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Including individuals with weak attachment to the Swedish labour market
- Discussing individuals who return to the sickness insurance

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Abstract. In this paper, two cross sectional data sets are used to investigate whether significant differences exist between individuals who return to the Sickness Insurance (SI) after having reached the outer time limit, and other customers of the Swedish Social Insurance Agency (SIA) and the Public Employment Service (PES). The aim is to contribute to the discussion regarding the sickness insurance reform that was implemented in 2008 with a focus on the outer time limit of the sickness benefit and the programme Work life introduction (WLI), a programme introduced to provide support to individuals with weak attachment to the labour market. Our results identify, amongst other things, that individuals participating in WLI return to the SI to a larger extent than other customers of the authorities, and that amongst the individuals who return many of them return already after 90 days. Finally we discuss that further attention must be given to the decrease in compensation level that strikes individuals reaching the outer time limit. Although the time limit is in line with theories on how to create economic incentives, it might in fact cause severe stress and illness that may prolong the duration before an individual manage to start working again.

Keywords: Sickness Insurance, Rehabilitation chain, Economic incentives

JEL: I38 Government Policy, Provision and Effects of Welfare Programs, I18 Government Policy, Regulation, Public Health, I13 Health Insurance, Public and Private

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1. Introduction

The regulation of the sickness insurance (SI) is a central political issue that is frequently on the agenda. There are different views regarding how to reduce the level of sick leaves and what efforts should be provided to include individuals with weak attachment to the labour market. In Sweden, a reform in 2008 included an outer time limit to the sickness benefit,[1] meaning that it is possible for individuals to exhaust their sickness benefit. The purpose of the reform was to reduce the high levels of sick leaves that were prevailing in the beginning of the 21st century and to include individuals with weak attachment to the labour market.[2] The primary implication of the outer time limit was that there would be individuals who would not be entitled to receive sickness benefit. However, after a period of 87 days, individuals may apply for and be entitled to a new period of sickness benefit. Thereby, it is possible, and has been evident, that there are individuals who exhaust their SI but who later return to the SI instead of continuing on to the labour market, as was the purpose of the reform and the outer time limit. The new rules that were implemented in 2008, and especially the outer time limit, have been criticized both in media and in the political debate.[3] To remove the outer time limit remains on the party programmes of opponents, and will most likely be a debated subject for the upcoming election to the Swedish parliament this fall, 2014.[4]

Thus, given the attention in media and in the political debate and the evidence showing that there are individuals who return to the SI after they have exhausted their insurance once, this paper aims to explore the efforts offered to individuals who reach the outer time limit and the primary purpose is to shed light on the group of individuals who return to the SI by emphasising the following research questions:

- *Are there significant differences between individuals who return to the SI and other customers of the Public Employment Service (PES) and the Social Insurance Agency (SIA)?*
    - *Do some variables have a greater impact on the probability of return to the SI?*

An explorative approach is taken to attempt to answer the research questions. An approach where we empirically try to learn more about the outer time limit of the SI and the individuals affected by it in two steps. We start by conducting a small pre-study, based on a qualitative approach where interviews are held with managers and employment officers of a local employment office. The second part of the explorative approach is based on a quantitative method where two cross sectional data sets, received from the Social Insurance Agency (SIA)[5] and the Public Employment Service (PES),[6] are analysed with the purpose to identify significant variables for the possibility of returning to the SI. A de-selection process where variables were tested for significance was performed so as to identify the variables that explain most about the individuals who return to the SI.

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[1] Sjukpenning.
[2] Regeringens Proposition 2007/08:136.
[3] The political opposition stated before the last election to the Swedish parliament in 2010 that a shift in government would imply removing the outer time limit http://www.dn.se/debatt/sa-blir-sjukforsakringen-om-vi-vinner-valet-i-host/.
[4] The Social democrats, the largest party in the opposition, state as one of their goals regarding the SI to remove the outer time limit http://www.socialdemokraterna.se/var-politik/var-politik-a-till-o/sjukforsakringen/.
[5] Försäkringskassan.
[6] Arbetsförmedlingen.

There is little empirical research on the effects of the reform in 2008 or the implications of Work life introduction (WLI),[7] a programme that is offered to individuals who reach the outer limit and who are in need of extra support. A possible explanation, which has been stated by the PES themselves in their reports about the programme, is that an outright evaluation of the impacts of the programme is not possible to carry out because of the difficulties in finding a valid control group (Arbetsförmedlingen 2011). Most theoretical research has focused on preventing overuse of the SI through creating economic incentives. Theoretical research show that moral hazard in the SI can be counteracted by using time limits and by using decreasing compensation levels. In addition to introducing the outer time limit, the reform introduced in 2008 included time-restricted assessment of working capacity. Thus, the change towards a stricter SI that the reform implied is supported by theoretical research on economic incentives. However, in this paper we will restrict our analysis to investigate the existence of significant variables in explaining return to the SI amongst customers of the authorities, and discuss possible reasons behind our results. Thus, we do not attempt to perform an effect study and we will not analyse whether or not the economic incentives and the stricter rules are efficient.

Reading proposition and composition

Section 2 of this paper will provide a short background to the reform in the Swedish SI in 2008 and the proceedings of the reform. In section 3 of the paper, established theoretical and empirical frameworks on creating incentives in the SI are presented. In section 4, the paper presents and examines the data sets collected for the study. Section 5 presents methodology and methods used in the empirical analysis. Section 6 presents the empirical results achieved and section 7 provides a discussion of the results. Section 8 contains concluding remarks on the paper and provides recommendations on future studies. Finally, section 9 provides a summary of the conclusions that are made.

Swedish translations of the terms used for the authorities, as well as programmes and services offered by the two authorities can be found in Appendix 4.

[7] Arbetslivsintroduktion.

2. Background

This section will provide a summary of the reform in the Swedish SI in 2008, the implications of the rehabilitation chain and the different types of compensation that may be received by individuals who are included in the SI or participate in WLI.

2.1 The process when becoming sick in Sweden

When an individual reports sick, the first day of the sickness period is a qualifying day of sickness,[8] thereafter the SIA compensates unemployed individuals from the second day of the sickness period. For employed individuals, the employer compensates with sick pay[9] during the first 14 days before the SIA begins to pay sickness benefit. To receive sickness benefit, a medical certificate is needed as of the 8th day of the sickness period.

2.2 The reform in 2008

New rules within the SI were introduced in 2008 that included a stricter enforcement of the eligibility criteria in the Swedish SI-system and the introduction of an outer time limit to the SI. The reform was based on an increasing number of individuals receiving sickness- or activity compensation[10] and individuals with weak attachment to the labour market (Arbetsförmedlingen 2011). A broader observation of the level of sick leaves in Sweden show that during periods of stricter regulations, sick leaves have decreased while during periods of more generous regulations, the level of sick leaves has increased (Hägglund & Skogman Thoursie 2010). Thus, as an attempt to lower the level of sick leaves and include individuals with weak attachment to the labour market, the reform implied stricter regulations by the means of the rehabilitation-chain model, with eligibility checks at fixed terms during the sickness period, and an outer time limit of the SI.

2.2.1 The Rehabilitation Chain

The reform aimed to reduce excess use of the SI as well as reduce the number of individuals receiving temporary sickness compensation by creating incentives amongst all actors in the sick leave process to provide early actions at fixed terms and hence hasten return to work (Arbetsförmedlingen 2011). The reform implied time-restricted assessments of the working capacity of individuals on three levels.

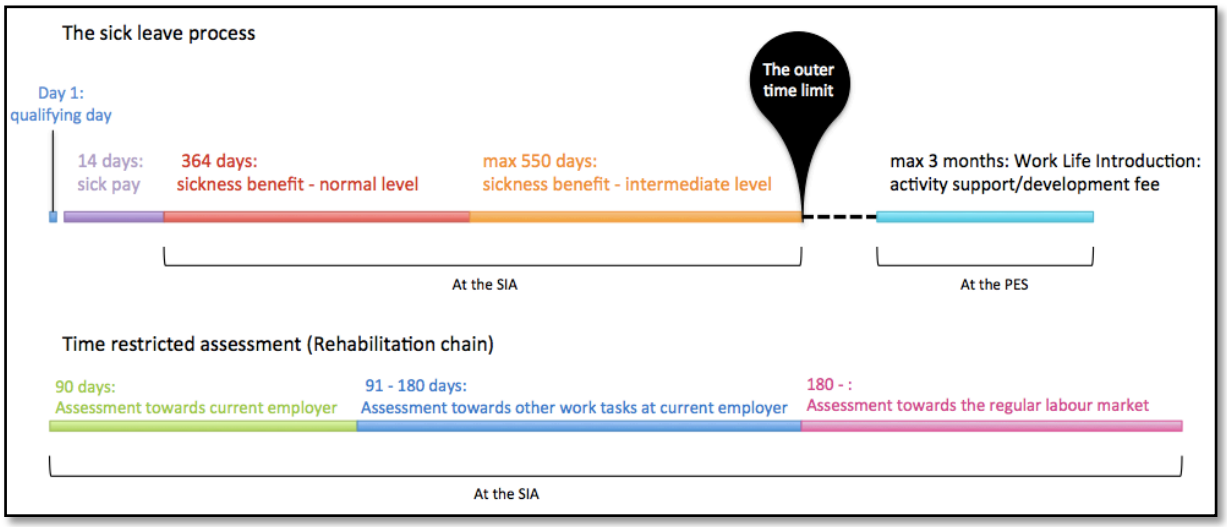
During the first 90 days of the sickness period, individuals' eligibility to receive sickness benefit relates to the ability to perform their regular work tasks. From day 91, the eligibility requirements are stricter; allowing benefits only if the reduced working capacity implies that the individual is incapable to perform any work tasks at the current employer. From the 181st day, the working capacity, and thus the eligibility to receive benefit, is evaluated against all available jobs on the labour market (Försäkringskassan 2004).[11] The working capacity of unemployed should be evaluated against the labour

[8] Karensdag.
[9] Sjuklön.
[10] Sjuk- eller aktivitetsersättning. Previously applied to as early retirement benefit (förtidspension).
[11] Exceptions from this assessment could be made, for instance, if the individual is undergoing rehabilitation and is expected to resume work within 12 months See (Sjukpenning och samordnad rehabilitering, Vägledning 2004:2 Version 21) to know more about how the assessments are performed at the SIA.

market from day two of the sickness period. After 365 days individuals are only entitled to sickness benefit if they are unable to perform any job at the labour market.[12]

When the reform was introduced, the different steps of the rehabilitation chain were already in use, however the fixed eligibility checks were new, specifying when, during the sickness period, the increasingly stricter eligibility criteria should be adopted. Furthermore, the outer time limit of the SI was new. Individuals who are not granted SI at intermediate level, that is compensation from the SI during an additional 550 days, or who have reached maximum days of sickness leave, 914 days, are generally no longer entitled to sickness benefit and are instead offered to participate in the labour market policy programme WLI. Thus, those individuals are directed from the SIA to the PES and cannot apply for a new period of sickness benefit until after at least 87 days of absence from the SI.

Figure 1: The sick leave process and the time-restricted assessment - from the first day of sickness



2.3 Work life introduction

The introduction of the rehabilitation-chain in July 2008, with time-restricted assessments and a maximum number of entitlement days, implied that there would be individuals who would reach an outer time limit at the turn of 2009/2010.

Since January 2010, the PES has offered the programme WLI to individuals that are no longer entitled to SI. The programme runs for three months and aims to offer support and individually adapted activities in order to enhance the opportunities of the participants to be able to return to work. Participation is a statutory right, thus an assessment of the capability to benefit from the efforts offered is not carried out beforehand and there are no requirements regarding level of participation during the programme. Because a large proportion of the participants has weak attachment to the labour market and a history of prolonged sickness (Arbetsförmedlingen 2013, 7c - Arbetslivsintroduktion), focus is to identify working capacity and to provide preparatory efforts in order to enable the individuals to continue on to other labour market policy programmes at the PES and eventually to return to work.

[12] But there are exceptions, for instance, if it is considered brutishly to assess working capacity in relation to job offerings on the labour market.

The first step within the programme is a so-called joint planning meeting[13] in which the individual, an employment officer and an administrator from the SIA participate.[14] The purpose of the meeting is to identify the individual's need of rehabilitation and to come up with an individually adapted activity plan. The aim is to involve the individual and the two authorities early on in the process to prevent long-term sick leaves as well as enhance the opportunities of return to work. Based on the activity plan the individual may take part of all available efforts at the PES, however the most common activities amongst the individuals in the programme are preparatory actions and vocational rehabilitation.[15]

2.3.1 The outer time limit and individuals who return to the SI

The first group of 17849 individuals reached the outer time limit at the turn of 2009/2010, either because they had reached maximum days of sickness benefit at intermediate level or maximum days of temporary sickness compensation (Arbetsförmedlingen & Försäkringskassan 2010). The entire group who reached the outer time limit in 2010 were 54 243 individuals. Amongst these individuals, 24% remained in sickness compensation or received additional days with sickness benefit and 76% left the SI. In total, 12% did not register while the remaining 88% did register at the PES. Of the individuals registered at the PES during the period of absence from SI, 54.2% returned (Arbetsförmedlingen & Försäkringskassan 2011).

Table 1: Reached the outer time limit in 2010

	Females		Males		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Reached the outer time limit in 2010	37041	68.3%	17202	31.7%	54243	100%
Remained in SI	8358	64.4%	4627	35.6%	12985	24%
Left the sickness insurance:	28683	69.5%	12575	30.5%	41258	76%
Did not register at PES	*3623*	71.3%	*1496*	29.5%	*5079*	*12%*
- Returned to the sickness insurance	972	72.5%	368	27.5%	1340	26%
- Did not return to the sickness insurance	2651	70.9%	1088	29.1%	3739	74%
Registred at PES:	*25060*	69.3%	*11119*	30.7%	*36179*	*88%*
- Returned to the sickness insurance	13654	69.6%	5968	30.4%	19622	54%
- Did not return to the sickness insurance:	11406	68.9%	5151	31.1%	16557	46%
- Employed	*3370*	66.7%	*1679*	33.3%	*5049*	*30%*
- Unemployed	*808*	66.1%	*415*	33.9%	*1223*	*7%*
- Registered in program with activity support	*4725*	72.4%	*1798*	27.6%	*6523*	*39%*
- Others registered without support	*909*	66.9%	*449*	33.1%	*1358*	*8%*
- Left PES for other reason than employment	*1594*	66.3%	*810*	33.7%	*2404*	*15%*

(Source: Arbetsförmedlingen & Försäkringskassan 2011)

In total, 38 329 individuals registered to participate in the programme WLI in 2010. Descriptive data on these individuals show that most of them were females, 69.5%, and the largest proportion was between 35-54 years old, 64.2%. The majority was born in Sweden, 78.5%, they had secondary education and 62.1% had a disability registered. Between October 2012 and June 2013, there were 4350 individuals who registered to participate in WLI for a second time. Descriptive data on this group of individuals show that 72.4% was females and 70.1% was between 35-54 years old. The majority was born in Sweden, 77%, they had secondary education and 60.9% had a disability registered.

[13] Gemensam kartläggning.
[14] In some cases other actors may participate as well, for instance, an employer or a physician.
[15] Förberedande insatser och arbetslivsinriktad rehabilitering.

A comparison between the individuals registered during 2010 and the individuals returning after having exhausted the SI a second time[16] show that in both groups the majority of individuals follow the same pattern. However, it is observable that the proportion of females and individuals between 35-44 years increases in the group that exhausted the SI a second time compared to the individuals that reached the outer time limit for the first time.

Table 2: Participation in Work Life Introduction

Participation in Work Life Introduction	2010		2nd time: Oct 2012 - Jun 2013	
	Frequency	Percentage	Frequency	Percentage
Total	**38329**	**100%**	**4530**	**100%**
Gender				
Female		69.5%		72.4%
Male		30.5%		27.6%
Age				
16-24		0.0%		0.0%
25-34		5.7%		5.8%
35-44		25.7%		29.6%
45-54		38.5%		40.5%
55-59		15.8%		15.5%
60-		14.2%		8.6%
Birth country				
Native-born		78.5%		77.0%
Foreign-born		21.5%		23.0%
Disability				
Registered		62.1%		60.9%
Not registered		37.9%		39.1%
Level of education				
Pre-secondary		27.4%		25.6%
Secondary		46.4%		45.7%
Post-secondary		26.2%		28.7%

(Source: Arbetsförmedlingen 2013)

The PES discuss the 71217 individuals that received programme decision to participate in WLI during the period January 2010 to June 2013 and the status of theses participants over time in a report from 2013 (Arbetsförmedlingen 2013, 7c - Arbetslivsintroduktion). The conclusions are that it is primarily participants with stronger attachment to the labour market, for instance an employment to return to or previous participation in vocational rehabilitation, that are employed 90 days after programme ending and that the group of individuals leaving the PES for other reasons than employment increases over time. However, the PES argue that it is to be expected that some participants leave the services and that the proportion of this group should be analysed with respect to that the individuals' ability to benefit from the efforts offered is not evaluated before attending the programme. The individuals that are reported as others registered may include individuals that are considered to be unable to benefit from the services offered, they may have unstable health conditions which can cause the assessment of the ability to participate to take longer time than the three months the programme runs for or they may have applied for SI and remain registered at the PES while waiting for a decision.

2.4 Compensation forms

Depending on whether individuals are assessed to have working capacity during the time-restricted assessments or reach the outer time limit of the SI, the compensation form and level differs.

[16] The first individuals to exhaust their SI did so at the turn 2009/2010, thus all individuals that registered during 2010 had only exhausted the SI once.

2.4.1 Sickness benefit

Sickness benefit is temporary and serves to compensate for income loss when individuals are not able to work, therefore benefit can only be received during a limited period of time. There are two types of time limits within the SI, time limits concerning the level of compensation and time limits concerning assessment of the working capacity.

The time limits concerning assessments of working capacity follows the fixed eligibility checks according to the rehabilitation-chain model, with minor differences depending on whether the individual is unemployed or type of employment.

The level of compensation decreases at fixed time limits during the sickness period. Individuals receive sickness benefit close to 80% of the sickness benefit qualifying income[17] (SQI) during the first 364 days of the sickness period.[18] After the first 364 days, individuals may apply for sickness benefit during additionally 550 days. The level of compensation is then lowered to slightly less than 75% of the SQI. When individuals reach a sickness period of 914 days or if they are assessed to have working capacity during the sickness period, they are generally no longer entitled to sickness benefit.

2.4.2 Rehabilitation benefit

Rehabilitation benefit compensates for the loss of income when participating in rehabilitation efforts.[19] Individuals, whose participation aims to lead to return to previous workplace, are entitled to rehabilitation benefit during a maximum period of three months. Individuals, whose participation aims to help them learn to manage new work tasks or manage a new job offered at the labour market, are entitled to rehabilitation benefit during a year. The amount received is close to 80% of the SQI and is deducted from the 364 days during which the individual can receive sickness benefit at normal level. Thereafter, the individual can receive rehabilitation benefit of nearly 75% of the SQI, which is deducted from the additional 550 days that is the maximum duration of sickness benefit at intermediate level.

2.4.3 Activity support or development fee[20]

Individuals who are not entitled to sickness benefit and who participate in a labour market policy programme at the PES may receive activity support or development fee.

Individuals who have turned 25 or who meet the criteria of the unemployment fund[21] are entitled to activity support, others are entitled to development fee.[22] During the first 200 days of the compensation period, individuals may receive up to 80% of confirmed daily earnings. From day 201 to 300 the level is lowered to 70% and from day 301 and onwards the compensation level is 65% of confirmed daily earnings.

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[17] Sjukpenninggrundande inkomst.
[18] For individuals with employment the maximum amount received is 708 SEK per day and for unemployed the maximum amount received is 486 SEK per day.
[19] Some individuals may receive a particular contribution that compensates for costs associated with rehabilitation, for instance travel costs.
[20] Aktivitetsstöd eller utvecklingsersättning.
[21] A-kassa.
[22] The amount paid depends on whether the individual meet the criteria of the unemployment fund and on the number of days with received unemployment benefit and/or activity support.

3. Theoretical and empirical framework

It is well recognized in society that the usage of the SI is determined by other factors than the extent of illness. Such factors are controlling measures of various sort (Hesselius et al. 2005) (Johansson & Lindahl 2010) (ISF 2010), compensation levels (Johansson & Palme 2005) (Hesselius & Persson 2007) as well as local cultures and norms (Hesselius et al. 2009). This section of the paper will summarize important contributions that have been made through previous research regarding factors that affect the usage of the SI. Firstly, the section will provide theoretical explanations for the policy instruments that are commonly used to control the usage of the SI. Theories and previous research that motivate and explain the aim of the reform implemented in 2008 will be provided. Secondly, the section will chart the current state of knowledge regarding the effects of early interventions and vocational rehabilitation. This section will then be ended by presenting some critique towards the aim of short sick spells as well as explanations for how the SI and the unemployment insurance (UI) are related.

The previous research mentioned in this section is focused on the SI-system in Sweden as the thesis aims to explore the programmes and measures used in Sweden and, based on that, to discuss whether there are significant differences between individuals who return to the SI and other customers of the PES and the SIA.

3.1 Economic incentives

The relevance of economic incentives within the SI is based on the assumption that there is a group of individuals on sick leave who have working capacity and might be able to return to work, thus the SI is inflicted by some degree of moral hazard. Multiple studies have shown that declines in the level of sick leaves often coincide with restrictive reforms while increases in the level of sick leaves coincide with more generous reforms (Hägglund & Skogman Thoursie 2010), (Socialförsäkringsutredningen 2005b). Policy instruments and thereby the generosity of the SI has proven to affect the work-absence behaviour of individuals. The most frequently used instruments to prevent moral hazard and to create economic incentives to return to work are regulation of the compensation level, qualifying days of sickness and time limits within the SI.

3.1.1 Compensation level

Johansson & Palme (2005) identifies the existence of moral hazard in the Swedish insurance system and show that compensation levels within the insurance affect the degree of moral hazard. In a more recent theoretical study by Skogman Thoursie (2012), he suggests that the compensation level should be lower than 100% in order to prevent moral hazard and that declining compensation during the benefit period may create incentives to return to work.

Skogman Thoursie (2012) argues that a high initial compensation level may affect the behaviour of individuals before reporting sick, for instance that they become less cautious against colds and injuries. Furthermore, he argues that a high initial compensation level may enhance excess use of the insurance, as the cost of being away from work is lower if the compensation level is high. This behaviour may be counteracted by the use of qualifying days of sickness.

3.1.2 Qualifying days of sickness and sick pay period

Qualifying days of sickness may be used to counteract inflow incentives to become too strong. Within the SI, the decision to report sick is made individually by the insurance holder and may thus be afflicted by moral hazard. Even so, the problem of moral hazard in connection to inflow to the SI is probably less if a sick pay period is being used[23] and given that the employer is a more effective adjuster than the SIA (Skogman Thoursie 2012). Furthermore, theoretical research has not proved whether qualifying days of sickness decreases the length of sickness periods or not. Qualifying days of sickness may lead to fewer sick leaves because individuals do not receive compensation during these days, but already initiated sick leaves may be longer in duration because individuals may want to avoid having to go through another period of qualifying days of sickness and thus choose to remain on sick leave (Skogman Thoursie 2012).

3.1.3 Time limits and controlling measures

Skogman Thoursie (2012) concludes that time limits within the compensation period, as well as during the compensation period, create incentives to return to work. Furthermore, he concludes that empirical research to some extent supports these theoretical conclusions. It has been shown that the level of compensation is important for the duration of unemployment within the UI and there is support of an increasing probability of leaving unemployment when the individual approaches the time limit. Within the SI the level of compensation have less effects on the length of the sickness periods while it affects the probability of reporting sick. The time limit is less sharp within the SI than within the UI because there are several exceptions entitling individuals to compensation although the individual has reached the ordinary time limits of the SI. Based on moral hazard, exceptions within the SI may be motivated for individuals who cannot affect their behaviour, for instance individuals suffering from a severe illness. However, exceptions in the insurance may hollow incentives to return to work. Skogman Thoursie (2012) assess that there is support in the empirical research that exceptions are motivated as "softer" time limits seem to decrease the period of unemployment and sick leave. There will still be incentives, strong enough, for individuals to return to work as long as the frequency of exceptions is held at a not too high level.

3.1.4 The reform in 2008 and evidence that support controlling measures

The reform in 2008 implied a stricter SI, which incorporated an outer time limit as well as time-restricted assessments of individuals' working capacity. Those instruments are both in line with established theories on how to prevent moral hazard in the SI.

Controlling measures and monitoring have support in the Swedish empirical literature (Hesselius et al. 2005).[24] Johansson & Lindahl (2010) predicted that summon to an information meeting shortens the sick spell duration. They interpreted summon to the meeting as an increased degree of control that in turn has a deterrent effect on sick spell duration. It is shown that the knowledge of future monitoring has an immediate negative

[23] It is the period for which the employer bears the cost of the SI for employees. In Sweden, the sick pay period for employed individuals is 14 days.
[24] The effects of various controlling measures, time limits and sanctions within the SI is relatively undischarged in international literature on effect studies.

effect on the value of remaining absent from work. This is expected to enhance the exit rate through increased efforts and a higher acceptance level toward alternative income sources.

Hägglund (2012) investigated whether time limits reduce the sick spell durations and increase return to work by studying how working capacity assessments at certain durations affected individuals' exit behaviour. He found significant effects on the exit rate from sick leave both before and after the 181st day of the sick spell, when the working capacity is set in relation to any employment on the regular labour market. No impact is, however, found before the 91st sick day. The increased exits around the 181-day assessment are the result of longer periods outside the SI-system, indicating disincentives of reporting sick because of the stricter rules in the sense that it concerns work on the entire labour market. It is more difficult to monitor the assessment on the 91st day of the sickness period, when working capacity concerns alternative working tasks at existing employer.[25] The positive effect found at 181 days demonstrates a regional pattern and the impact of the reform show large positive effects in large-city areas compared to no effects in small municipalities. A favourable local labour market situation in large-city areas induces relatively higher alternative costs of non-work and creates stronger incentives to return to work. The findings can also partly be explained by health differences between regions as well as incentives toward return to work. It is plausible that the estimated effects underestimate the true reform impact because of the substantial changes in the SI-system, which likely require an implementation phase until fully adopted (Hägglund 2012).

3.1.5 Questioning the efforts carried out to shorten periods of sick leave

Skogman Thoursie (2010) raises the question whether shorter periods of sick leave always are to be considered preferable. He argues that if prolonging the sickness period decreases the risk of return to the SI, it might be more effective for individuals who are not fully recovered to continue the sickness period instead of returning to work. Qualifying days of sickness may result in individuals avoiding to report sick even though they need to.

3.1.6 The sickness insurance and the unemployment insurance

Regarding unemployed who report sick, research show that the problem with moral hazard is significant. Larsson (2006) and Hall & Hartman (2010) have shown that differences in the conditions that apply for the different insurance forms has lead to an increased outflow from the UI to the SI, caused by the generally greater generosity of the SI. It has also negatively influenced the sickness insured individuals' incentives to become unemployed, thus preferring to stay in the SI. Insurances should give compensation only for reasons that they are supposed to insure, previous research have therefore suggested a harmonisation of the insurances (Engström et al. 2012). However, as the insurances protect against different risks, a complete equalization of the compensation criteria might not be possible. Skogman Thoursie (2012) therefore

[25] Since the outcome of this assessment is highly reliant on the presence of alternative working tasks at the employer, and also on the employer's motivation to help (and keep) the employee, it is not surprising that no effects were found on the exit rate before 91 days.

suggests that formation of the insurances for unemployed who report sick to be carefully revisited.

A higher compensation level and a shorter compensation period in the SI may be motivated if it is more difficult for an individual on sick leave to affect his situation than for an unemployed. However, whether it is more difficult for individuals on sick leave than as unemployed to affect their situation is not obvious as the measured correlations between compensation and sick leave are significant. A question is therefore whether the SI should be more generous than the UI? (Skogman Thoursie 2012). Larsson (2006) show that the tendency of unemployed to go on sick leave increases dramatically when the individual approaches the time limits of the UI. The conclusion is that the tendency to report sick when unemployed increases significantly if the compensation is higher when on sick leave compared to when unemployed.

The rehabilitation chain aims to bring forward the transfer from sick leave to unemployment. The assessment of the insured's working capacity towards the entire regular labour market after six months of sick leave is expected to increase the number of individuals moving from sick leave to unemployment at that time. After the introduction of the new sick leave process, the flow from sick leave to unemployment increased during the first year of sick leave (Skogman Thoursie 2010).

3.2 Economic incentives in rehabilitation

When the group of individuals who have been assessed to have working capacity or participate in the WLI as a result of having reached the outer time limit transfer from the SIA to the PES, they also transfer from one compensation form to another. Individuals who yet have days left in the SI are able to keep the same compensation level as before whereas participating in the strengthened collaboration.[26] However, for individuals that have reached the outer time limit, the transfer to the compensation form activity support implies a decreased level of compensation. The lowered compensation can be thought of as way to attempt to create economic incentives to return to work for these individuals in the same way as incentives are created through the stepwise reduction of the compensation level through out the rehabilitation chain. Nevertheless, this time the decrease in compensation might have a different effect. When we conducted our pre-study, employer officers expressed that those individuals that have reached the outer time limit experience stress as a result of the decreased compensation level. The stress might worsen an already severe illness as well as distract the customer from the actual rehabilitation efforts, prolonging the time before the actual rehabilitation can start. No empirical research has been conducted on economic incentives in rehabilitation. However this is an area that calls for further development and investigation to provide explanations of differences in motivation and behaviour of individuals within the strengthened collaboration as well as the probability of an individual to return to the SI.

3.3 Early interventions and vocational rehabilitation

Another aim of the reform in 2008 was to create incentives for actors in the SI process to intervene as early as possible in a sick spell. Whether early interventions ease return to work or not is an issue that has been analysed in research. Engström et al. (2010) test the

[26] Samverkan, the SIA and the PES collaborate by offering different efforts to individuals in need of extra support.

hypothesis that early interventions, such as SASSAM and AM,[27] shorten the length of sickness periods. The hypothesis is based on two assumptions without strong empirical evidence. Firstly, it is assumed that early interventions hasten return to work. Secondly, it is assumed that it is possible to identify the individuals who are in need of vocational interventions.[28] Engström et al. (2010) do not find any support that the access to early interventions shortens the length of sick leaves. Their study cannot establish that the early interventions SASSAM and AM, which are provided by the SIA, have statistically significant effects on the expected sick leave length. However, it is possible that the zero effect covers counteracting part-effects. The total effect on the probability of shortened sick periods might be zero, while there might be positive long-term effects of early interventions such as a lower probability of individuals returning to sick leave (Engström et al. 2010). Their provisional analysis show that summon to SASSAM can have positive effects on the probability of ending sick leaves, while there could be a negative meeting effect. This could be a reasonable explanation according to other research if the summon to the meeting could be considered as a controlling measure while the actual meeting is a measure that could strengthen the self-image of the individual as sick, and therefore prolong the sick spell (Anderzen et al. (2008)[29] & Parsons (1978)).[30] In a more recent study, Engström et al. (2012) concludes that there is no indication that early interventions from the SIA shortens the sick spell and increase the return to work or to unemployment. Instead they show that the probability to receive SI on a more permanent basis increases. They argue that the preconditions for early interventions to be effective are that the efforts are offered to individuals in need of them and that the efforts are efficient. They also argue that the reason for why the efforts seem inefficient is because of information asymmetry between the customer and the SIA, causing uncertainty whether the SIA offer efforts to individuals in need of those.

Tollin (2010) find evidence that support increased probability of participating in vocational efforts amongst individuals taking part in early interventions, but that these efforts do not affect self-rated health and working capacity. An interpretation is that efforts following SASSAM can prolong sick leaves. However, Tollin (2007) argue that a conducted AM; decreases the degree of sick leaves, increases the probability of initiating rehabilitation efforts and increases the probability that individuals are conceded sickness benefit. However, the probability that sick leaves are terminated does not increase.

The empirical support of that various medical or vocational rehabilitation measures hasten return to work is weak (Försäkringskassan (2009), NHV (2010), Hägglund et al. (2012) & ISF (2010)). Rehabiliteringsrådet (2011) states that evidence-based rehabilitation techniques with return to work as a result are close to non-existing in the scientific literature. Furthermore, knowledge about the effects of measures offered to individuals with the two most prevalent diagnoses in the sick leave data, psychological diagnosis and disabilities in the locomotive organs[31] are almost completely missing.

Laun & Skogman Thoursie (2012) investigated whether privately or publicly offered rehabilitation efforts are a more efficient in inducing individuals with long-term sick leaves to return to work. They found no differences in the extent to which the

[27] Two early interventions that are provided by the SIA when an individual has an on going sick spell.
[28] For vocational interventions to be effective it is important to identify these individuals, as it is costly to provide everyone with these interventions.
[29] Anderzen et al. (2008) indicate that rehabilitation efforts can have substantial lock-in effects.
[30] Parson provides medical support for lock-in effects caused by rehabilitation efforts.
[31] Psykisk funktionsnedsättning och funktionsnedsättning i rörelseorganen.

individuals return to work. Although some individuals received employment after having taken part of both public and private rehabilitation, they state that there is a possibility that they had received employment even without taking part of the rehabilitation efforts.

Despite the many studies that do not provide support for rehabilitation efforts, a report from the SIA (Försäkringskassan 2013) analysed the effects of four rehabilitation projects on sick leaves, and found that one project, multidisciplinary team assessment, indicate positive effects on sick leaves. The MDT-treatment resulted in significantly decreased average net days with sickness benefit in comparison to the control group.

Although previous research, to a large extent, does not show any effects of early interventions on the probability of return to work, a recently released report from the SIA and the PES (Arbetsförmedlingen & Försäkringskassan 2014) indicate some positive effects of early interventions. They performed a field experiment in which about 1000 individuals with sick spells of less than one year were randomly assigned to a control and a treatment group. The treatment group was prioritized to participate in a joint planning meeting. Positive results that appeared for the treatment group included 4.8 % increased probability to end the sick spell, 3.9 % increased probability to be registered in a labour market policy programme or unemployed after the sick spell was ended and 5.5 % greater probability of employment or education. Results from the experiment also presented positive effects for groups that are typically associated with long-term sick leave such as women, elderly, unemployed and individuals with psychological diagnoses. The duration of the process differed between groups; it was longer for older individuals, individuals with shorter education, individuals that were unemployed by the start of the sick spell, individuals that had a sick spell longer than six months when the randomization was performed and individuals who were born in a foreign country. As individuals on sick leave were summoned to the joint planning meeting, a selection process was performed by the SIA and the PES to identify and prioritize individuals risking longer sick spells. By doing this, the SIA and the PES state that they avoided the selection problem of "cream skimming" that is apparent in other studies (see for example Aakvik et al. 2004). The SIA and the PES believe that results from the study will be fully visible in a about a year, therefore they plan to present further results from the study during 2015.

4. Data

This section handle the extent of data registration at the SIA and the PES as well as touch upon recent and on-going developments of data registration, primarily within the PES, and how this development can facilitate future studies. The section provides a description of the two data sets used for the analysis.

Handling data at the SIA and the PES and data available to researchers
In addition to the legislation on data handling within the two authorities,[32] the extent of data registration is affected by the needs of the authorities, whether or not the customer approves of being registered in the system and to what extent registration is considered reasonable given the time available for employer officers and personnel administrators. The human factor in the registration is important as lack of time or lack of routines for data registration provides incorrect and less extensive data. The PES has received criticism for their data registration routines.[33]

The process used to support individuals that have reached the outer time limit of the SI is recently introduced and the two authorities are allocated significant means from the government to offer rehabilitation efforts and support to those individuals in enhancing their return back to work, therefore it would be preferable to perform effect studies of the process. Previous research, for instance Hägglund (2013) and Engstrom et al. (2012), on the effects of the SI process have primarily used data from the SIA. However, there are no effect studies of the programme WLI, which partly can be explained by the difficulties in finding a control group because all individuals reaching the outer time limit of the SI has a legal right to participate in the programme. Research on specific rehabilitation measures is limited partly because of data issues. There are two primary explanations to the limited research on specific rehabilitation measures:

1. The PES does not offer a standardized supply of active rehabilitation measures, possibly because of the sudden increase in demand for these measures implied by the reform in 2008, which increased the need of services offered by private providers. The public procurements through which private providers are hired are a relatively new phenomenon and a standardized list of requirements on rehabilitation measures have not been established by the PES, resulting in variations in the supply of rehabilitation measure that the PES offer.
2. The active rehabilitation measures that individuals have taken part of at the PES have not been registered in a way that has enabled research. The extent to which individuals participate in activities has primarily been documented with the purpose of assessing an individual's right to receive different compensation forms, but not for the purpose of internal evaluation.

The introduction of the activity report is a step towards an increased extent of information gathering within the PES. Although the purpose is to control and monitor that individuals participate in scheduled activities, rather than evaluating specific activities, the registered information could be used for research later on. Furthermore, the introduction of the system SUS in June 2013, which is commonly used for registration of the SIA and the PES, implies that the two authorities more easily can

[32] See Appendix 2.
[33] In a report issued on the 21st of November 2013 by the Swedish parliament's control unit for monitoring the work of the authorities (JO), the PES was heavily criticized for having sub standardized documentation routines and JO suggested PES to review their routines (JO-beslut 3972-2012).

follow-up participants in the strengthened collaboration. The system should be used for evaluations, but is of limited use as it only provides complete reports and it is not possible to receive raw data from the system. As it is not possible to do follow-ups on an individual level, data from the system cannot be used for evaluation of specific rehabilitation measures.

The only standardized activity that is offered to individuals that have reached the outer time limit is the joint planning meeting. However, an effect evaluation is difficult to conduct as all individuals initiated to the PES participate in this meeting, and that it is therefore not possible to find a control group. The effect that can be measured, and that has been tested in a recent report from the two authorities, is the effect of moving forward the date and time for carrying out the joint planning. However, it is not certain that the joint meeting itself causes the positive results that appear if the customer takes the moving forward as a controlling measure.

To summarize, what research is possible to conduct is dependent on the data that is registered as well as the extent to which one is allowed to handle the data according to current legislation.

4.1 Data sets

The data used in this paper consists of two data sets, one received from the PES and one from the SIA. A description of the two data sets will be provided as well as the process used when screening the two data sets for inconsistency. Because the two authorities have separate systems for data handling, individuals of interest for the purpose of this thesis may be registered in both systems. It would be preferable to link the two data sets together, however differences in the registration of data between the two authorities hinder us from verifying that the observations include the same individuals. The differences in registration include different regional demarcations, different definitions of variables and it is also often the case that individuals are registered at different occasions in the two systems. We therefore chose to look at the data sets separately when conducting our analysis.

4.1.1 Status 90 and 180 days after registration – Data set from the PES

The data set received from the PES is restricted to include customers taking part of the strengthened collaboration between the PES and the SIA. The set is also restricted to include customers belonging to the region Norra Mälardalen and registrations during the period January 2010 to March 2014. The observations are divided into two groups in the analysis; total number of individuals within the strengthened collaboration and individuals who have returned to the SI after 180 days.[34]

In total, there are 6248 individuals, in the sample, participating in the strengthened collaboration. The majority of the individuals are women, 63.92%, and between the ages 30 to 59 years old. Close to 50% of the individuals have secondary education and it is

[34] In the data set from the PES these individuals are registered as having left the services for other known reasons. According to the PES, a large extent of the individuals with the classification code 5, which is used in the analysis, have returned to the SI. However we have not included individuals listed as others registered, although the PES believe that some of these individuals may have applied for SI but not yet left the employment services.

predominantly individuals born in Sweden. 62.92% of the individuals has a registered disability which cause reduced working capacity.

Out of the 6248 individuals, there are 733 individuals (11.73% of the total sample) that after 180 days from registration have been deregistered from the PES and returned to the SI. When comparing the group with the total sample, the proportion of women, older individuals and individuals with pre-secondary education is slightly larger. Furthermore, the proportion of foreign-born is slightly larger than in the total sample while there is a slightly smaller proportion of individuals with a registered disability which cause reduced working capacity amongst the individuals who return to the SI.

Table 3: Data set #1 – Status 90 and 180 days from registration at the PES

Sample characteristic	Returned to SI after 180 days		Total	
	Frequency	Percentage	Frequency	Percentage
Total	**733**	**100%**	**6248**	**100%**
Gender				
Female	470	64.12%	3994	63.92%
Male	263	35.88%	2254	36.08%
Age				
<20	0	0.00%	15	0.24%
20-24	32	4.37%	380	6.08%
25-29	64	8.73%	613	9.81%
30-39	155	21.15%	1413	22.62%
40-49	210	28.65%	2012	32.20%
50-59	209	28.51%	1491	23.86%
60-	63	8.59%	324	5.19%
Origin				
Born in Sweden	541	73.81%	4995	79.95%
Born outside Sweden	192	26.19%	1253	20.05%
Level of education				
Pre-secondary education	191	26.06%	1525	24.41%
Secondary education	353	48.16%	3067	49.09%
Post-secondary education	189	25.78%	1656	26.50%
Disability				
Registered	449	61.26%	3931	62.92%
Not registered	284	38.74%	2317	37.08%

(Source: Arbetsförmedlingen 2014)

Apart from the descriptive variables, the data set also includes variables on search group, search category, rehabilitation target group,[35] status after 90 and 180 days and finally classification of disability. The search group is a broader grouping of the individuals when they register at PES, there are four groups specifying whether an individual is employed, in a programme with support, unemployed or have other type of registration. The search group is based on the search category, which more specifically states which programme[36] an individual participates in. Individuals are divided into seven different rehabilitation target groups, which specifies occupational status and form of compensation. The groups are; unemployed on sick leave, unemployed with sickness compensation, unemployed youth with activity compensation, employed on sick leave or

[35] Sökandegrupp, sökandekategori och rehabiliteringsmålgrupp.

[36] For instance, vocational rehabilitation, WLI, subsidized employment, activities within guidance and job service and other programmes offered at the PES.

employed with sickness- or activity compensation, not entitled to sickness benefit or sickness- or activity compensation, in the project Pila or not entitled to any compensation from the SIA. The variables status 90 and status 180 specifies what programme an individual participates in 90 and 180 days after first being registered or if the individual is employed, unemployed or have left the services of the PES for other reasons.

4.1.2 Screening the data set from the PES for inconsistency

No internal inconsistency was identified when screening this data set, thus the data set have not been altered in any way.

Other adjustment of data
When received, some of the observations in the data set were aggregated in groups on individuals with the same characteristics. As the only variables of interests from this data set are descriptive, we chose to disperse the groups to make sure that one observation in the statistical software STATA would correspond to one individual. Furthermore, because all variables in the data set except from "Age group" contains qualitative information; binary variables were generated for all the variables but age.

4.2 Individuals with on going sick spells – Data set from the SIA

The data set received from the SIA is limited to individuals that are currently registered at the SIA and thus all observations have on going sick spells. Individuals are deregistered from the system when they have an employment that is considered to be of permanent character or if they are considered to be independent to such an extent that it is unlikely that they will return to the SI. Furthermore, the set is limited to include individuals listed at a Local Insurance Centre (LIC) in the eastern region according to the regional demarcation of the SIA. This region covers a larger area than the regional demarcation used in the data set from the PES, however it includes the region of Norra Mälardalen, which is covered in the data set from the PES. When analysing the data set, the observations are divided into two groups; individuals that have returned to the SI and the total number of individuals with on going sick spells. All individuals that have returned to the SI have reached the outer time limit and exhausted their SI, thus the definition of returning to SI does not include individuals with short sick spells.

In total, the set includes 51041 individuals, and the start year of their sickness cases ranges between July 2001 and March 2014. 65.45% are females and the majority is between 30 to 59 years old. Amongst the individuals 6.16% have a registered diagnosis and the individuals are predominantly employed.

Out of the 51041 observations in the data set, 7463 individuals (14.62%) have returned to the SI. Amongst these individuals, 70.82% are females and the majority of them are between 40 to 59 years old. 8.20% have a registered diagnosis and more than half of the individuals are unemployed, 54.64%.

Table 4: Data set #2 – Individuals with on going sick spells at the SIA

Sample characteristic	Returned to the SI		Total	
	Frequency	Percentage	Frequency	Percentage
Total	**7463**	**100%**	**51041**	**100%**
Gender				
Female	5285	70.82%	33407	65.45%
Male	2178	29.18%	17634	34.55%
Age				
<20	0	0.00%	64	0.13%
20-24	6	0.08%	1443	2.83%
25-29	89	1.19%	3080	6.03%
30-39	1346	18.04%	10281	20.14%
40-49	2668	35.75%	14440	28.29%
50-59	2557	34.26%	14638	28.68%
60-	797	10.68%	7095	13.90%
Occupational status				
Other occupation	45	0.60%	431	0.84%
Employed	3133	41.98%	37343	73.16%
Unemployed	4078	54.64%	10920	21.39%
Self-employed	147	1.97%	1727	3.38%
Student	14	0.19%	324	0.63%
Other employment	46	0.62%	296	0.58%
Diagnosis				
Not registered	612	8.20%	3145	6.16%
Registered	6851	91.80%	47896	93.84%

(Source: Försäkringskassan 2014)

Apart from the descriptive data on person characteristic, the set include variables specifying classification of registered diagnosis and which institution issued the medical certificate for each individual.[37] Additional variables include measures carried out by the SIA, assessments made by the SIA, occasion of joint planning meeting, as well as date of registration and end date at the PES. Finally the data set include information regarding whether an individual has reached the outer time limit of the sickness benefit and if an individual has returned to the SI.

4.2.1 Screening for inconsistencies in the SIA data set

The data set originally included 51141 observations.

- When analysing the data, 99 observations are dropped from the set. Information on several of the variables have not been registered for these individuals, for instance descriptive variables such as gender, age and diagnosis as well as information on different assessments and efforts. We believe that several of these variables might have explanatory value for the likelihood of return to the SI, thus including the observations in the data set might affect the coefficients which may not reflect the true value in the results. Furthermore, the variables that have been registered for these individuals are application for sickness benefit, occupational status and latest registration at a local SIA office. It is likely that the lack of

[37] The institution that has issued the medical certificate can give a hint on the severity of the illness. Ex do hospital clinics often imply more severe illness in comparison to a care centre.

registration for these individuals is due to that they have been registered at the SIA and applied for sickness benefit during February and March 2014; hence these sickness cases are recently started.

- Additionally one observation is dropped from the sample. We chose to drop the observation because the registered start year of the sick spell is 1914, which seems unrealistic and may skew the data. It is likely that it is a typing error and that the observation should have start year 2014, however we chose to be cautious and drop the observation.

Other adjustments

As the data set received from the SIA contained sensitive and detailed information that could, if handled inappropriately enable intrusion on individuals' integrity,[38] variables that were assessed unnecessary for the purpose of the paper and that might enable identification of individuals have been deleted from the data set. We generated binary variables for gender, diagnosis, occupational status and health institution to issue the medical certificate. Furthermore we have generated binary variables for whether an individual has taken part of certain measures at the SIA, such as AM, SASSAM and planned return to work.

[38] According to the Swedish legislation on handling personal data and secrecy, see Appendix for a summary of how the legislation applies to the work of the SIA and the PES.

5. Method

The implications of the reform in 2008 are nearly unexplored; hence the paper is based on an explorative approach where knowledge is generated through observing individuals who return to the SI after having reached the outer time limit. This group of individuals is observed by looking at two cross-sectional data sets, one from the SIA and one from the PES, the data sets are handled with an OLS approach to examine significance of variables in explaining the probability of returning to the SI. This section of the paper will present what methods have been used for the study.

The aim of the thesis is to answer the following research questions

- *Does the group of individuals who return to the SI differ from other customers of the PES and the SIA when it comes to:*
    - *Disabilities and diagnoses*
    - *Compensation forms and occupational status*
    - *Status 90 days after having started participation in the collaboration*
- *Are individuals participating in WLI returning to the SI to a larger extent than individuals participating in other programmes within the strengthened collaboration?*

Taking on an explorative approach implies the risk of context dependence and that the results will not be possible to apply in a more general setting than the Swedish SI reform and the individuals having reached the outer time limit as a result of the reform in the specific regions that we analyse. Notwithstanding we hope that our findings can contribute to more general discussions on how to create incentives to prevent overuse in the SI as well as finding solutions for how to effectively support individuals that have reached the outer limit, and thus reduce the number of individuals returning to the SIA. However, as little has been written on the subject the presence of context dependence may be less important, as any conclusions that may result from an explorative approach are contributing to the current state of the art.

Limitations of previous research as well as little existing documentation on the programme WLI called for an explorative approach. We started with a small pre-study based on a qualitative method to gain a better understanding of the programme WLI, individuals participating in it as well as the function of the strengthened collaboration between the two authorities, the SIA and the PES.

The labour market region Norra Mälardalen was selected for our data analysis, and we contacted the local PES office in Västerås, which is included in the labour market region Norra Mälardalen, to conduct our pre-study. The region Norra Mälardalen was chosen because we wanted to base our analysis on a region that could be considered representative as a medium sized PES labour market region. When comparing data for the different regions, Norra Mälardalen can be considered a medium sized region with 22 offices, 66447 total registered customers and 38639 unemployed individuals participating in programmes with activity support (for instance, WLI).[39] When conducting the pre-

[39] PES information on different regions: number of offices per region (average: 20,5 median:22 Norra Mälardalen:22), total number of registered customers (avg:69211 median: 63148 NM:66447), number of individuals participating in programs with activity support, Ex. WLI (avg: 40030 median: 35314 NM:38639) For the original table with information on the different market regions of the PES see Arbetsförmedlingens Arbetsmarknadsrapport (2013).

study, interviews based on semi-structured questions were carried out with employment officers, the local manager of the strengthened collaboration at the Västerås office as well as the regional manager of the strengthened collaboration in the labour market region Norra Mälardalen. We also got the opportunity to participate in two meetings between employment officers and customers within the strengthened collaboration. The pre-study was crucial for our understanding of the programme WLI and the work of the PES when handling individuals in need of extra support and efforts to enhance their opportunities to return to work.[40]

Search for significance: Variables

When analysing the data from the PES the possible existence of significant differences between the individuals who return to the SI and all participants within the strengthened collaboration will be investigated. The dependent variable, return to the SI after 180 days, that we use is based on a specific code for individuals that have left the services of the PES.[41] Firstly we control for the variables that the PES has reported are common amongst individuals participating in the WLI and thus individuals that have reached the outer time limit, such as gender, age, level of education, disability which cause reduced working capacity and whether or not the individual is born in Sweden.[42] Secondly, the analysis will be complemented by controlling for the variables, search category,[43] with focus on search category WLI, and status 90 days after registration at the PES, with focus on status WLI, returned to the SI and others registered.[44] Finally we will control for rehabilitation target groups and specific classifications of disabilities. The focus is to find significant variables in order to explain the probability of return to the SI 180 days after registration in the strengthened collaboration.

In contrast, when analysing the data set from the SIA, the possible existence of significant differences will instead be investigated between individuals that have returned to the SI and the total number of registered customers with on going sick spells at the SIA. This is an important difference between the two data sets that will have implications for how we interpret our results. We believe that the greater diversity within the larger SIA sample will result in larger significance in differences when compared to individuals that have returned to the SI. We base this assumption on the knowledge that most of the customers of the SIA are individuals with temporary sick spells that lasts for short periods of time, and who will therefore not be subjects for extra support through strengthened collaboration. The sample received from the PES is more homogenous because it is restricted to include individuals taking part of the strengthened collaboration, thus they generally are in need of extra support and have weak attachment to the labour market.

Variables of interest when analysing the data set from the SIA include common descriptive variables such as gender, age, occupational status and whether an individual has a registered diagnosis or not. After controlling for the common descriptive variables, we investigated the early interventions of the SIA, such as reconciliation meeting, SASSAM and planned return to work, as well as the time-restricted assessments included

[40] See Appendix 1 for a short summary of the interviews conducted on the PES office in Västerås.
[41] Övriga avaktualiserade, orsakskod 5.
[42] Arbetsförmedlingen, Återrapportering 2013.
[43] The registered reason for why individuals are initiated to the strengthened collaboration. Could be that the individuals are assigned to participate in programmes or that they are in need of different measures offered by the PES.
[44] Övriga inskrivna.

in the rehabilitation chain by controlling for number of interventions and whether an individual's working capacity has been assessed through the rehabilitation chain. Finally we control for whether the health institution issuing the medical certificate to an individual and the classification of a diagnosis are significant in order to explain the probability of return to the SI.

Although our data consist of many individuals and extend across several years, our data sets are considered to have the structure of cross sectional data. The data set from the PES includes all individuals that have been participating in the strengthened collaboration at some point during the period January 2010 to March 2014. We can only observe evaluation after 90 and 180 days from registration of current individuals within the strengthened collaboration, thus we cannot observe whether an individuals has participate in the collaboration on a previous occasion. The same restrictions apply to the data set received from the SIA, which includes data on all on going sick spells (as of the 1 of April 2014). We cannot observe from the binary variable, returned, whether individuals have returned to the SI on more than one occasion. However, the variable, number of occasions an individual has reached the outer time limit, explains to some extent whether an individual has returned on several occasions although there are observations that have reached the outer time limit more than once but who are not listed as returned to the SI. Thus, the data does not allow us to follow each individual in the data set for all the years that data extends over. Therefore, we observe the individuals as if there is only one time period and control for whether or not a certain assessment or event have occurred without taking into account when.

An important difference between the data sets that will affect the interpretation of our results is the restrictions implied on the two data sets. The data set from the PES covers all individuals in the specified region that have returned to the SI after having participated in the strengthened collaboration ever since the turn of the year 2009/2010, when the first group of individuals reached the outer time limit of the SI. On the contrary, the data set from the SIA contains only those individuals that have returned to the SI and still have on going sick spells.

5.1 Linear Probability Model (LPM)

Our research question states that we want to analyse whether certain variables affect the probability of return to the SI. The dependent variable is a binary variable for the probability of returning to the SI, thus in the predicted model, $\hat{y}$ will be ranging between zero and one. When the dependent variable of a model is a binary variable it is always true that $P(y=1|\mathbf{x}) = E(y|\mathbf{x})$, which mean that the probability of "success" (y=1) is the same as the expected value of y (Wooldrigde 2013, p239).

$$P(y=1|\mathbf{x}) = \beta_0 + \beta_1 x_1 + \ldots + \beta_k x_k$$

The model above is an example of a binary response model where the probability of success, say $p(\mathbf{x}) = P(y=1|\mathbf{x})$ is a linear function of the xj

Multiple regression models with a binary dependent variable are called Linear Probability models because the response probability $P(y=1|\mathbf{x})$ is linear in parameters (Wooldridge 2013, p. 239).

Estimated models
This paper uses two different data sets, thus two LPM-models are estimated. In both of the estimated models, the dependent variable "Returned_SI"-hat is the predicted probability of success. When we estimate our model for factors affecting the probability of returning to the SI we used the following linear probability models:

The estimated model from the data set received from the PES:

$$\widehat{Returned}180 = \hat{\beta}_1 WLI + \hat{\beta}_2 WLI_90 + \hat{\beta}_3 return_90 + \hat{\beta}_4 other_90$$

Where 733 of the 6248 individuals in the sample have returned to the SI after 180 days from registration at the PES.

The estimated model from the data set received from the SIA:

$$\begin{aligned}\widehat{Returned} = {} & \hat{\beta}_1 Unemployed + \hat{\beta}_2 Age_group + \hat{\beta}_3 no_of_AM \\ & + \hat{\beta}_4 no_plan_work + \hat{\beta}_5 no_of_SASSAM + \hat{\beta}_6 assess_other \\ & + \hat{\beta}_7 assess_labour_mkt + \hat{\beta}_8 asses_previous \\ & + \hat{\beta}_9 hospital_clinic\end{aligned}$$

Where 7463 of the 51041 individuals in the sample have returned to the SI.

We have generated the dependent binary variable Returned_180 in the data set from the PES by selecting the observations with Status 180 equal to classification code 5; left the PES for other known reasons.[45] Thus the generated variable indicates whether or not individuals have returned to the SI after 180 days from registration in the strengthened collaboration. In the data set from the SIA, a binary variable for whether individuals have returned to the SI already existed.

Controlling for heteroskedasticity
As the dependent variables in both regressions are binary, the models must contain heteroskedasticity, unless all slope parameters are zero (Wooldrigde 2005, p.284) We use the simplest way to control for heteroskedasticity, that is to continue to use OLS estimation, but to compute robust standard errors in test statistics. Although the presence of heteroskedasticity does not cause bias in our OLS estimators, homoscedasticity is needed to justify the usual t- and F-statistics. Standard errors in the uncorrected LPM are not generally valid, why we need to correct or model by using robust standard errors (Wooldridge 2013, p242).

"De-selection" process
When investigating significance amongst the different variable coefficients of the two data sets, a de-selection process was performed. The process implied that variables of interest were first tested for significance in coefficients separately and then jointly through performing several OLS regressions. Individual variable coefficients that were not significantly different from zero by themselves or together with other control variables as well as variables whose coefficients varied to a large extent when combined with other variables, thus indicating multicollinearity between the independent variables, were deselected stepwise. The stepwise process of "de-selecting" variables finally resulted in presenting a model with only the variables that remained significant and explain most

[45] According to the PES, this group of individuals have most likely returned to the SI.

of the differences between individuals returning to the SI and the two samples as a whole.

Below is a detailed explanation of the different steps in the de-selection process, when searching for variables with significant coefficients:

1) Based on descriptive tables we identified variables from which relative differences, between individuals returning and the overall samples, could be observed
2) The frequency of observations was noted in order to make sure that the variables apart from being significant also are reliable. If the number of observations were considered to be too few less emphasis was put on that variable.
3) Simple regressions were performed using the variables of interests to identify whether they by themselves were significant for the probability of return to the SI.
4) Variables that showed significance in the simple regressions were then tested in multiple regressions. The multiple regressions were performed in a stepwise manner where the first regressions included two independent variables at a time to investigate how the coefficients changed and then additional independent variables were included. Several multiple regressions were performed and if the coefficient of a variable varied a lot when other variables were added, and lead to the coefficient not to be significant or very close to zero, it was removed from the model.
5) After having gone through this stepwise process, the remaining variables were such that the coefficients:
    a) Did not vary to a large extent when other variables were added to the regression
    b) Remained significant at all levels

Hence, the final regression that we chose to present included the variables that had the strongest explanatory value in combination with least correlation between the variables. Although we were aware that some correlation between some variables was still present, the multicollinearity was not very strong. Notwithstanding, this will be taken into account when interpreting the coefficients.

6. Results

6.1 Data set #1: Status 90 and 180 days after registration

The results of the data set are based on a regression with the dependent variable, return to SI after 180 days, and the independent variables; search group WLI, participation in WLI after 90 days, others registered after 90 days and individuals that have returned to the SI after 90 days.

The variables used are jointly significant at all levels, Prob > F = 0,0000.[46] The results from analysing the data set show that search category WLI when registering at the PES has a significant positive influence on the probability of return to the SI after 180 days, the coefficient is smaller in the multiple regression than in a simple regression with only WLI as independent variable. The probability of return after 180 days is increased if an individual participates in WLI at the evaluation 90 days after registration. Amongst the 165 individuals that have search category WLI, 104 individuals participate in the programme WLI at the 90 days evaluation. The coefficient for WLI_90 is slightly larger in the multiple regression than in the simple regression. The changes in the coefficients of WLI and WLI_90 indicate multicollinearity, thus the two independent variables are correlated. If an individual is listed as others registered after 90 days, the probability of return to the SI after 180 days increases. In the simple regression with only other_90 as independent variable, the coefficient is smaller than when the variable is used in the multiple regression. If an individual has returned to the SI after 90 days, the probability of return to the SI after 180 days increases and when using this variable, return_90, in a simple regression it has the greatest explanatory value of the variables we have tested for. The coefficient changes when used in the multiple compared to the simple regression, it is slightly larger in the multiple regression. The variables WLI, WLI_90, return_90 and other_90 are significant in all regressions that we have performed.

VARIABLES	Returned180
WLI	0.151***
	(0.0372)
WLI_90	0.187***
	(0.0232)
return_90	0.729***
	(0.0269)
other_90	0.0981***
	(0.0131)
Constant	0.0613***
	(0.00353)
Observations	6,248
R-squared	0.211

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

[46] See Appendix 3.

Furthermore, the independent variables foreign and age group have significant positive influence on the probability of return to the SI after 180 days. Thus it is more likely that older individuals and individuals that are not born in Sweden return, however the significance level varies depending on the independent variables used in the multiple regression and the explanatory value is low. The variables voc_rehab and, voc_90 both have significant negative influence on the probability of return to the SI after 180 days. Thus, the probability of return to the SI after 180 days is less if an individual has search group vocational rehabilitation or participates in vocational rehabilitation after 90 days. However, the significance level varies depending on the variables that are included in the multiple regressions.[47]

Whether an individual has a registered disability which cause reduced working capacity or not does not have a significant influence on the probability that the individual return to the SI. Furthermore, none of the different types of rehabilitation target groups have significant influence on the probability that an individual returns after 180 days. Whether an individual is female or not and the level of education do not have a significant influence on the probability of return to the SI after 180 days.[48]

6.2 Data set #2: On-going sick spells at the SIA

The results of the data set are based on a regression with the dependent variable, returned to SI, and the independent variables; occupational status unemployed, age group, number of reconciliation meetings, number of planned return, number of SASSAM, the three assessments of the working capacity according to the rehabilitation chain and hospital clinic as the institution to issue the medical certificate.

The results from the analysis of the data set from the SIA show that age has a significant influence on the probability of an individual to return. The two variables that have the greatest explanatory value are whether an individual is unemployed or not and whether an assessment against previous work tasks has been made. If an individual is unemployed the probability of return increases while an assessment against previous work, which is carried out within the rehabilitation chain, decreases the probability of return to the SI. Early assessments that are carried out by the SIA include reconciliation meetings and SASSAM, moreover if assessed appropriate a plan to return to work may be performed. These three assessments have a significant influence on the probability of return. Individuals that have taken part in several reconciliation meetings or SASSAM are more likely to return to the SI while individuals with several plans to return to work are less likely to return. Apart from an assessment against previous work, the rehabilitation chain also include an assessment against other work tasks at previous employer and assessment of working capacity against the entire labour market. Both variables show significant influence on the probability of return. An assessment of the working capacity against other work tasks decreases the probability of an individual to return while an assessment against the entire labour market increases the probability. Furthermore, if a hospital clinic certifies the sickness of an individual the probability of return decreases.

[47] See Appendix 3.
[48] See Appendix 3.

VARIABLES	Returned
Unemployed	0.129***
	(0.00643)
Age_group	0.0222***
	(0.000991)
no_of_AM	0.0192***
	(0.00168)
no_of_plan_work	-0.0340***
	(0.00340)
no_of_SASSAM	0.0188***
	(0.00370)
assess_other	-0.0151***
	(0.00319)
assess_labour_mkt	0.0556***
	(0.00350)
assess_previous	-0.174***
	(0.00511)
hospital_clinic	-0.0235***
	(0.00299)
Constant	0.106***
	(0.00648)
Observations	51,041
R-squared	0.162

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In a simple regression with returned to SI as the dependent variable and diagnosis as the independent variable, significant influence on the probability to return is shown. However, when including diagnosis in a multiple regression, the significance level of the variable changes.

Whether an individual is female or not show significant influence on the probability of that an individual has returned to the SI.

6.3 Comparison of the results from the two data sets

The size of the data sets are largely different, 6248 observations in the data set from the PES and 51041 observations in the data set from the SIA. In the respective data sets, 11.73% of the total number of observations returns to the SI after 180 days and 14.62% of the total number of on going sick spells are individuals that have returned to the SI.

The regressions carried out use different variables in the two data sets. The variables that are used in both data sets are gender, age group and registered disability or diagnosis. In the data set from the PES, female is not a significant variable for explaining the probability that an individual return to the SI after 180 days. However, in the data set from the SIA, female is a positive significant variable explaining the probability that an

individual has returned to the SI although the explanatory value of the variable is low. The independent variable age group has a positive significant influence on the probability of return after 180 days in the data set from the PES, but the significance level depends on the variables that are included in the multiple regression. Furthermore, age group is a positive significant variable in the data set from the SIA on the probability that an individual has returned to the SI, even though the explanatory value of the variable is low. A registered disability does not significantly influence the probability of return to the SI after 180 days, however a registered diagnosis is negatively significant on the probability that an individual has returned to the SI when used in a simple regression. When the variable is used in a multiple regression the significance level depends on the variables that are included in the regression.

7. Discussion

This section of the thesis will discuss the results shown in the previous section and compare our findings with previous research.

7.1 Findings from analysing individuals within the strengthened collaboration

The results from analysing the data set from the PES show that search category WLI, participation in WLI 90 days after registration, return to the SI after 90 days and others registered after 90 days have a significant influence on the probability of return after 180 days.

7.1.1 Participants in WLI return to the SI

The majority of the individuals participating in WLI have been initiated to the programme after having exhausted their SI, thus these individuals have been on sick leave during a long period of time. A possible explanation for the increased probability of return to the SI after having participated in WLI might be that the individuals do not have the ability to benefit from the efforts offered during the programme, possibly due to on going health conditions or other circumstances affecting their ability to benefit from the services.

7.1.2 Individuals returning to the SI might do so already after 90 days

We find that a significant part of the individuals who return do so already after 90 days. Furthermore, now we know that the probability of returning to the SI is increased if the search category is WLI, thus a possible explanation to the large explanatory value of return after 90 days might be that individuals who have exhausted their SI must be absent from the SI during at least 87 days before they can apply for a new period of sickness benefit. Thereby it might imply that individuals returning to the SI do so already after 90 days.

7.1.3 Others registered waiting to return

The results indicate that the status "others registered" after 90 days has a significant positive influence on return to SI after 180 days. Individuals listed as others registered do not participate in a programme with support at the PES, they do not have an employment and they are not actively seeking jobs, as they are not registered as unemployed. The group includes individuals that have complicating factors in their job search, which may hinder them from being able to benefit from the services that are offered and hence withholds them in their return to work. The analysis report on WLI issued by the PES (Arbetsförmedlingen 2013 7c – Arbetslivsintroduktion) state that it is possible that the group includes individuals who remain registered at the PES while they are waiting for their application of a new period of SI to be approved, hence we can show that this is actually the case and that many of the individuals that have returned to the SI 180 days after entering upon the collaboration, had the status others registered after 90 days.

7.1.4 Compensation

None of the rehabilitation groups show significant influence on the probability of return to the SI, however the data show that the majority, both amongst individuals who return and all individuals within the strengthened collaboration, are unemployed. It does not seem as if the compensation form affects the probability of an individual to leave the services of the PES and thus it is questionable whether the lowered compensation creates incentives to return to work. Furthermore, participants in WLI generally have lower compensation levels than other participants within the strengthened collaboration who have not exhausted their SI. Thus the increased probability of return to the SI after 180 days might be due to counteractive incentives. That is, the decreased compensation level, that individuals participating in WLI experience, might lead to increased economic incentives to move back to the higher sickness benefit after having participated in the strengthened collaboration. However, the variable used does not state the exact compensation form or level, and it is therefore difficult to make conclusions about compensation based on these results. The awareness that individuals participating in the WLI have generally longer sick spells also make it difficult to distinguish any effect from different compensation levels between individuals in the sample.

7.1.5 Vocational rehabilitation

Amongst those who return to the SI after 180 days, fewer had taken part of vocational rehabilitation than in the total sample. It is, however not possible to draw any conclusion regarding the effectiveness of vocational rehabilitation in putting individuals back to work as there might be other explanations for why individuals participate in a certain programme, such as the ability to benefit from a certain activity. It is thus probable that there are other factors that explain the differences between the groups. Furthermore, all activities in which individuals participate are chosen to fit the needs' of the individual. Hence, assessments of the capability of an individual are of importance when selecting what programme or what activities the individual should take part of.

7.1.6 Women and older individuals are overrepresented in the sample

It is commonly known that the individuals that are overrepresented amongst individuals with longer sick spells are women and older individuals. Women and older individuals are more frequently participating in the strengthened collaboration as well as return to the SI, and our results show that the explanatory value of these variables is low. Thus, Indicating no significant difference between the total number of individuals in our sample and those who return to the SI. Furthermore we can see that the proportion of foreign-born is slightly larger amongst the individuals who return to the SI and that the proportion of individuals with a registered disability is in between 61% and 63% in both groups and the most frequent classifications of diagnosis are other mobility impairments and mental impairments. Also the level of education amongst the individuals within the group is similar. Hence, there is no clear difference between the individuals returning and the individuals within the strengthened collaboration.

7.2 Findings from analysing on going sick spells

The results from analysing the data from the SIA show that unemployment, age group, early interventions,[49] assessments of working capacity and what health institution issued the medical certificate have significant influence on the probability to return to the SI. Several other variables of the data set were significant when used in simple regressions, however the coefficients stayed close to zero and the explanatory value was relatively low, why they were dropped from the model.

7.2.1 Unemployed individuals return to the SI

When comparing occupational status before sick leave between the two groups large differences appeared. The majority of the individuals that have returned to the SI are unemployed. One explanation for this could be that individuals who return have also reached the outer time limit of the SI before causing them to stand farther from the labour market. Another possible explanation for the significantly larger amount of unemployed amongst individuals that have returned could be economic incentives. That individuals who are unemployed have relatively lower opportunity costs of becoming sick, thus they might be staying in the SI for longer than individuals that have an employment to return to.

7.2.2 The use of the assessments within the rehabilitation chain

Assessment of the working capacity against previous work and alternative work tasks decreases the probability of return to the SI. However because the majority of the individuals who return are unemployed those two assessments are not performed. Instead unemployed are assessed against the labour market immediately, and if this assessment is carried out the probability of return to the SI increases. A relevant discussion based on the result concerns the outer time limit of the SI and the flow of individuals from the SI to the PES, which the outer time limit brings about. If individuals are assessed not to have working capacity, in relation to the entire labour market, during the rehabilitation chain it is probable that they have no working capacity also by the time they reach the outer time limit.

7.2.3 Early interventions

The results show that the probability of return increases with the number of reconciliation meetings, this is counteractive to the purpose of the method, which is used to early on investigate and assess the medical condition, working capacity and possibility of rehabilitation. However, because we do not look at when during the sickness period the meeting have been carried out, it might be that an individual who has returned to the SI has participated in a meeting both during the first period and the second period of SI. Even so, the number of reconciliation meetings ranges between zero to fourteen, implying that there are individuals that participate in several reconciliation meetings during the same period of SI. The probability of return also increases with the number of SASSAM, which is an investigative method used to more thoroughly analyse an individual's sickness background and possibility of coordinated rehabilitation. The

[49] SASSAM, AM and planned return to work are referred to as early interventions.

probability of return to the SI decreases with the number of planned return to work. This result is intuitive given that the more severe illness or problematic sickness background an individual has the less likely that the individual receives a plan to return to work. Thus individuals exhausting their SI might not have received a plan because of an assessment that it is not relevant, in that case the outer time limit could once again be up for discussion.

7.2.4 Ranking of health institutions

The different health institutions were all shown to have significance for the probability of return to the SI. One reason for the significance could be that the different institutions can be ranked on how severe illnesses their patients have in general. A hospital clinic might handle more severe illnesses than, for instance, a care centre. The large number of unemployed amongst individuals that have returned in our sample is likely to explain the negative significance that we receive on the coefficient for "occupational health care", as occupational health care is mainly offered to employed individuals. "Other institution" shows positive significance while hospital clinic show negative influence on the probability of return. A possible explanation might be that individuals, to whom a hospital clinic issues the medical certificate, do not exhaust their SI; they might instead fall under the exceptions within the SI, as they might suffer from more severe illnesses and are hospitalized. The coefficient for hospital clinic was the one that had the most significance. Other institution is more vague in the interpretation. However in comparison to hospital clinic individuals that receive their medical certificate by other institutions might not have as severe illnesses and might therefore exhaust their sickness benefit when no longer entitled, even though they later return.

7.2.5 The typical individual

The probability of return to the SI increases with age. Furthermore, women are overrepresented both amongst individuals who return and amongst individuals with on-going sickness spells, thus the variable does not explain much of the probability to return. Whether an individual has a registered diagnosis or not show negative significance in simple regressions, however when other variables are added the significance level changes implying that other variables have greater explanatory value. The majority of the individuals who return to the SI and who have an registered diagnosis have psychiatric disorders or behavioural disorders, however the proportion of individuals in the sample with psychiatric disorders and behavioural disorders is large as well.

7.3 Considerations when interpreting the results

7.3.1 Accuracy and reliability of data

Administrators at the SIA and employment officers at the PES manually register the data, thus it may be inaccuracies in the information. In the data set from the SIA, several of the variables that state dates of when an effort or incident occurred are only showing the first and/or the latest date and not occasions in between. Therefore, it is in some cases difficult to follow in which order an individual has taken part of certain efforts as well as assessing where in the rehabilitation chain an individual is at the exact moment of data extraction. Furthermore, individuals may move during the period they are registered and hence the region they belong to might change. With these possible inaccuracies in

mind we chose not to look at regional differences and we created binary variables for whether an individual has taken part of, for instance, an assessment or not rather than looking at specific occasions in time when it was carried out.

It is therefore important to keep in mind that the two data sets do not include the same variables. Hence, the analysis of the different data sets is not comparable.

Based on the data sets that we have received it is not possible to clear whether, for instance, certain assessments and efforts are performed before and/or after an individual has returned to the SI. Thus, when interpreting the results it is necessary to consider that it is not certain at what point during the sickness period a certain assessment or effort has been carried out. Furthermore, there are several variables, which are not included in the data sets that might affect the probability of an individual to return to the SI. It has previously been argued that a common issue amongst unemployed, individuals who exhaust the SI and individuals participating in WLI is that they have weak attachment to the labour market because they have less years of work experience, which might lead to lower competitiveness when applying for a job. Moreover, many of the individuals have a disability, which causes reduced working capacity that might further lower their competitiveness and may thus further weaken their position on the labour market.

7. 3.2 The effect of variable selection and samples on the results

The coefficients of the variables that we have used in our regressions are consistently small and in many cases relatively close to zero. In addition, the explanatory value of the variables is in most cases low. The reason for this is that the proportions of the group of individuals who return to or the group of individuals that have returned to the SI in the two data sets are relatively small, 11.73% and 14.62% respectively, in relation to the total number of individuals in the samples.

Important to keep in mind when looking at the results is that our sample from the PES is restricted to individuals who are already in need of extra support from both authorities. Some of the individuals in the sample have been initiated to the strengthened collaboration between the authorities because the SIA assess that these individuals risk reaching the outer time limit or because they have exhausted their SI. When taking this aspect into account, the subsample of individuals who return to the SI is likely not very different from the sample as a whole. Likewise, our data set from the SIA is restricted to include individuals with on-going sick spells. Thus, the subsample of individuals that have returned to the SI is likely similar to the sample as a whole.

Furthermore, the data sets include variables with several different groupings, for instance disability and diagnosis classifications, which in some cases lead to few observations in each of the groups and thus a small proportion of the entire number of individuals. In addition, a possible explanation to low levels of significance when looking at coefficients for, for instance, different disabilities could be that those disabilities are overrepresented in our samples as a whole.

Overall, greater significance and explanatory value might have reached if we had compared the restricted group including individuals who return to the SI with all customers at the PES and likewise if we had compared the restricted group including individuals that have returned to the SI with all customers, on going and terminated sick spells, at the SIA.

Additionally, some of the variables in the data sets are correlated. For instance search category WLI and participation in WLI 90 days after registration. The correlation affects the coefficients of the variables used in our regressions however the variables used in the regression are jointly significant and although there are signs of multicollinearity the reliability of the model is not reduced. Hence, the correlation only affects the interpretation of each coefficient.

7.4 Comparison to previous research

When comparing our results to previous research and theories on economic incentives, the results shown imply no significant difference between rehabilitation target groups on the probability of return to the SI, thus we cannot see any significant result of that lower level of compensation increases incentives to return to work. However, it is important to keep in mind that we have not received specific variables on compensation forms and levels and thus the results cannot mirror the effects of different compensation levels fully. However, the results that we have found are in line with what Skogman Thoursie (2012) argued regarding the effects of the level of compensation on the length of the sickness period as he concluded that the level of compensation within the SI rather affects the probability of reporting sick. Our discussion, concerning that participants in WLI generally have lower compensation than individuals who have not exhausted their SI and that participation in WLI significantly increase the probability of return, is in line with the conclusions of Larsson (2006) and Hall & Hartman (2010) who showed that differences in the conditions that apply for the different insurance forms has lead to an increased outflow from the UI to the SI, caused by the generally greater generosity of the SI.

Our results on descriptive data such as gender, registered disability and age are in line with what have been reported by the SIA and the PES. The variables do not show significant influence on the probability of return as they almost entirely mirror the proportions of all individuals in the samples.

Furthermore, our results on the significance of early interventions on the probability of return are similar to what have been stated in previous research. Our results show that the probability of return increases with the number of reconciliation meetings, likewise Tollin (2007) argue that a conducted meeting; decreases the degree of sick leaves, increases the probability of initiating rehabilitation efforts and increases the probability that individuals are conceded sickness benefit. However, the probability that sick leaves are terminated does not increase. Engström et al. (2010) do not find any support that the access to early interventions shortens the length of sick leaves. They state that there might be positive long-term effects of early interventions such as a lower probability of individuals returning to sick leave, however our results imply that the probability of return increases with both the number of SASSAM and reconciliation meetings. Furthermore, this is in line with what Engström et al. (2012) concluded in a more recent study; the probability to receive SI on a more permanent basis increases when taking part of early interventions.

The question, whether shorter periods of sick leave always is preferable, raised by Skogman Thoursie (2010) links to our discussion regarding the use of the outer time limit of the SI. He argues that if prolonging the sickness period decreases the risk of return to the SI, it might be more effective for individuals who are not fully recovered to

continue the sickness period instead of returning to work. Likewise, is the outer time limit of the SI and exclusion during 87 days preferable if several of the individuals return to the SI regardless of those instruments? It might be that there are individuals who do not have the ability to benefit from the efforts offered at the PES, resulting in efforts spent on individuals who as soon as possible return to the SI.

8. Conclusions

Overall the group of individuals who return to the SI and the group of individuals participating in the strengthened collaboration are very similar regarding descriptive characteristic. There are no significant differences between the two groups when looking at gender and level of education although there are somewhat more females and more individuals with lower education returning to the SI. We can see significant differences in age and foreign-born, but the differences are very small. Furthermore, we do not observe significant differences between the groups regarding registered disability which cause reduced working capacity.

In conclusion, we managed to identify some differences between individuals who return to the SI and remaining customers of the authorities, however they did not prove to be very significant. Also, because of the many factors that affect the probability of an individual to return to the SI, it is rather difficult to draw general conclusions from our results. Empirical research based on effect studies is lacking to a large extent. Hägglund (2013) has empirically investigated the rehabilitation chain. However, no empirical evaluations have been carried out regarding the economic incentives that aims to be created when individuals transfer from the SIA to the PES. Individuals that reach the outer time limit might experience a large drop in their compensation when transferring from sickness benefit to activity support, especially if an individual is not a member of an unemployment fund. During our interviews at the employment office in Västerås, the compensation issue was expressed as the most difficult one to handle when meeting individuals that have reached the outer time limit and are initiated to WLI. They argued that many individuals experience stress related to the lowered compensation level, which affects their ability to benefit from the services offered at the PES and might prolong the period of time before they can take part in rehabilitation efforts and eventually return to work. We therefore find the subject to be of interest for future research; to investigate how differences in compensation when transferring from the SIA to the PES affect the motivation and behaviour of the individuals participating in WLI as well as the extent to which they return to work. It would be of interest to investigate whether employment officers of other PES offices in Sweden experience likewise that their customers express severe stress as a result of the compensation drop and that this stress might negatively affect their ability to eventually return to work. If these issues would appear, it could motivate reviewing the economic conditions of the rehabilitation chain.
Another issue that is crucial for policy makers that are interested in the true effects of the programme WLI is to perform effect studies on specific rehabilitation measures within the programme. However, empirical studies on rehabilitation measures offered within the PES require that routines for data registration of rehabilitation measures are improved. This concern applies to both internally performed rehabilitation measures as well as externally provided rehabilitation measures through control and monitoring of the private providers.

9. Summary

The analysis of the two different data sets allow us to investigate the significance of several different variables on the probability of return to the SI. Thus we can, from a broader perspective, contribute by providing information about the individuals who return to the SI and by showing differences between them and other individuals in the strengthened collaboration as well as other individuals with on going sick spells.

Interesting findings from our analysis of the probability of return to the SI after 180 days include:

1) The significant influence of participation in WLI implies that the group of individuals differ from the individuals in the strengthened collaboration. Those individuals have exhausted their SI, thus the long period of sick leave and the possibility of on going health conditions might affect the ability of these individuals to benefit from the services offered by the PES
2) The significant influence of returning to the SI after 90 days. The probability of return is also increased if the search category is WLI, thus it might be individuals that have exhausted their SI and who return to the SI immediately after they have been absent from the SI during the 87 days that are required to be able to receive a new period of sickness benefit.
3) The significance of others registered after 90 days. Our results show that it is possible that the others registered includes individuals who remain registered at the PES while they are waiting for an approved application from the SI, as is stated in a report by the PES (Återrapportering Arbetslivsintroduktion 2013).

The most interesting findings from our analysis of the probability that an individual has returned to the SI include:

1) Our results show large differences when comparing occupational status before sick leave between the two groups. More than half of the individuals returning to the SI are unemployed. A possible explanation is that they have weaker attachment to the labour market, while another explanation might be economic incentives. That individuals who are unemployed have relatively lower opportunity costs of becoming sick, thus they might be staying in the SI for longer than individuals that have an employment to return to.
2) The different health institutions were all shown to have significance for the probability of return to the SI. One reason for the significance could be that the different institutions can be ranked on how severe illnesses their patients have in general and thus have an impact on the assessment of individuals' sick spells.

Based on these findings we conclude that there are significant differences between the individuals who return to the SI and other individuals registered at the PES and the SIA. We can also conclude that several of the individuals returning to the SI do so already after 90 days.

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Appendix 1: Pre-study

Meeting with Mariana and Stig 13/3 2014

We had two interviews at the Local Employment Office in Västerås on the 13th of March 2014. The primary purpose of the interviews was to get a better understanding of the work of the Public Employment Service and the activities offered. In particular we wished to receive information about the group of individuals that are included in the strengthened collaboration between the Social Insurance Agency and the Public Employment Service with a focus on the individuals participating in Work life introduction.

First we met with Mariana who is the local manager for the strengthened collaboration at the office in Västerås. Apart from giving us descriptive information about what is mentioned above, Mariana also provided some thoughts of her own regarding the individuals participating in the strengthened collaboration.

Mariana mentioned that a common issue for individuals participating in the strengthened collaboration and Work life introduction is the compensation and the stress associated with a lowering of the compensation level. Furthermore she emphasized that different individuals perceive pain differently and that this often affects the motivation to return to work. Mariana raised the question; for how long should an evaluation of an individual go on? She was then referring to individuals, who she believes, have exhausted their sickness insurance and is coming to the employment services even though it is quite obvious that they have sick related issues that hinder them from being able to benefit from the services offered.

Stig works at the Local Employment Service in Västerås as an employment officer. His work group handle individuals participating in the strengthened collaboration, which include individuals who have exhausted their sickness insurance and are initiated to Work life introduction as well as individuals who have been assessed to have working capacity and thus have been initiated to the PES by the SIA. During the interview with Stig, we allowed him to talk quite freely about how he experiences the initial contacts and meetings with new customers.

Prior to the initial meetings, Stig rarely knows anything about the individuals. Many of the individuals are very reserved during the first contact with him. He tries to have a motivational dialogue about the individual's situation and provide useful information about the services of the authority and what the activity plan might look like for the individual. However, Stig specifically emphasized that the initial meeting to a large extent concerns him trying to reduce fear and stress amongst the individuals. Furthermore, he talked a lot about difficulties for individuals under pressure and stress to handle and understand information given to them and the importance of him to talk about relevant issues. In addition to trying to reduce stress, Stig tries to look forward and help the individuals to see the opportunities instead of the limitations.

During the interview, Stig emphasized the importance of the compensation and he told us that the most commonly asked question amongst individuals is regarding the compensation. Stig argued that income is of essential importance to individuals and gives a sense of security. The reason for the importance of the compensation is that when an individual leaves the sickness insurance the compensation form is automatically changed

to activity support, which in many cases implies that the level of compensation received is reduced compared to when they received sickness benefit. The problem is most common amongst individuals that have not been members of the unemployment fund, because the activity support received is then at the lowest level. This can imply a great strain on the individual economy, which might lead to that the individual must turn to the social insurance to receive compensation from there. These issues regarding compensation can cause problems during a long period of time before it is solved and Stig believe that this prolongs the time it takes before an individual is able to benefit from the services of the employment office and thus the time it takes until the individual eventually may return to work.

Meeting with Elisabeth and customers within the strengthened collaboration 24-25/3 2014

Furthermore, we met with the employment officer Elisabeth and had the opportunity to participate in one meeting each between her and individuals taking part of the strengthened collaboration. The two individuals who allowed us to participate in their meetings with Elisabeth were both amongst the individuals within the strengthened collaboration that have a stronger attachment to the labour market.

Before meeting the customer on the 25th of May, Elisabeth explained that the majority of the individuals participating in the strengthened collaboration have a long history of illness. She explained that it is possible to observe which individuals will return to the sickness insurance and the SIA already by the time of the first meeting within the collaboration. She said that it is dependent on individuals' diagnosis and motivation, but that motivation is what finally decides whether or not an individual will return to the sickness insurance.

Both individuals that we met during the two occasions were, or had taken part of work training. Elisabeth explained that work training aims for two things: to strengthen an individual's working capacity and to, in best case, lead to a job.

The two individuals who we met with were both willing to increase their workload. One of the customers were actively looking for a new job while the other customer wanted to increase her work load at the current work place to work 25 hours a week in stead of current 20 hours.

Although the individuals were positive about their health and working capacity, the documentation and formalities that they had to handle were associated with a lot of stress. Both customers asked Elisabeth a lot regarding the activity report. One of the customers expressed stress about her economic situation and experienced difficulties in absorbing information and papers that are sent out. She said that she often asks others for help. The other customer was about to apply for compensation from the unemployment fund and needed to send in documentation for validating education, previous work as well as previously received sickness compensation from the SIA. Elisabeth explained that this documentation is needed to calculate appropriate compensation from the unemployment fund. The customer had a lot of questions regarding the formalities.

Meeting with Anna-Maria on the 25/5 2014

On the 24th of May, we had a meeting with the regional manager for the strengthened collaboration in the region Norra Mälardalen, Anna-Maria.
She explained to us how the collaboration between the authorities works and emphasized the importance of a well-functioning collaboration. One issue that she raised regarded the collaboration on the local level in Västerås and that there are many more employees within the collaboration at the SIA than at the PES, and that this difference makes it difficult to create a unified understanding and culture between the authorities regarding the work with the customers.

Anna-Maria also stated that, since the strengthened collaboration was taken into power, they can see that many individuals return to the sickness benefit, and that the foremost reason for this is that many of the individuals are to sick/ill to utilize the measures that are offered.

Appendix 2: Swedish Legislation on personal data and secrecy[50]

The extent to which data is registered and shared within and between the two authorities the SIA and the PES is restricted by the Swedish legislation on personal data and secrecy [Personuppgiftslag (1998:204), Offentlighets- och sekretesslag 2009:400]. The reason is because both authorities handle matters containing sensitive information that, if possible to relate to individuals, can violate their integrity. According to the Swedish legislation, examples of sensitive information can be information regarding the health status of individuals as well as other personal conditions such as compensation levels. Both authorities handle information regarding the health status of individuals as well as conditions such as the economic compensation of their customers. The SIA handle information on individuals sickness benefit qualifying income and level of SI and the PES handle information about the compensation for individuals that receive compensation from the labour market policy such as activity support and development fee.

Although strict legislation on secrecy prohibits registration and sharing sensitive information, exceptions exist for when it is aloud. Examples for when handling this information is allowed is when customers give their consent and if it is considered necessary to fulfil the obligations of the persons responsible for the personal data. Handing on secrecy protected information to an individual or another authority is allowed if considered necessary for the sharing authority to fulfil its obligations. This makes it possible for the two authorities to share information regarding customers they have in common.

It is allowed to use sensitive information for statistical purposes if the handling is considered necessary to fulfil the purpose of the study and if the public interest regarding the statistical project where the information aims to be used is greater than the risk of tortious effraction of individuals' integrity that the handling of data could imply.

In addition to the legislation on secrecy, the general legislation on handling personal data (Personuppgiftslag (1998:204)) applies for all authorities handling personal information. This legislation confirms that no additional information should be handled than what is necessary to fulfil the purpose. The information should not be stored for longer than what is necessary for the purpose. It is possible to store information for a bit longer when the information is needed for scientific, statistical or historical purposes, but as soon as this purpose is fulfilled, the storage should cease. In a specialized legislation on how to handle personal information on the authority for labour market policy (Lag (2002:546) om behandling av personuppgifter i den arbetsmarknadspolitiska verksamheten) it is stated that only personnel who need the information to perform their work tasks are allowed to have access to it. This legislation restricts what information will

[50] The exact paragraphs handled from the legislation:
Personuppgiftslag (1998:204) → 1 Kap 9, 12, 14, 15, 16 och 19 §
Lag (2002:546) Om behandling av personuppgifter i den arbetsmarknadspolitiska verksamheten → 1 Kap 4, 5, 8, 9, 11, 16 §
Offentlighets- och sekretesslag (2009:400) → 10 kap 1,2,28 § 21 kap 1 § 28 kap 1, 2, 3, 6, 11 §

be registered in the main computer system used by the PES and made available to stakeholders, implying secrecy not only between authorities but also within them.

Appendix 3: Regressions

Data set from the PES: Multiple regression
Showing the F-statistic of the multiple regression used in the results.

. reg Returned WLI WLI_90 return_90 other_90 , robust

Linear regression — Number of obs= 6248
F(4, 6243) = 218.48
Prob > F = 0.0000
R-squared = 0.2108
Root MSE = .28598

Returned	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
WLI	.151051	.0372464	4.06	0.000	.0780353	.2240668
WLI_90	.1869364	.0232045	8.06	0.000	.1414476	.2324252
return_90	.7290903	.0269342	27.07	0.000	.67629	.7818907
other_90	.0980958	.0131277	7.47	0.000	.0723609	.1238306
_cons	.0613079	.0035294	17.37	0.000	.0543891	.0682267

Data set from the PES: Simple regressions
Showing simple regressions with variables that are not used in the multiple regression.

- Born in Sweden or born outside of Sweden

VARIABLES	Returned
Foreign	0.045***
	(0.0102)
Constant	0.1083***
	(0.00455)
Observations	6,248
R-squared	0.003

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- Gender

VARIABLES	Returned
Female	0.001
	(0.0085)
Constant	0.1167***
	(0.00678)
Observations	6,248
R-squared	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- Age group

VARIABLES	Returned
AGEGRP	0.016***
	(0.0032)
Constant	0.0427***
	(0.01583)
Observations	6,248
R-squared	0.004

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- Level of education

VARIABLES	Returned
Level_educ	-.005
	(0.0057)
Constant	0.1284***
	(0.01223)
Observations	6,248
R-squared	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- Registered disability which cause reduced working capacity

VARIABLES	Returned
disability	-0.008
	(0.0084)
Constant	0.1226***
	(0.00669)
Observations	6,248
R-squared	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- Rehabilitation group: unemployed on sick leave

VARIABLES	Returned
unem_sick	-.010
	(0.0082)
Constant	0.1226***
	(0.00602)
Observations	6,248
R-squared	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- Rehabilitation group: unemployed with sickness compensation

VARIABLES	Returned
unem_sick_comp	.014
	(0.0110)
Constant	0.1150***
	(0.00446)
Observations	6,248
R-squared	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- Rehabilitation group: Young unemployed with activity compensation

VARIABLES	Returned
young_unem	-.018
	(0.0148)
Constant	0.1188***
	(0.00425)
Observations	6,248
R-squared	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- Rehabilitation group: Employed with sickness benefit/Employed with SA

VARIABLES	Returned
em_sb_sa	.008
	(0.0102)
Constant	0.1156***
	(0.00455)
Observations	6,248
R-squared	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- Rehabilitation group: Not entitled to compensation from the SIA

VARIABLES	Returned
not_SIA	.057
	(0.0390)
Constant	0.1167***
	(0.00409)
Observations	6,248
R-squared	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- Search category: Vocational rehabilitation

VARIABLES	Returned
voc_rehab	-.032***
	(0.0085)
Constant	0.1288***
	(0.00507)
Observations	6,248
R-squared	0.002

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- Participation in vocational rehabilitation 90 days after registration

VARIABLES	Returned
voc_90	-.102***
	(0.0081)
Constant	0.1629***
	(0.00542)
Observations	6,248
R-squared	0.025

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 4: Glossary

Försäkringskassan	→	The Social Insurance Agency (SIA)
Arbetsförmedlingen	→	The Public Employment Service (PES)
Lokalt försäkringskassecenter	→	Local Insurance Centre (LIC)
Sjukförsäkringen	→	Sickness insurance (SI)
Arbetslöshetsförsäkringen	→	Unemployment insurance (UI)
Arbetslivsintroduktion	→	Work life introduction (WLI)
Gemensam kartläggning	→	Joint planning meeting
Samverkan	→	Strengthened collaboration
A-kassa	→	Unemployment fund
Sjukpenning	→	Sickness benefit
Sjuklön	→	Sick pay
Sjuk- eller aktivitetsersättning	→	Sickness or activity compensation (SA)
Aktivitetsstöd	→	Activity support
Utvecklingsersättning	→	Development fee
Rehabiliteringspenning	→	Rehabilitation benefit
Sjukpenning grundande inkomst	→	Sickness benefit qualifying income (SQI)
Karensdagar	→	Qualifying days of sickness
Utförsäkrad	→	Reached the outer time limit/exhausted the SI

Sökandegrupp - Search group

Arbete (1)	→	Employed
I program med stöd (2)	→	In programme with support
Öppet arbetslös (3)	→	Unemployed
Övr (4)	→	Other registration

Sökandekategori - Search category

Öppet arbetslös (11)	→	Unemployed
Arbetssökande med förhinder (14)	→	Job seeker with obstacles

Deltidsarbetslös (21)	→	Short-time working
Timanställd (22)	→	Employed by the hour
Tillfälligt arbete (31)	→	Temporary work
Nystartsjobb (33)	→	New start job
Ombytessökande Samhall (35)	→	Variety applicants Samhall
Särskilt nystartsjobb (36)	→	Particular new start job
Utvecklingsanställning (38)	→	Development of employment
Trygghetsanställning (39)	→	Security employment
Ombytessökande (41)	→	Variety applicants
Lönebidrag (42)	→	Wage subsidies
Offentligt skyddat arbete (OSA) (43)	→	Public sheltered employment
Start av näringsverksamhet (46)	→	Start of business
Arbetspraktik (54)	→	Work placement
Lyft (55)	→	Project, Lyft
Kulturarvslyftet (56)	→	Project, Kulturarvslyftet
Utvecklingsanställning Samhall (58)	→	Development of employment Samhall
Prova-på-plats (59)	→	Project, Prova-på-plats
Praktisk kompetensutveckling (67)	→	Practical capacity building
Jobbgaranti för ungdomar (69)	→	Job guarantee for young people
Jobb- och utvecklingsgarantin (70)	→	Job and development guarantee
Arbetslivsinriktad rehabilitering (71)	→	Vocational rehabilitation
Arbetslivsintroduktion (72)	→	Work life introduction
Aktiviteter inom vägledning och platsförmedling (73)	→	Activities within guidance and job service
Projekt med arbetsmarknadspolitisk inriktning (75)	→	Projects with employment policy orientation
Fördjupad kartläggning och vägledning (76)	→	Deepened identification and guidance
Jobb- och utvecklingsgarantin fas 3 (79)	→	Job and development guarantee phase 3

Arbetsmarknadsutbildning (81)	→	Labour market training
Förberedande utbildning (83)	→	Preparatory training
Särskild kategori som ej statistikförs (91)	→	Special category that is not in statistics
Öppet arbetslös, felregistrering av beslut (96)	→	Unemployed, misreporting of decision
Öppet arbetslös, avbrott/återkallande av beslut (97)	→	Unemployed, interruption/withdrawal of decision
Öppet arbetslös, slutförd beslutsperiod (98)	→	Unemployed, closed decision period

Rehabiliteringsmålgrupp - Rehabilitation target group

Sjukskriven arbetslös (1)	→	Unemployed on sick leave
Arbetslös sjukersättning (2)	→	Unemployed, sickness compensation
Ung arbetslös aktvitetsersättning (3)	→	Young unemployed, activity compensation
Anställd sjukpenning/Anställd SA (4)	→	Employed with sickness benefit/with SA
Ej rätt till sjukpenning/SA (utgått) (5)	→	Not entitled to sickness benefit or SA(expired)
Pila (utgått) (6)	→	Project Pila (expired)
Ej ersättning från FK (7)	→	Not entitled to compensation from SIA

Status 90 och/eller 180 dagar efter registrering - Status 90 and/or 180 days after registration

(1, 2, 3, 4, 21, 22, 31, 35, 41)Arbete utan stöd	→	Employment without support
(33, 36, 38, 39, 42, 43, 56, 58) Arbete med stöd	→	Employment with support
(5, 6, 8) Övriga avaktualiserade	→	Left PES for other reasons
(7) Reguljära studier	→	Regular studies
(11,96,97,98) Öppet arbetslösa	→	Unemployed
(14) Övriga inskrivna	→	Others registered
(46, 54, 55, 59, 67, 71, 72, 73, 75, 76, 81, 83) Övr program med aktivitetsstöd	→	Other programme with activity support
(69) Jobbgaranti för ungdomar	→	Job guarantee for young people
(70,79) Jobb- och utvecklingsgarantin	→	Job and development guarantee
(0) Ej uppnått 90 el 180 dagar	→	Have not reached 90 and/or 180 days