, and from that point on, she receives *tau*, that is, the rules regarding her treatment-trajectory from this point onwards is similar to that of the control group.

The experiment labeled 'A' in Table 2 was conducted in the region of Northern Jutland, and it consisted of weekly group meetings (similar to those in Southern Denmark) during the first 13 weeks of unemployment. After these 13 weeks, the experimental treatment ends, and the unemployed worker would then receive *tau*. The stated intention with this experiment was to investigate if group meetings would produce as positive effects as individual meetings at a considerably lower cost.

The experiment labeled 'B' in Table 2 was conducted in the region of Copenhagen & Sealand, and it consisted of individual meetings with a case worker every other week for the first 13 weeks of unemployment, that is, a total of 6-7 meetings during the first 13 weeks of unemployment. Again, after 13 weeks of unemployment, those still unemployed in the treatment group would receive *tau*. The intention with this experiment was to investigate the effect of individual meetings and whether the positive effects of QBW1 derived mainly from this source. Note that, generally, the stated main intention of both group and individual meetings was counseling of the unemployed; no explicit extra monitoring was required to take place.

Finally, in the experiment labeled 'C', the individual would be required to participate

in an activation programme for at least 25 hours per week from week 14 in unemployment until week 26. After that, treatment would again be *tau*. This experiment was designed specifically to investigate the presence of *ex ante* effects due to the knowledge of having to participate in an activation program, as well as *ex post* effects of actually having participated.<sup>5</sup>

The aim of the entire set of experiments was to try to disentangle the positive impacts of the QBW1 experiment, and to investigate cost-reducing policies such as group meetings rather than individual meetings. First, the distinction between 'B' and 'C' informs us whether an early program effect stems mainly from the threat of mandatory program participation (a threat effect) or from an effect generated by meetings, or both. Second, a comparison between 'A' and 'B' would shed light on whether group meetings could achieve the same impacts as individual meetings. Finally, the comparison of 'A' and 'D' would tell us if the combination of group meetings would have better effects than just group meetings, and the comparison of 'C' to 'D' would tell us if a sequence of group meetings followed by an early and intensive activation program would lead to better effects than just group meetings.

Comparisons such as the ones mentioned above rely on an assumption of comparable labor markets between the different regions. Denmark is the OECD country with the smallest regional disparity in terms of GDP per worker. Furthermore the regions also have roughly the same GDP pr. capita (Danish Business Authority, 2009), and all regions contain large cities (by Danish standards). Of course there will be differences between labour markets, but from an international point of view these appear very small, and therefore we believe that comparisons across experiments in terms of average treatment effects are valid. In the appendix we have tabulated descriptive statistics for both all four control and treatment group, we have performed simple proportions tests to determine whether there are significant deviations. The Mid Jutland region (Experiment C) is different from the other regions in some respects; the fraction of young individuals is higher. This implies that the fraction of married individuals is lower and it also explains the higher degree of income transfer receipt (which includes study grants). Furthermore, region of Copenhagen & Sealand (Experiments B) has a larger pool of immigrants in their pool of insured unemployed, reflecting the fact that Copenhagen is the capital of Denmark

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<sup>5</sup>In order to test specifically for the *ex ante* effect, there should have been no actual treatment taking place from week 13 onwards. However, such a setup was probably not legal according to the administrative regulations. Moreover, there could have been ethical concerns with such an experiment.

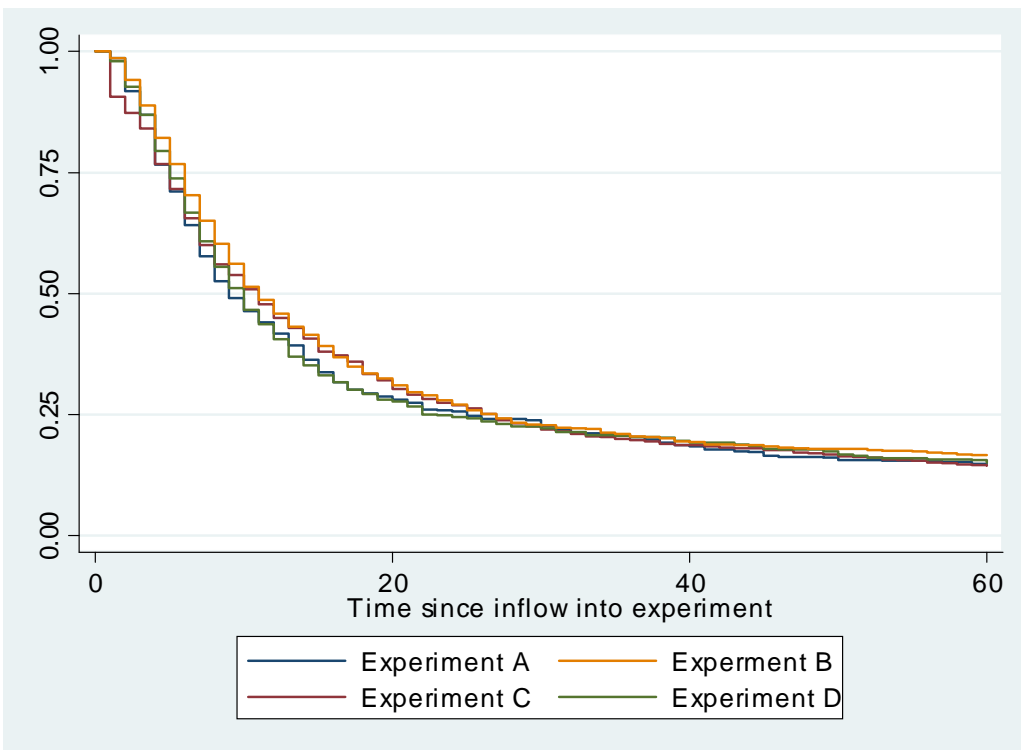


- and the port of entry for most immigrants - and therefore a larger fraction of immigrants live there. Finally, Figure 1 shows the estimated Kaplan-Meier survival estimates from the first unemployment spell for the four control groups. These estimates are very similar<sup>6</sup> and therefore supports the validity of comparisons between regions keeping the differences mentioned above in mind.

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<sup>6</sup>Various rank tests do not reject the null hypothesis of equality of survivor functions when we stratify the tests on gender (pvalue around 0.26).

FIGURE 1: KAPLAN-MEIER SURVIVAL ESTIMATES FOR CONTROL GROUPS



### 3.2 Data

The data is extracted from administrative registers merged by the National Labour Market Authority into the DREAM data set. DREAM is an event history data set based on administrative registers which record and govern the payments of public income transfers, record participation in ALMPs, and has information on periods of employment. The data are used for determining eligibility for UI benefit receipt and for determining whether the job centres meet their requirements in terms of meetings and activation intensities. The information is therefore considered highly reliable.

The register includes detailed information on: labor market status and history (employment, unemployment, in education, on leave, etc.), ethnicity, gender, residence, marital status and UI fund membership.

The sample consists of 5411 individuals. They registered as unemployed in one of the 11 jobcentres which were part of the experiments, between week 8 and week 29 of 2008, both weeks inclusive. The distribution on treatment and control status and on the four experiments can be seen in Table 2.

TABLE 2. COMPOSITION OF THE SAMPLE

Experiment, region	Men		Women	
	Treatment	Control	Treatment	Control
A (group meetings)	304	303	261	310
B (individual meetings)	376	455	343	371
C (early activation)	393	405	454	428
D (group meetings + early activation)	247	247	266	248

We have tabulated the averages of a number of individual characteristics and these are presented for each of the sub-samples. We find no significant deviations from random assignment using the simple proportions test. The tables are reported in the appendix.

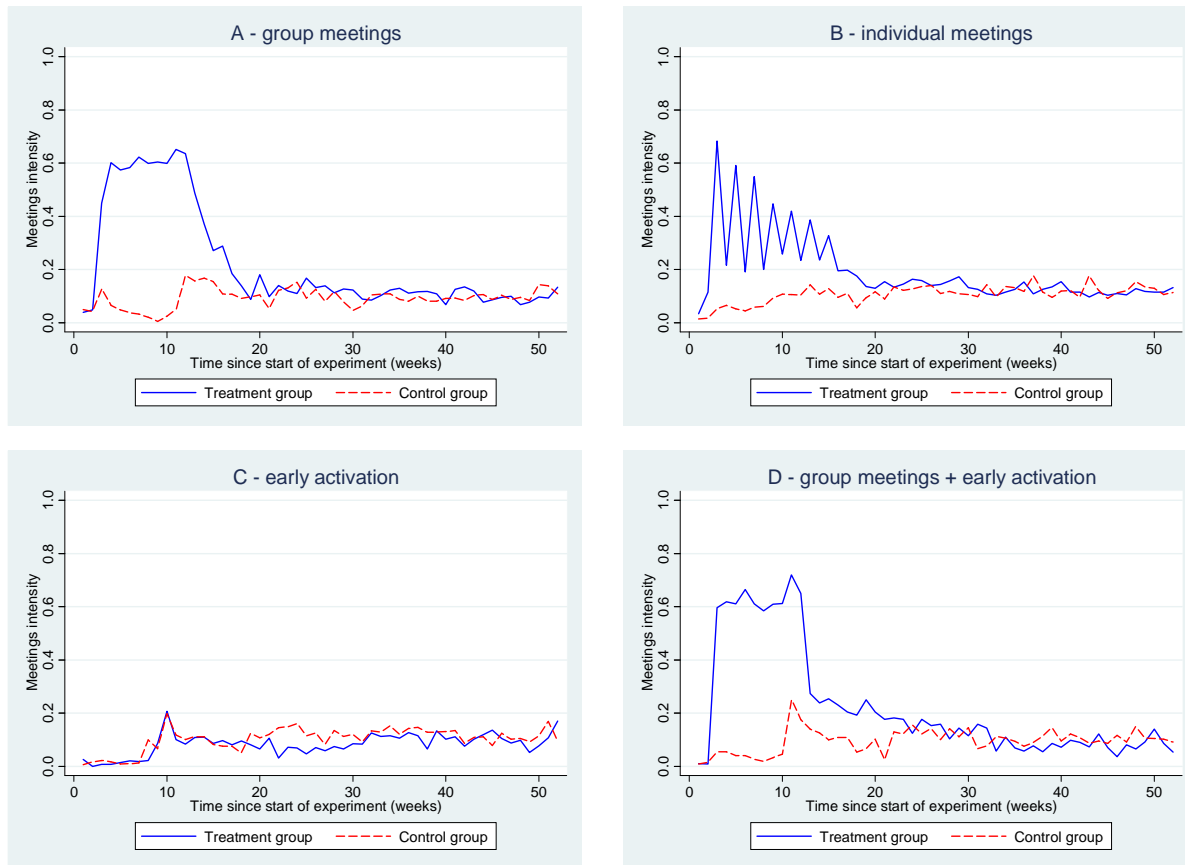
From the administrative registers, we have weekly information on labour market status, meeting attendance, and program participation, for each person in the sample. Each person is followed until the end of August, 2010. Labour market status is calculated based on information from the register on payments of public income transfers, which is used to construct the labour market states 'unemployment' and 'other public income transfers'. Data will also tell us whether individuals are employed or not using information from the E-income register, containing information from employers about their employed workers. Finally, there is a residual labour market category, called 'self-sufficient', consisting of the self-employed and individuals that are neither working nor receiving any income transfers (e.g. housewives).

Given the sampling window (week 8-29 in 2008), all individuals can then be followed for at least 111 weeks (there are 53 weeks in 2009) and for at most 132 weeks after their entry into unemployment. We can also follow individuals back in time, although the employment information is available only from 2008 onwards.

### 3.3 Implementation

In this subsection, we present evidence on the implementation of the four experiments. To show the degree of compliance to the experimental protocol, we show a set of figures on the weekly meeting intensities and activation intensities. We have also tabulated these intensities on gender and we have found no remarkable differences in this dimension.

FIGURE 2: WEEKLY MEETINGS INTENSITIES

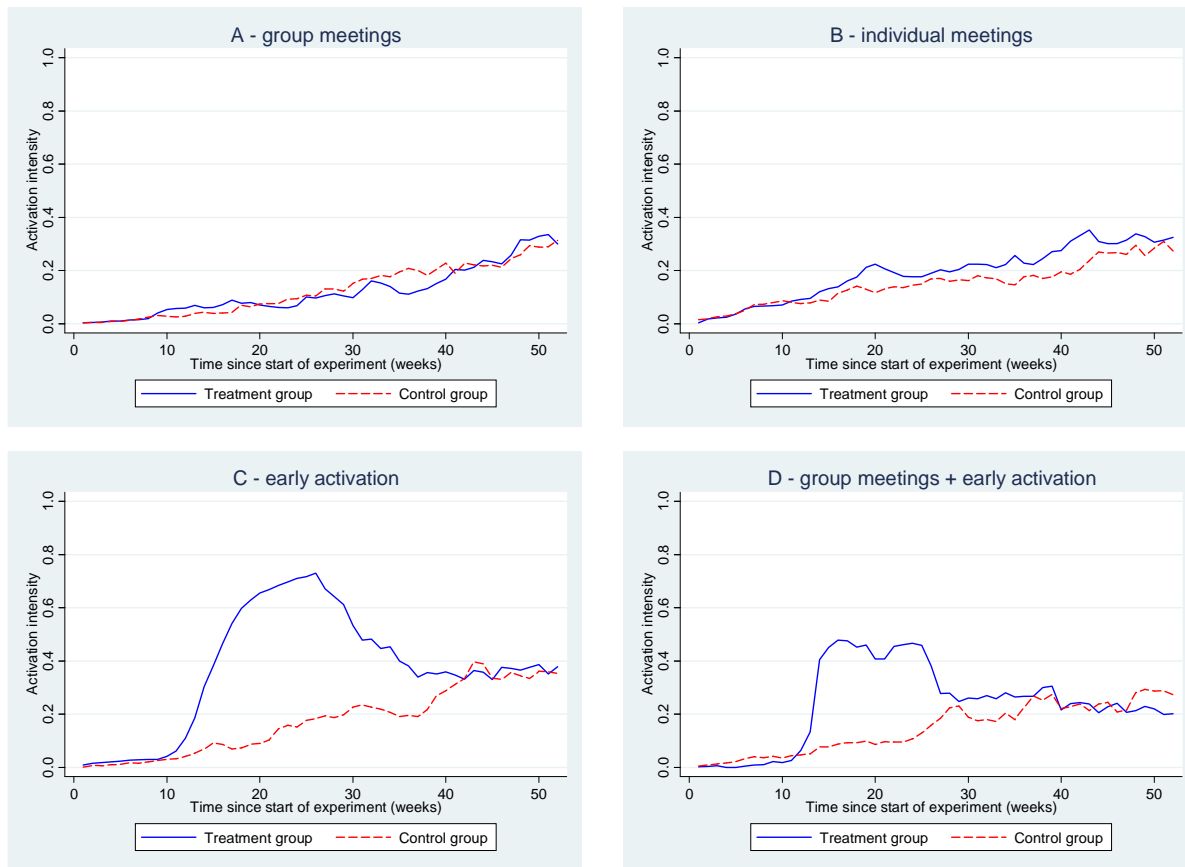


Note: meetings intensities for those who are still unemployed in a given week.

In Experiments A and D the treatment group were intended to participate in group meetings on a weekly basis. In both projects, we see that only around 60 percent of the those in the treatment group who were still unemployed in a given week participated in meetings in any of the first 13 weeks. In Experiment B, we observe a saw-tooth pattern reflecting the fortnightly meetings. Summing the meeting intensities for two consecutive weeks, the fortnightly meeting intensity begins around 90% and then falls to about 65% around week 13. In Experiment C there was no intention of extra meetings, and this is also what we observe in the data. Hence, even though participation in meetings does not comply completely to the requirements of the experiment, the treatment groups in the three relevant projects attended significantly more meetings than did the corresponding control groups during the early phases of the unemployment spell. The meeting rate for the treatment and the control groups is the same after the period of the experimental treatment in all regions. Notice, however, that the sequence of intensive meetings continues a few weeks beyond week 13 of the unemployment spell. We interpret this as an implemen-

tation lag in the treatment process, as well as a consequence of meetings cancelled earlier in the unemployment spell due to sickness, job search, etc.

FIGURE 3: WEEKLY ACTIVATION INTENSITIES



Note: activation intensities for those who are still unemployed in a given week.

Figure 3 shows weekly activation intensities. In the two projects with scheduled early activation, we see a sharp increase in the activation intensity around week 13. Again, not everyone in the treatment group is activated between week 13 and 26, but the activation intensity is much higher for the treatment group than for the control group, especially in Experiment C. In Experiment D, which was conducted in two job centres in Southern Denmark, it turns out that one of the job centres did not implement early activation at all. That is, for the treatment group in that job centre, the treatment was the same as for the treatment group in Experiment A.

Further analysis of the type of activation to which the unemployed in the treatment groups were assigned reveals that the unemployed are assigned to programs with the intention to upgrade and clarify their skills (i.e. educational and training programs). These

are typically programs with a duration of around 4 weeks. This category of programs is the most commonly used activation instrument in Denmark (see e.g. Danish Economic Council, 2007).

In all regions we observe an increase over time in the activation intensity for those who remain unemployed in the control groups. This follows naturally from the large focus on active labour market policy in the Danish flexicurity model (see e.g. Andersen & Svarer, 2007). After the end of the experimental treatment period (at week 26), the activation intensities for treatment and control groups converge rather quickly. In Experiment B a marginally larger fraction of the remaining unemployed in the treatment group is activated compared to the control group, possibly reflecting outcomes from the meetings with caseworkers (or dynamic selection out of the group). It is, however, only a small deviation.

All in all, the meetings and activation intensity figures reveal that the treatment groups to a large extent received the intended treatments (with the exception of one job centre in Southern Denmark), and they were at any rate treated much more intensively than the control groups in the relevant dimensions.

Lastly it is important to consider the treatment of the control group between different regions to analyze whether their treatment in some regions was downprioritized due to the intensified treatment requirement for the treatment group. This could be due to lack of economic resources (a crowding out effect) or simply because the jobs available was taken by the treatment group at the cost of the control group. The first point we disregard as extra resources was also given to the jobcentres in compensation for the intensified treatment requirements. Furthermore the treated population in the different regions is small compared to the overall stock of available jobs in Denmark at that time<sup>7</sup>, and therefore this effect is potentially limited. Finally we use the fact that the timing of the treatment, and the content of it, varies between regions to compare the meeting and activation intensities between the different regions over time to compare the treatment of the control groups. The figure is reported in the appendix, and although there is local variation we do not find any systematic differences between the regions<sup>8</sup>.

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<sup>7</sup>For instance around 35000 vacancies was available at jobnet.dk, the official website for the jobcentres.

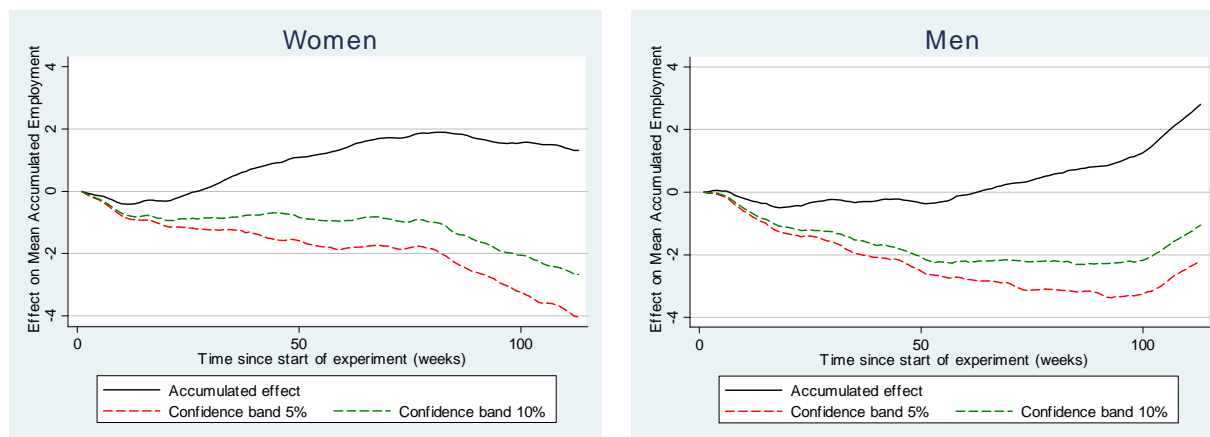
<sup>8</sup>Possibly with the exception of experiment C that to some extent have a higher activation intensity (especially around 40 weeks). This could be due to a higher fraction of young unemployed for whom there are more strict rules regarding activation participation.

## 4 Main results

In this section we present the effects of each of the four experiments. The effect of a program in a given week is calculated as the accumulated difference in the number of weeks employed between the treatment and the control group. This number therefore measures the average number of extra weeks spent employed for the treatment group compared to the control group from the beginning of the experiment until a given week after its beginning. We also report the relevant bound of the confidence interval of the effects both on a 5% and 10% level (the one corresponding to a one-sided test where the hypothesis is either that the effect is above or below 0 depending on the sign of the actual effect). These are obtained by bootstrapping, where each individual in a given bootstrap sample is followed for all 111 weeks<sup>9</sup>. The effect of the experiments will be reported separately for men and women for reasons that will become obvious.

### 4.1 Experiment A: Group meetings

FIGURE 4: THE EMPLOYMENT EFFECT OF EXPERIMENT A (GROUP MEETINGS)



Note: The figure shows the accumulated difference in the employment rate between the treatment and control group. The one-sided confidence bands are obtained by bootstrapping.

Figure 4 shows the employment effects of Experiment A, the group meetings. For women, there are negative employment effects in the short run, but already after 30 weeks the accumulated effect becomes positive. 52 weeks after the beginning of unemployment, women in the treatment group have spent a week more employed than women in the

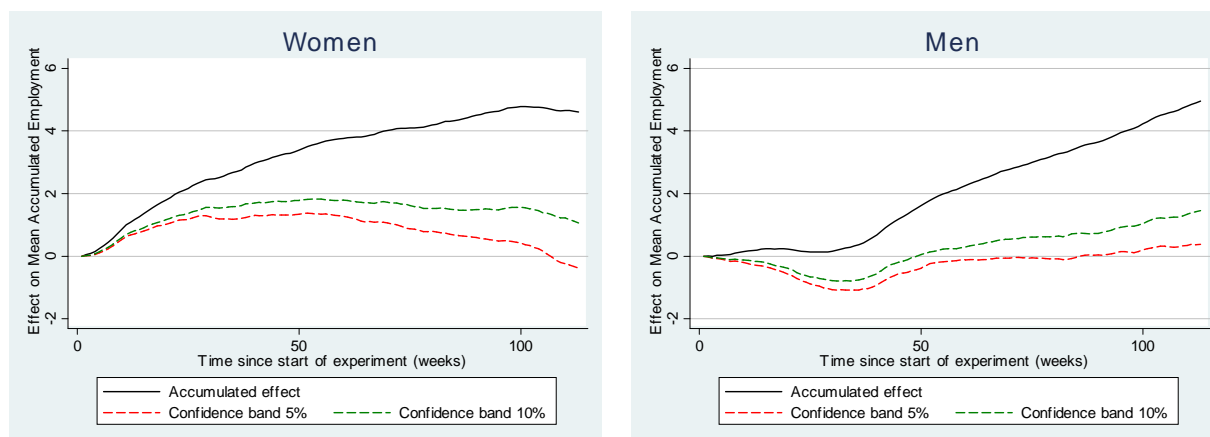
<sup>9</sup>Adding explanatory variables in the regressions does not change neither the results nor the confidence bounds remarkably.

control group, and after two years, the effect is almost 2 weeks. For men there is also a positive effect of about 2 weeks two years after entry into the experiment, but this effect materializes much later than for women. The fact that the effect arises at such a late stage suggests that the primary channel through which group meetings affect employment is via longer job duration rather than shorter unemployment duration, and this result appears to hold more strongly for men than for women. However, neither for men nor for women are the effects of treatment significantly different from 0.



## 4.2 Experiment B: Individual meetings

FIGURE 5: THE EMPLOYMENT EFFECT OF EXPERIMENT B (INDIVIDUAL MEETINGS)



Note: The figure shows the accumulated difference in the employment rate between the treatment and control group. The one-sided confidence bands are obtained by bootstrapping.

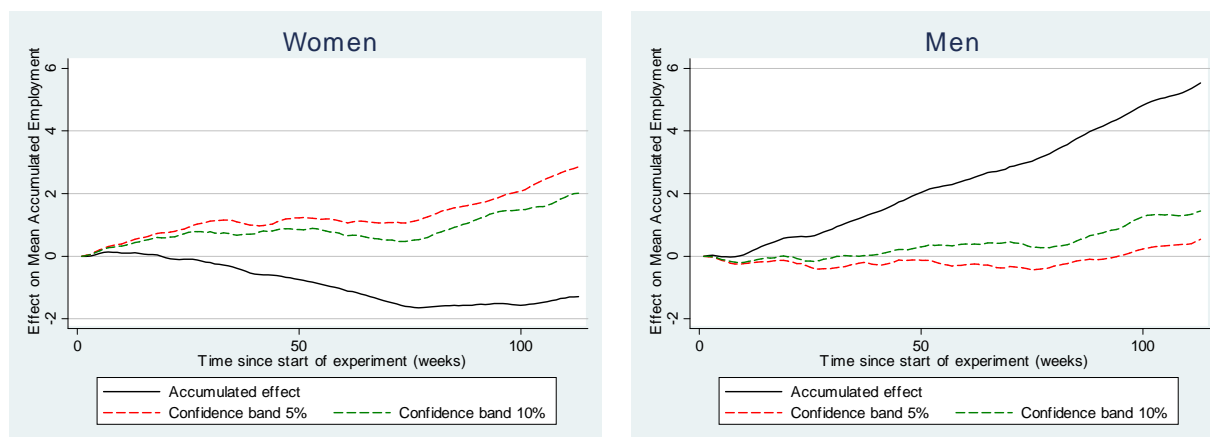
Figure 5 shows the effects of the Experiment B, fortnightly individual meetings. Both women and men benefit greatly from participating in individual meetings. Two years after entry into unemployment, the treatment group has accumulated 5 weeks more of employment than the control group. Considering that the total employment rate of the control group over the two-year period is slightly below 50%, this corresponds to more than a 10% increase in the employment rate over the two-year period after entry into the program. This is a very large effect and it is also statistically significant at the 5% level for men and also for women (marginally).

As in Experiment A, observe that men respond much later than women to the treatment, suggesting that women finds jobs faster, while men keep their jobs longer (this is analyzed in section 5).

The results from this experiment thus confirm the patterns found in the literature - that there are positive effects of intensified counseling for the unemployed. This holds even in the Danish case of already fairly intensive counseling. Compared to the effects of the group meetings in Experiment A, the effect is much larger when individual meetings are used. Naturally, the costs of having individual meetings is also larger. In the cost-benefit analysis later in this paper, we show that the extra costs of having individual meetings are strongly dominated by the positive effects on accumulated employment.

### 4.3 Experiment C: Early activation

FIGURE 6: THE EMPLOYMENT EFFECT OF EXPERIMENT C (EARLY ACTIVATION)

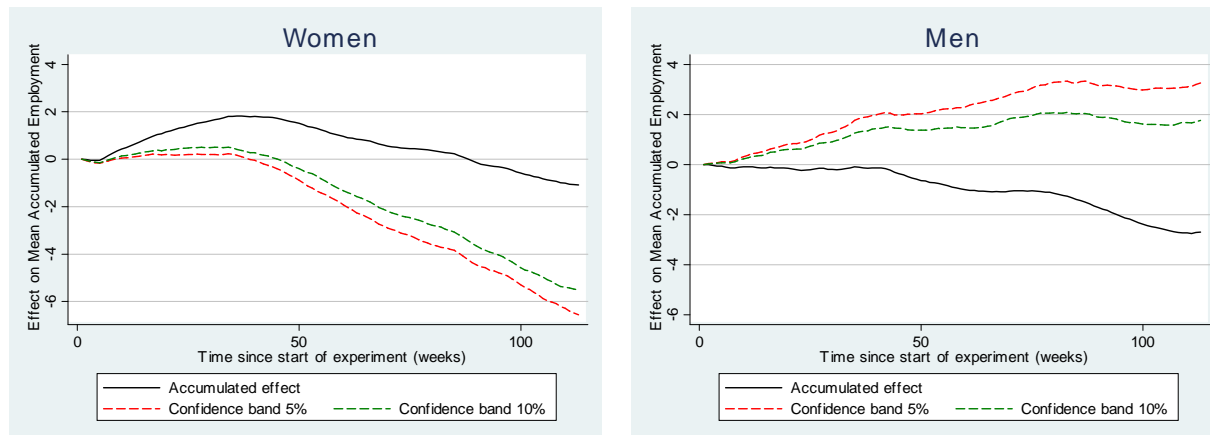


Note: The figure shows the accumulated difference in the employment rate between the treatment and control group. The one-sided confidence bands are obtained by bootstrapping.

Figure 6 shows the effect of early activation (after 13 weeks of unemployment). The difference between women and men is remarkable. Women do not react at all to the threat of activation, and if anything their accumulated employment is reduced (although not significantly), presumably due to lock-in effects combined with very low post-program effects. For men, the effect starts accumulating already after 9 weeks of unemployment, suggesting that at least a part of the observed effect is a threat/motivation effect, when compared to Figure 3, which shows that the activation intensity really does not start increasing before weeks 13 to 17. One might then have expected to observe higher rates of return to unemployment, such that an initial positive effect would tend to decline or at least not increase further over time. We find the opposite, suggesting that threat effects not only scare male workers out of unemployment but keeps them from returning - and the effect is (borderline) statistically significant. The finding that men react to the threat of activation, but women do not, is consistent with the results by Rosholm & Svarer (2008) and Geerdsen & Holm (2007). Comparing these results to the finding from QBW1 it seems that the positive effect for women may be driven by the individual meetings, whereas for men we see both an effect from the threat of mandatory program participation (a threat effect) and an effect generated by meetings.

## 4.4 Experiment D: Group meetings and early activation

FIGURE 7: THE EMPLOYMENT EFFECT OF EXPERIMENT D (EARLY ACTIVATION + GROUP MEETINGS)



Note: The figure shows the accumulated difference in the employment rate between the treatment and control group. The one-sided confidence bands are obtained by bootstrapping.

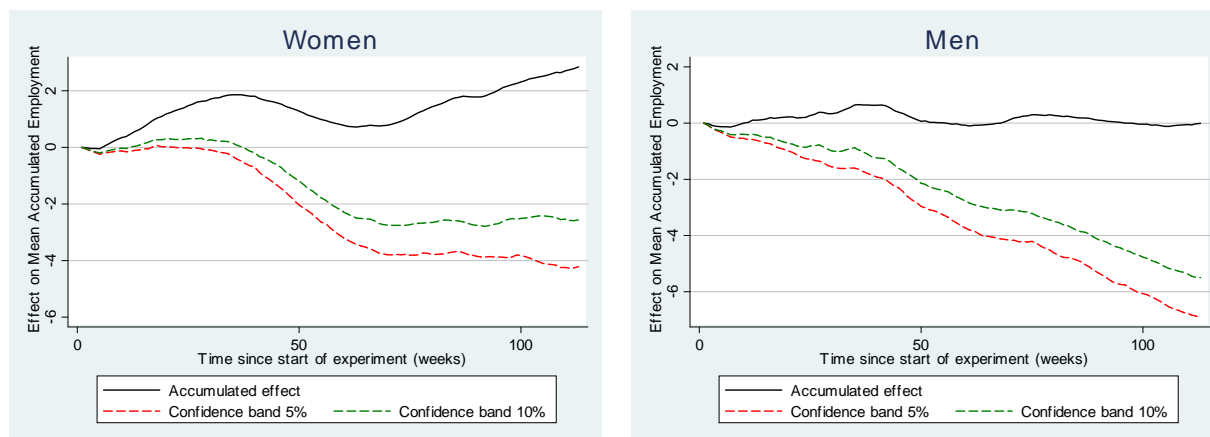
Figure 7 shows the effect of combining group meetings with early activation. We observe a positive and significant effect for women initially, but compared to the case in Experiment A it appears that when we combine meetings with early activation, the effect stops accumulating after less than a year. After two years there is no difference in accumulated employment between the treatment and the control groups. For men the effect is close to zero the first year, whereafter the difference between employment in the two groups favours the control group. This finding also illustrates the importance of evaluating ALMPs over time as conclusions might change due to the dynamics of subsequent employment and unemployment spells.<sup>10</sup>

As mentioned earlier, the treatment group in one of the two job centres in Southern Denmark did not receive early activation, and in fact, there is some anecdotal evidence that they did not receive any attention at all due to personnel problems in the job centre. In Figure 8 we therefore show the results from the job centre that did follow the guidelines of the experiment.

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<sup>10</sup>Card *et al.* (2010) show in their survey that program evaluations with a longer time horizon are more likely to find positive impacts

FIGURE 8: THE EMPLOYMENT EFFECT OF EXPERIMENT D (EARLY ACTIVATION AND GROUP MEETINGS) IN THE JOB CENTRE THAT COMPLIED



Note: The figure shows the accumulated difference in the employment rate between the treatment and control group. The one-sided confidence bands are obtained by bootstrapping.

The results from the compliant job centre are more positive. The effect for women is strictly positive, and for men it is zero. It is interesting that, whereas there was a positive effect for men of early activation in isolation, this is no longer the case when combined with group meetings. This might suggest that knowledge of future 'fellow activation buddies' tends to reduce the threat effect.

## 4.5 Heterogeneous treatment effects

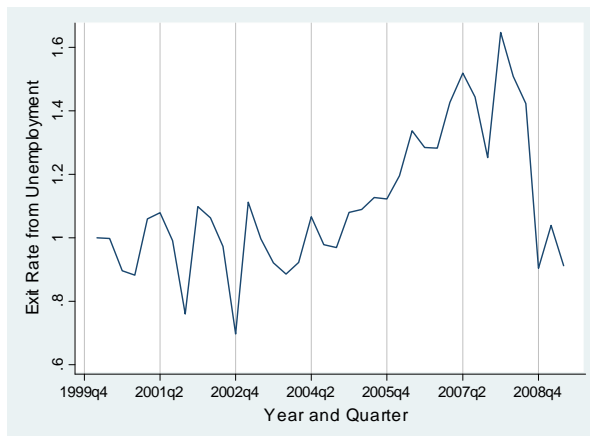
The analysis presented in the last section creates a strong case for the effect of meetings for both women and men. The results also reveal intriguing differences between men and women in terms of behavioral responses to the different treatments. To further analyse whether treatment effects vary along different dimensions we have also investigated the interaction between age and business cycle conditions and treatment effects. This part is based on a simple linear regression of accumulated weeks of employment in week 111 on treatment status, age group or business cycle indicator, and their interactions<sup>11</sup>. Furthermore the results are entirely robust to other model specifications that account for probability mass in zero weeks of accumulated employment (eg. the tobit model).

Related to age, our only statistical significant finding is that it is especially young men that benefit from early activation. The result shows that young men accumulate 12 weeks more of employment than their counterparts in the control group.

<sup>11</sup>To save space we do not include the results in the paper, but they are of course available upon request.

Related to business cycle conditions, we use the fact that the inflow period of QBW2 gives an opportunity to relate the effectiveness of the differential treatments to the business cycle. Figure 9 graphs the outflow rate of people entering and leaving unemployment from 2001 till 2009 conditional on a wide range of explanatory variables<sup>12</sup>. The figure illustrates the large impact of the world financial crisis in Denmark. It illustrates that the crisis led to a collapse of outflow rates from unemployment from the beginning of the 3rd quarter 2008 and onwards. This implies that individuals becoming unemployed in last part of the inflow period (week 16-29) of the experiment will potentially experience worse labor market conditions as they become unemployed very close to this decline in outflow rates.

FIGURE 9: THE EXIT RATE FROM UNEMPLOYMENT



Source: Own calculations based on an estimated duration model

Our results show significant differences in treatment effects in the experiment with early activation. Here, men who become unemployed in the first part of the experiment, when labour market conditions were good, accumulate 12 weeks more of employment than those becoming unemployed when the labour market turned after the Danish economy was hit by the financial crisis. This suggests that the threat effect of having to attend early activation programs is more prominent during favorable economic conditions. It is presumably easier to react to a threat of activation when there are plenty of jobs to choose from.

<sup>12</sup>This rate is determined by estimating a duration model including a wide range of explanatory variables and quarterly dummies

## 5 The dynamics of treatment

Below we provide additional insight into the dynamics of the treatment effects by extending the analysis to a multi-state duration framework. We analyze the effects of treatment on unemployment duration and subsequent employment duration. We include all spells of employment and unemployment experienced during the two-year period (111 weeks) following the experiment.<sup>13</sup>

### 5.1 Evaluation method

For each experiment, we have two random samples of the inflow into unemployment. This implies the distribution of any unobserved variables is independent of treatment status at the time of inflow. However, already from week 1, those in the treatment group will become aware of the experiment and this might alter their future behavior and thereby violate the assumption of identical distributions. Therefore we cannot just compare transition rates between the treatment and control group as these will be biased estimates of the treatment effects if this selection process on unobserved variables is not accounted for. The transition rates thereby capture both a treatment effect and a selection effect (for more on this issue see Abbring and van den Berg, 2005).

We can illustrate this point in a single-spell single-state model. Denote the observed hazard rate at time  $t$  as  $\theta(t|X, Tr)$  where  $X$  is the observed heterogeneity of individuals and  $Tr$  is an indicator for being assigned to the treatment group. Imagine that the information letter is sent at time 1 and that  $U$  represents an unobserved variable (say, motivation or ability). Due to randomization into treatment,  $U$  will be independent of treatment status at the time of inflow, implying that  $\theta(t|X, Tr = 1) = \theta(t|X, Tr = 0)$  for  $t = 0, 1$ . However, for  $t \geq 2$  this will not necessarily be the case, as the received information is likely to change the behaviour of those in the treatment group from their "normal behavior" (the control group). The observed hazard rate for  $t \geq 2$  is equal to

$$\theta(t|X, Tr) = E_U[\theta(t|X, Tr, U)|T \geq t],$$

which depends on the distribution of the unobserved variable conditional on survival until  $t$ . If treatment affects behaviour, the distribution of this unobserved variable is likely to

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<sup>13</sup>Treatment group assignment has no severe effects on transition rates into other labour market states such as self sufficiency or other public income transfers. If anything, time spent in such states is reduced. These results are not reported but are available upon request.

differ between the control and treatment group for  $t \geq 2$ . Hence,  $\theta(t|X, Tr)$  is likely to differ both due to a direct treatment effect and due to a composition effect, for  $t \geq 2$ .

Duration models allow us to account for this selection bias by explicitly modelling the selection process out of the state of interest. Abstracting away from our single state model, we also need to deal with spurious correlations arising from non-random selection into employment, when we extend the problem above to post-unemployment outcomes (employment duration). To do so, we allow the transition-specific unobserved terms ( $U$ ) to be correlated across states. Note that the random effects assumption, needed in the mixed proportional hazard (MPH) model presented below, according to which treatment and unobserved explanatory variables are independent in the inflow to unemployment, is satisfied by construction due to the randomized assignment to treatment.

We use a factor-loading specification for the unobserved heterogeneity distribution (as in Blasco & Rosholm, 2011), and we do not impose *a priori* a fixed number of mass points in the distribution of the unobserved components. Instead we rely on the Akaike Information Criterion to decide the number of mass points. The baseline hazard is piecewise constant. We control for various explanatory variables and estimate the models separately for men and women as the above analysis has shown very different behavioral patterns over time. The method of estimation is maximum likelihood and we treat individuals moving to other states than employment and unemployment as censored observations. The two hazard rates, from unemployment to employment, and from employment to unemployment, are assumed to have a MPH form:

$$\theta_j(t | X_j, U_j, D) = \psi_j(t) \exp(X_j' \beta_j) \exp(\delta_j(\tau) D) \exp(U_j) \text{ for } j = ue, eu$$

where  $\psi_j(t)$  is the baseline hazard for the transition  $j$ . Treatment causes a shift upward or downward in the hazard rates. We allow for time-varying treatment effects;  $\delta_j(\tau)$ , where  $\tau$  denotes time since entry into the experiment (for unemployment,  $\tau = t$ , while for employment spells,  $\tau$  is equal to the duration of unemployment plus the elapsed employment duration. The time-variation is chosen to capture the change in treatment intensity around week 16 (see the above comments on implementation lags). Formally, this means that we take  $\delta_{ue}(t | X_{ue}) = \delta_{ue}^1 1(\tau \leq 16) + \delta_{ue}^2 1(\tau > 16)$ , and similarly for employment duration.

## 5.2 Estimation results, dynamic treatment effects

Table 5 reports the results from the estimation of the model specified above. Explanatory variables, similar to those in section 4, are included in the estimations but not reported in the table to save space.

TABLE 5: ESTIMATES FROM THE DURATION MODEL

	Men		Women	
	Coeff	Std.err	Coeff	Std.err
Experiment A (group meetings)				
$\delta_{ue}(1 - 16)$	-0.066	0.127	-0.004	0.136
$\delta_{ue}(17+)$	-0.016	0.117	0.080	0.122
$\delta_{eu}(1 - 16)$	-0.073	0.380	0.529	0.490
$\delta_{eu}(17+)$	<b>-0.318</b>	0.130	0.029	0.232
Experiment B (individual meetings)				
$\delta_{ue}(1 - 16)$	0.017	0.108	<i>0.192</i>	0.116
$\delta_{ue}(17+)$	0.050	0.104	0.090	0.129
$\delta_{eu}(1 - 16)$	-0.082	0.404	-0.424	0.494
$\delta_{eu}(17+)$	<b>-0.283</b>	0.136	-0.044	0.177
Experiment C (early activation)				
$\delta_{ue}(1 - 16)$	0.143	0.103	0.036	0.109
$\delta_{ue}(17+)$	-0.039	0.095	<b>-0.224</b>	0.112
$\delta_{eu}(1 - 16)$	-0.084	0.409	0.047	0.407
$\delta_{eu}(17+)$	-0.140	0.134	0.000	0.163
Experiment D (meetings + activation)				
$\delta_{ue}(1 - 16)$	-0.029	0.140	<i>0.217</i>	0.125
$\delta_{ue}(17+)$	-0.029	0.139	-0.040	0.139
$\delta_{eu}(1 - 16)$	-0.435	0.403	-0.600	0.455
$\delta_{eu}(17+)$	-0.111	0.151	0.129	0.182

note: bold (italic) figures indicate significant at the 5% (10%) level.

The treatment effects of Experiment A (group meetings) show no effect on job finding for men, and only a small insignificant effect for women after 16 weeks of unemployment, which might explain the lack of an early impact, especially for men, in Figure 4. It also explains the slight increase in the employment rate for women in the treatment group from around week 20. For men who find employment, there is a significant drop in the



job employment separation rate for men in the treatment group, while for treated women, exit rates from employment back into unemployment are increased, albeit insignificantly.<sup>14</sup> The findings thus explain quite well the observed pattern of accumulated effects presented in Figure 4; for women, there is a slight increase in job finding rates after some time, which might suggest a counselling or network effect arising from more efficient job search or access to new search channels. For men, the effect arises entirely due to longer lasting employment spells. One way to think about this is that meetings/counseling improve the match between employers and employees. If this is the case, the effects are likely to grow even further over time. The impact relative to the baseline hazard is a 27% decrease in the transition rate back into unemployment ( $\exp(-0,318) - 1$ ).

Similar findings for men follow from Experiment B (individual meetings); however, in contrast to Experiment A, there is a small positive impact on job finding (not significant) and once again a significant negative effect on the transition rate from employment back into unemployment for individuals in the treatment group. When compared to the group meetings the positive effect on the transition rate out of unemployment is important, as the combined effect leads to a much larger impact on accumulated employment than group meetings, cf. Figure 5. For women there is an immediate effect of meetings on the transition rate into employment (significant at the 10 % level), whereas this was not the case with the group meetings. The effect on the transition rate from employment into unemployment is negative albeit smaller than for men. Yet both effects for women are favourable leading to the accumulated effects of 5 weeks. Hence, the accumulated employment gain for men observed in Figure 5 comes mainly from more stable employment, whereas for women it comes mainly from faster job finding. This was seen in the figure as the accumulated gain from treatment for men set in at a much later stage than women.

For Experiment C (early activation) we see a much higher effect for men from treatment group assignment in the first 16 weeks when compared to the first two experiments. This is consistent with the fact that the timing of treatment in this experimental setup is different as there is almost no activation before week 16. This indicates *ex ante* effects in the form of threat/motivation effects from the anticipated future enrollment into an activation program. We also observe a negative effect on the transition rate out of

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<sup>14</sup>Note that, as one could expect, very few leave subsequent employment before week 16 after entry into unemployment (and hence, into the experiment). This explains the large standard error on the treatment effect on the hazard out of employment before week 16.

subsequent employment, suggesting that the *ex ante* effects do not imply less stable job relations as one might have expected using search theoretical arguments. However, none of these effects are statistically significant, in spite of the large (and significant) effects found in Figure 6. We explain this by the fact that both of the mentioned effects work in the same direction. In section 5.2, this presumed *ex ante* effect was shown to arise mainly during the more favourable cyclical conditions. If we introduce an interaction between our treatment group indicator and an indicator for becoming unemployed during good and bad economic conditions, the results show a significant positive effect during the good cyclical conditions (coefficient 0.1773, std.err. 0.0896) and a small, insignificant, negative effect during bad conditions.

Women respond remarkably different than men to early activation - there is no sign of *ex ante* effects, instead we see a large and significantly negative effect on the transition rate out of unemployment from week 17 and onwards. This is presumably a standard locking-in effect from participation in activation programs. This implies that women in the treatment group have a 20% smaller probability of moving from unemployment to employment due to the early activation scheme. For women, there is no effect on the transition rate from employment back into unemployment.

The results from Experiment D (early activation + group meetings) shows a slight negative effect on job finding for men, and that they tend to have a smaller exit rate from jobs, but this effect is also insignificant and smaller than what is obtained in the other experiments. The results from the duration model does not support the findings in Figure 7 that showed a negative effect for men. The missing link is that the transition to other kinds of public transfers was higher for the treatment group and this seems to drive the lower employment rate. For women we see a positive effect on the transition out of unemployment in the first 16 weeks which is similar to what we had in the case of individual meetings. In relation to Figure 7, the initial positive effect on transitions into employment is however counteracted by a higher transition rate back into unemployment for the employed individuals in the treatment group. Notice that comparing transition rates between Experiment C and D there was a positive effect for men of early activation in isolation, which is no longer found when combined with group meetings.

Finally, we compare the above findings with those reported in relation to the QBW1 experiment in Rosholm (2008), Graversen & van Ours (2008) and Blasco & Rosholm (2011). The first two studies find that on average, individuals in the treatment group leave unemployment around 20% faster than individuals in the control group. This is an effect of

about the same size as what we have reported for women exposed to meetings and for men exposed to the threat of early activation. For men, we find an additional favorable effect in Experiments A-C on their subsequent employment spell. This is also the finding in Blasco & Rosholm (2011). They include subsequent employment spells and find that overall, the experiment reduces unemployment reoccurrence for men, but not for women. Hence, the results found here are in accordance to what was found in QBW1 and may hence help to explain the findings there as a combined effect of frequent individual meetings and the threat of future activation. We also shed light on the differential behavioral reactions by men and women, although we are not able to explain why women find jobs faster and men tend to keep them longer when exposed to meetings, and why men react to perceived future activation by searching more and finding better jobs, while women do not. Some of it may be due to different search strategies - women tend to find employment in the public sector and men in the private sector. Case workers are mostly female and often have experiences from other jobs in the public sector, which may enable them to help women better. Public jobs last for a very long time, which might explain why there is no impact on exit from jobs for women. It might also just be the case that predominantly female case workers are better able to help female job searchers, as suggested by Behncke *et al.* (2010b). Finally, psychological and behavioral reactions might differ between men and women; for example, women may listen more to the advice of the case workers, while men are more self-confident and perhaps therefore less inclined to take advice. In terms of threat effects, the presence of threat effects for men has been documented in a number of studies, and it could have the same explanation; the self-confidence of men leads them to believe that they know better and that no activation program will be able to improve on their skills, while women may in fact look forward to perceived skill improvements. However, this is all speculation, and better - behavioral - data would be necessary to shed light on this issue. In fact, the National Labour Market Authority of Denmark has recently decided to supplement each new experiment with surveys before and after on behavioral issues in order to gain more insight into the nature of the effects.

## 6 Cost-benefit analysis

Few studies consider the benefits of a program relatively to its costs. In this section we contrast the costs of running the four experiments with the gains obtained by increasing employment rates. In addition, we adjust for the marginal costs of providing public

funding via taxation. The CBA calculates the net gains accumulating over the first two years after entry into the experiment. The costs are split into costs of income transfers and costs of operating the active labour market policy (called program costs). The costs of income transfers are calculated based on weekly per individual costs of a given income transfer. Programme costs are provided as average costs of operating activation programs of a given type (costs data are provided by the National Labour Market Authority), individual meetings last between 15 and 30 minutes (information on average meeting duration is provided by the participating job centres), and group meetings last 2-3 hours and has 6-30 participants per meeting). The price of a meeting per worker is then calculated by multiplying its duration with the hourly costs of a caseworker and dividing by the number of participants.

Public income transfers represent only a reallocation of income, hence, in the cost-benefit calculation, we only include the marginal costs of providing public funds via taxation, assumed to be 20% (this is the official rate advocated for cost-benefit calculations by the Danish Ministry of Finance). Costs of operating the active labour market policy, however, are a genuine extra cost and as such is multiplied by 1.2 in order to accommodate the marginal costs of public funds (MCPF). On the benefits side, we assume that employed workers are able to obtain work at approximately the average weekly wage rate for previously unemployed workers (approximately €40,200 per year divided by 46 working weeks). We assume further that the wage is equal to the marginal cost of production, such that all the gain from increased production accrue to the workers. We assume that there will be no future effects of the program beyond the two years time horizon. Any additional accumulation of employment gains will therefore tend to improve on the result. Finally, we ignore any general equilibrium effects that might be present (see e.g. Crepon et al., 2011; Gautier et al., 2012). The results of the cost-benefit analysis is shown in Table 6.

TABLE 6: COST-BENEFIT ANALYSIS

	Costs	Corrected for MCPF
<b>Northern Jutland - Experiment A</b>		
Saved income transfers	1486	297
Saved program costs	-237	-284
Saved total costs	1249	13
Accumulated gain in employment (weeks)		1.52
Value of increased production		1329
<b>Net result of CBA (in €)</b>		<b>1342</b>
<b>Copenhagen &amp; Sealand - Experiment B</b>		
Saved income transfers	1569	314
Saved program costs	41	49
saved total costs	1610	363
Accumulated gain in employment (weeks)		4.99
Value of increased production		4362
<b>Net result of CBA (in €)</b>		<b>4725</b>
<b>Mid Jutland - Experiment C</b>		
Saved income transfers	412	82
Saved program costs	-295	-354
Saved total costs	117	-272
Accumulated gain in employment (weeks)		1.75
Value of increased production		1530
<b>Net result of CBA (in €)</b>		<b>1258</b>
<b>Southern Denmark - Experiment D</b>		
Saved income transfers	108	22
Saved program costs	-366	-440
Saved total costs	-258	-418
Accumulated gain in employment (weeks)		-1.37
Value of increased production		-1198
<b>Net result of CBA (in €)</b>		<b>-1616</b>

Table 6 shows that individual meetings with caseworkers are not only the most effective instrument in terms of increasing employment, it also lead to the largest net gains to society. The net gain per unemployed is around €4725, and even the isolated cost

calculation for the public sector shows net savings (the 2<sup>nd</sup> column of Table 6). Group meetings - although their impact was more modest - also give a surplus in the cost benefit analysis, since the costs of running these meetings are fairly low. The same is true for early activation, where the positive effects found for men were sufficient to outweigh to slightly negative effects for women and the costs of running the programs. For the (imperfectly conducted) experiment with group meetings as well as early activation, the cost benefit analysis reveals a deficit of about €1600. As mentioned in the literature review, these results are likely to change in the presence of general equilibrium effects from the programs. General equilibrium effects could potentially improve as well as worsen the cost-benefit calculation, although Gautier *et. al.* (2012) indicate that overall gain becomes smaller but does not disappear, when general equilibrium considerations are included, at least for the experimental design in QBW1. On the other hand, effects lasting beyond the two year observation period will increase the gains of treatment and thereby increase the profitability of the programs.

## 7 Conclusion

We have analyzed the effects of four randomized experiments conducted in Denmark in 2008. The experiments entailed different combinations of early and intensive treatment in terms of meetings and activation. A previous experiment, QBW1, showed that the combination on meetings, job search courses, and early activation reduced the length of unemployment spells and was economically attractive (see Graversen & van Ours, 2008, and Rosholm, 2008). The purpose of the set of experiments analyzed in the present study was to test which of the several instruments used in QBW1 caused these large effects and whether similar results could be achieved using cheaper instruments such as group meetings.

The evidence we present is quite compelling; fortnightly individual meetings between newly unemployed workers and case workers can increase employment rates over the next two years by 10% corresponding to 5 weeks, and our cost benefit analysis show that the surplus per unemployed is around €4725. We find it remarkable that having to attend 6-7 meetings during the first 13 weeks of the unemployment spell can have such a large effect on subsequent employment rates. Nevertheless, the positive effect of individual meetings for newly unemployed workers is highly consistent with the results found in the literature on the effects of meetings between case workers and unemployed workers.

The accumulated effect of meetings is of a similar size for men and women two years after the beginning of the unemployment spell, but it starts materializing much earlier for women than for men. A multi-state duration analysis suggest that the explanation is that women find jobs faster, while men keep them longer, as a result of these meetings. A couple of potential explanations for these differences by gender are that

- most case workers are female, and unemployed women may receive better job search assistance from them than men (cf. Behncke *et al.*, 2010b),
- women and men work in different labour markets, with men being more likely to work in the private sector and women in the public sector. Again, female case workers may have better knowledge of public sector vacancies than they have of vacancies in the private sector.<sup>15</sup>

Unfortunately we have no information at present allowing us to test these hypotheses.

In the experiment involving group meetings we see a similar gender pattern but the effects are more modest, leading to about 2 extra weeks of employment over a two year period. We therefore conclude that one cannot achieve the same remarkable employment results using group meetings instead of individual meetings.

The positive and economically attractive results found in relation to meetings has also implied that a new wave of experiments will start from late 2012 and onwards. They will explore different aspects wrt. to meetings and try to explore the quality-quantity trade-off using a cross-cutting design; that is, we will test whether it is the meeting intensity or rather the quality of the meetings that are primary driving forces for the impressive results reported from QBW2.

Early activation also shows positive effects for men, especially young men, and especially during the more favorable cyclical conditions, while for women there was actually a negative effect of early activation due to lock-in effects. The effect comes from a threat effect (*ex ante* effect) and more stable subsequent employment. This evidence on threat effects of early activation for men but not for women correspond closely to results found by Rosholm & Svarer (2008), who found such threat effects for men but not for women. A couple of potential explanations for these differences are that

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<sup>15</sup>An additional explanation suggested by a group of female case workers when these results were presented for them was that men tend to be more confident/proud/stubborn, and that advice therefore takes longer to 'sink in'.

- unemployed men work in the untaxed sector, and therefore when facing mandatory activation, they prefer ordinary employment
- men dislike activation for other reasons, while women value the social network provided.

Again, we have no additional information allowing us to test these different hypotheses, but the behavioral gender differences documented here certainly warrant further future research on these experiments and on the differential impact of active labour market policies on men and women.

Finally, it should be mentioned that the present study does not in any way take into account general equilibrium effects or substitution effects arising from the experiment. Gautier *et. al.* (2011) and Crepon *et. al.* (2011) offer some insights, but overall we still know very little about the presence of general equilibrium effects and their size with respect to the actual policy implemented. It might very well be the case that meetings leads to more positive effects if they improve the match between workers and firms and this way improve the profitability of a vacancy. It could also be the case that the general equilibrium effects differ between whether the stated intention of the meetings are counseling or monitoring - likely favoring the former. This is also left for future study.

We believe that the results obtained in this paper shed some light on the reason for the Danish success in having obtained a low structural unemployment rate prior to the recent global economic crisis. Before the crisis the structural unemployment rate was estimated to be around 3.5% as compared to 9-9.5% in 1993. Since then, active labour market policies have been introduced and continuously tightened during the 1990s and early 2000s. Especially, meetings intensities have increased, early activation has been introduced (mandatory activation was pushed forward from 4 years to 9 months of unemployment during this period), and noncompliance with the rules have led to sanctions. Moreover, we also believe that the result points to possible improvements of the policy conducted, with even more focus on early individual meetings, which are much cheaper than full time program participation. The fact that the threat effect of early program participation disappears during a cyclical downturn may warrant further analysis of optimal cyclical labour market policies.



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# Part I

## Appendix:

FIGURE 10: MEETING AND ACTIVATION INTENSITIES FOR THE CONTROL GROUP

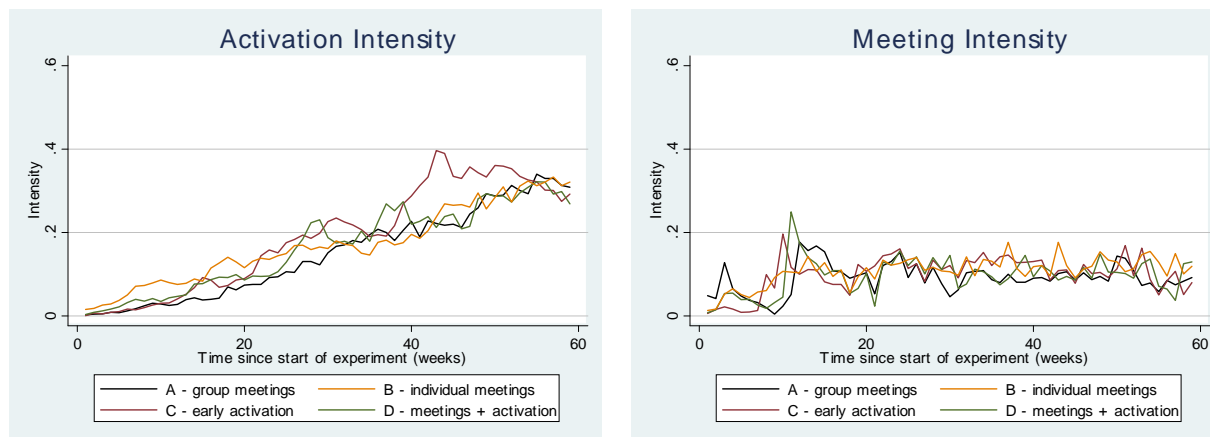


TABLE 7-10: DESCRIPTIVE STATISTICS FOR THE CONTROL GROUP AND THE TREATMENT GROUP

Northern Jutland (A):	Control group		Treatment group	
	Men	Women	Men	Women
Characteristics	Average	Average	Average	Average
Age (years)	40.17	40.16	40.17	39.79
Under 30	0.22	0.20	0.27	0.22
30-49	0.53	0.56	0.46	0.54
Above 49	0.25	0.24	0.27	0.24
Marriage	0.44	0.63	0.45	0.63
Danish origin	0.93	0.93	0.94	0.90
Western origin. not Danish	0.01	0.02	0.03	0.02
Non-Western	0.06	0.05	0.03	0.08
Transfer degree < 0.1 last 3 years	0.17	0.08	0.15	0.06
Transfer degree $\in (0.1;0.5)$ last 3 years	0.62	0.46	0.62	0.44
Transfer degree > 0.5 last 3 years	0.2	0.46	0.23	0.5
Prior unemployment spell (days)	0.19	0.19	0.40	0.33
Share of new unemployed	0.95	0.96	0.94	0.97
Number of observations	303	310	304	261

<b>Copenhagen &amp; Sealand (B):</b>	<b>Control group</b>		<b>Treatment group</b>	
	Men	Women	Men	Women
Characteristics	Average	Average	Average	Average
Age (years)	40.9	40.17	41.34	40.67
Under 30	0.23	0.18	0.21	0.16
30-49	0.49	0.60	0.48	0.63
Above 49	0.29	0.22	0.31	0.21
Marriage	0.54	0.69	0.51	0.58
Danish origin	0.8	0.77	0.88	0.85
Western origin, not Danish	0.03	0.03	0.02	0.03
Non-Western	0.16	0.20	0.10	0.12
Transfer degree < 0.1 last 3 years	0.21	0.09	0.21	0.12
Transfer degree $\in (0.1;0.5)$ last 3 years	0.62	0.49	0.60	0.54
Transfer degree > 0.5 last 3 years	0.17	0.42	0.19	0.34
Prior unemployment spell (days)	0.49	1.05	0.23	0.35
Share of new unemployed	0.92	0.91	0.94	0.93
Number of observations	455	371	376	343

<b>Mid Jutland (C)</b>	<b>Control group</b>		<b>Treatment group</b>	
	Men	Women	Men	Women
Characteristics	Average	Average	Average	Average
Age (years)	37.08	35.81	37.46	35.72
Under 30	0.33	0.33	0.33	0.39
30-49	0.5	0.56	0.48	0.48
Above 49	0.17	0.11	0.2	0.13
Marriage	0.4	0.44	0.43	0.46
Danish origin	0.85	0.86	0.84	0.86
Western origin, not Danish	0.03	0.05	0.04	0.07
Non-Western	0.12	0.10	0.12	0.07
Transfer degree < 0.1 last 3 years	0.12	0.07	0.19	0.13
Transfer degree $\in (0.1;0.5)$ last 3 years	0.45	0.3	0.4	0.3
Transfer degree > 0.5 last 3 years	0.43	0.62	0.4	0.57
Prior unemployment spell (days)	0.1	0.05	0.27	0.06
Share of new unemployed	0.97	0.98	0.96	0.98
Number of observations	405	428	393	454



Southern Denmark (D) Characteristics	Control group		Treatment group	
	Men	Women	Men	Women
	Average	Average	Average	Average
Age (years)	39.28	39.37	40.81	39.58
Under 30	0.31	0.22	0.24	0.20
30-49	0.43	0.57	0.47	0.60
Above 49	0.26	0.21	0.28	0.20
Marriage	0.49	0.63	0.46	0.61
Danish origin	0.85	0.86	0.87	0.91
Western origin, not Danish	0.07	0.05	0.05	0.02
Non-Western	0.08	0.09	0.08	0.07
Transfer degree < 0.1 last 3 years	0.17	0.06	0.13	0.07
Transfer degree $\in (0.1;0.5)$ last 3 years	0.60	0.48	0.63	0.48
Transfer degree > 0.5 last 3 years	0.23	0.46	0.25	0.45
Prior unemployment spell (days)	0.05	0.23	0.19	0.12
Share of new unemployed	0.98	0.97	0.97	0.97
Number of observations	247	248	247	266