

Harmonizing unemployment and sickness insurance: Why (not)?

Laura Larsson*

Summary

■ The paper discusses harmonization of unemployment insurance (UI) and sickness insurance (SI). The focus is on the difference between the benefit ceilings in the two insurance systems that has been shown to affect the behavior among unemployed SI recipients. The four conclusions are: (i) It is difficult to argue that the design with different benefit ceilings of UI and SI is optimal. (ii) During the period studied 1998-2001, the unemployed were overrepresented among SI recipients. (iii) Some of the overrepresentation is due to the different benefit ceilings and thus, harmonization of the systems is motivated. (iv) In such a complex system as the Swedish social insurance, reducing moral hazard in one group probably also implies various indirect effects. When designing a reform, all insurances should be considered simultaneously.■

JEL classification: H51, H55, I18, J65.

Keywords: Government policies, moral hazard, sickness insurance, unemployment insurance.

* *Laura Larsson is a researcher at the Institute for Labour Market Policy Evaluation, Uppsala.*

Harmonizing unemployment and sickness insurance: Why (not)?

Laura Larsson*

It is hardly an exaggeration to claim that absence due to sickness is currently one of the hottest topics in Swedish domestic politics. The number of days on sickness insurance (SI) benefits has more than doubled since 1997.¹ What explains this drastic rise in sickness absence? What can and should be done to reduce it? The views differ. Some look for answers among employers and in bad working environments; others claim that there has been a change in attitudes about work, or that the SI benefits are too generous. Consensus has not yet been reached despite the steadily growing number of reports by academic researchers and government committees.

Some reports have already indicated that the unemployed are over-represented among the SI beneficiaries. For some of the unemployed, benefits from the SI are more generous than those from the unemployment insurance (UI). Can this explain the overrepresentation? So far, only one study (Larsson, 2002) has looked at the interplay between UI and SI, suggesting that different benefits *do* increase sick reports among the unemployed. The extent of that effect, however, is still unknown.

Nevertheless, these observations have initiated a debate on harmonizing SI and UI. Quite soon after the debate arose, in April 2003, the government announced a reform for reducing SI benefits for those unemployed who could receive higher benefits from SI than UI. It is thus a partial harmonization of the two systems, as it only concerns persons initially on UI and not all SI beneficiaries. The new regulations apply from 1 July 2003. The reform may seem like a simple solution to the problem, but there are still many question marks

** I am grateful for comments and help from Kenneth Carling, Peter Fredriksson, Anna Hedborg, Bertil Holmlund, Per Johansson, Eva Lundström, Oskar Nordström Skans, and an anonymous referee, as well as seminar participants at IFAU and the Economic Council of Sweden Conference.*

¹ See official statistics from the National Social Insurance Board, at www.rfv.se/statistics.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

concerning the implementation, expected effects, and potential further harmonization. Thus, the debate is far from completed.

The purpose of this paper is to provide substance and structure to that debate. It starts with a short description of the current UI and SI systems. In short, UI and SI provide income-related benefits with the same marginal replacement rate, 80 percent, up to a ceiling. The ceilings, however, differ so that the maximum SI benefit exceeds the maximum UI benefit. An obvious first question is then: "Why are the SI and UI systems different?" I approach this question by discussing the design of optimal social insurance. In such a design, all costs for moral hazard, control and administration are taken into account. The paper argues that the design with the same marginal replacement rates but different ceilings is hardly optimal. Instead, it is probably the result of a long history of political compromises. Given that it is not optimal, some harmonization is motivated.

The second question of this paper is "What are the behavioral effects of different ceilings on the unemployed?" The results from Larsson (2002) suggest that unemployed persons do exploit the possibility of receiving higher benefits by reporting sick. In this paper, the results in Larsson (2002) are further elaborated to derive the extent of this "excess sick report rate". According to the analysis, a reduction of the SI ceiling to the level of the UI ceiling would lead to a 25 percent decrease in SI benefit days among the unemployed with wages above the UI benefit ceiling. However, the net cost of excess sick reports depends on whether the SI periods postpone the moment when the unemployed individual finds a job or not. Depending on this, the cost can vary from some million to several hundred million SEK.

Third, the paper discusses the expected effects of harmonizing the ceilings based on previous theoretical and empirical evidence. First, the partial harmonization that only concerns *persons initially on UI* is considered. Second, the expected effects of reducing the maximum SI benefits or increasing the maximum UI benefits *for all* are discussed. The net effect of various harmonization models depends on how the UI and SI systems interact with other parts of the social insurance system.

The partial harmonization is not necessarily as simple way a to reduce moral hazard as expected. First of all, interactions with other parts of the social insurance may imply new sources of moral hazard as SI is made less attractive for the unemployed. Moreover, the partial reform implies that the SI system becomes less uniform, and thus re-

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

quires increased administration. A general harmonization of the ceilings would involve most Swedish workers and thus, have huge financial and political consequences. In short, a general increase of the UI ceiling would be very expensive, whereas it is difficult—if not impossible—to gain political acceptance for a large general reduction of the SI ceiling.

1. Swedish sickness and unemployment insurance²

SI and UI form an integral part of the compulsory public social insurance in Sweden. Benefits from the public social insurance are income-related and mainly financed by taxes. The system, being part of the Swedish Welfare State, can be characterized as general rather than selective; that is, most citizens are comprised by the system, and the degree of economic means tests in the allocation of rights is low (Rothstein, 2002). Moreover, the Swedish system is often perceived as generous in international comparisons.

1.1. Description of sickness insurance

The purpose of SI is to provide economic maintenance when the worker is too sick to work and support himself. Until the reform in July, 2003, the marginal replacement rate was 80 percent of the wage prior to the sick period. The reform reduced the replacement rate to 77.6 percent. However, there is both a lower and an upper limit to the benefits: To receive SI, the worker must have had a monthly wage of at least SEK 767 per month, which corresponds to benefits of SEK 613.³ Furthermore, SI benefits never exceed 80 percent (77.6 percent) of SEK 24,125 per month, as illustrated in Section 1.3.

Basically, all employed workers—with a wage above the lower limit—are automatically covered by the SI. Students and unemployed workers are also eligible for the SI, as long as certain conditions are fulfilled. An unemployed person, for example, must be registered at a local employment office as a job seeker. The size of his SI benefits is not based on his UI benefits but his wage before unemployment.

² This section describes the UI and SI systems as they were until the reform of SI on 1 July, 2003. The reform mainly implied two changes: the replacement ratio was reduced from 80 percent to 77.6 percent, and the ceiling for the maximum SI benefits for the unemployed was reduced. The latter change is discussed in more detail in Section 4.

³ SEK 100 equals about EUR 10.7 (February, 2004).

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

Thus, unemployed persons without any employment history do not receive SI benefits.

SI is administered by 21 local social insurance offices and financed by general state taxes. Some of the tax revenue is collected from the employers through social insurance fees. Employers also pay an employee's sickness compensation during the first 14 days of sickness.⁴ The workers' tax bill also includes a general contribution to the social insurance.

Besides the replacement rate below 100 percent, the SI system contains two instruments to prevent unjustified absence. First, the insured person must visit a doctor within seven days of sickness in order to receive compensation after the first week. Again, after four weeks, a doctor's certificate must be provided to the SI authorities. Unjustified absence of less than one week is made less attractive by not providing any compensation for the first day of sickness.

1.2. Description of unemployment insurance

The purpose of UI is to insure against involuntary unemployment. Benefits from the UI are either income-related or fixed, depending on the person's work history. For income-related benefits, the unemployed has to fulfill three conditions⁵:

- *The basic condition* that the unemployed is available for vacant jobs. In practice, this means that he has to be registered at an employment office as a job seeker and that he is willing to accept a job.
- *The membership condition* that the unemployed has been a member of an UI fund for at least 12 months prior to unemployment. Membership is voluntary.
- *The working condition* that the unemployed has worked at least six months during the last twelve month period.

If the unemployed has been a member of an UI fund for a shorter period than a year, but still fulfills the other two conditions, he is entitled to the fixed basic amount of compensation. This is also the case if he fulfills the first two but not the working condition, given that he has recently completed full-time studies.

UI benefits are time-limited to 60 weeks, corresponding to 300 benefit days. These benefit days can either be received continuously

⁴ Except the first day of sickness that is uncompensated.

⁵ For a detailed description, see e.g. the web-page at www.aea.se.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

or with breaks in the unemployment period. The person can qualify for a new period of 300 benefit days during a break by re-fulfilling the working condition. If he has not done that by the end of the 300 benefit-day period, the employment officer will assess his need of intensified counseling. If such need is found, he will be assigned to a labor market program called *activity guarantee*, which implies that he is offered intensive counseling and the entire spectrum of services and labor market programs available to job seekers at the employment offices.

The activity guarantee is a full-time activity. Participants receive compensation equal to the UI benefits. If the unemployed refuses to participate in the program, UI benefits will expire. If no need for intensified counseling is found, the unemployed can renew his entitlement to UI benefits for another 300 day period.⁶ This is only possible once.

Similar to the SI benefits until July, 2003, the income-related UI benefits are 80 percent of previous earnings.⁷ There is a lower and an upper limit to the UI benefits, as well. The fixed basic amount of SEK 7,400 (\approx EUR 790) per month constitutes the minimum, corresponding to 80 percent of a monthly wage of SEK 9,250. The upper limit varies depending on how long the person has been unemployed. During the first 100 days of unemployment, the maximum benefits are 80 percent of a monthly wage of SEK 20,075. After that, the ceiling is reduced to 80 percent of SEK 18,700.

UI is administered by 39 unemployment insurance funds representing workers from different occupational groups.⁸ Altogether, the UI funds have approximately 3.8 million members, corresponding to 86 percent of the work force and 67 percent of the adult population. The funds are formally independent, but they must be officially approved by the state and follow common regulations in order to re-

⁶ There are no formal guidelines for the employment officer's assessment on this issue. The unemployed person's education, previous work experience and unemployment history presumably play a role. For a Swedish description of the activity guarantee, see Fröberg and Persson (2002).

⁷ However, the earnings in the UI system are defined somewhat differently than in the SI system. Somewhat simplified, the UI benefits are based on the worker's average earnings during the past six months. The SI benefits are based on the estimated earnings the worker *would have had* during the sickness spell.

⁸ Including the ALFA fund that is not associated with any workers' union. Furthermore, the ALFA fund pays unemployment compensation to individuals who are not members of any UI fund.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

ceive the state grant. The main source of finance for the UI benefits is the state grant, the rest is financed by membership fees.⁹

The UI funds work closely with the local employment offices, especially in controlling for whether the unemployed fulfill the rules for job search. The unemployed person has to meet his employment officer regularly and he is obliged to apply for any job the officer assigns him.¹⁰ If not, the employment officer must write a report to the UI fund, which then decides on a suitable sanction. In short, either the unemployed is suspended from the UI benefit, or his benefits are reduced. These sanctions are time-limited or permanent, depending on whether the person has broken the rules before, and the expected duration of the employment he refuses to accept.

The first five days of involuntary unemployment are uncompensated. If the unemployment is voluntary—i.e. if the person has left his job without a valid reason or if he has been laid off because of improper behavior—the uncompensated period is up to 45 weekdays.

1.3. Interaction of sickness and unemployment insurance

Broadly, the UI and SI systems look very much the same: They have similar purposes, namely to insure against an “accident”; they cover most of the adult population; they are mostly financed by general state taxes; they provide income-related benefits with the same marginal replacement rate; and they contain monitoring instruments to prevent unjustified use of the benefits.

Differences appear at a closer look. The beneficiary groups do indeed largely overlap, but the principle for coverage differs. SI is a compulsory insurance in that it automatically comprises persons with earnings above the (very low) minimum level, whereas UI is a voluntary insurance. They are also administered by different authorities with different organizational principles and traditions. Furthermore,

⁹ In 2002, the total bill for UI benefits (including administration costs) was SEK 23.8 billion (\approx EUR 2.55 billion, February, 2004), 17.5 percent of which were financed by membership fees. (Discussion with Peter Skönefeld at the UI funds' Central Organization, 9 May, 2003.)

¹⁰ The unemployed person is not obliged to accept any job in order to receive further UI benefits. Family situation, the duration of unemployment and other factors are taken into account in the judgment. There is also a distinction between the employment officer *suggesting* and *assigning* a job: in the former case, the unemployed is allowed to reject the offer without sanctions.

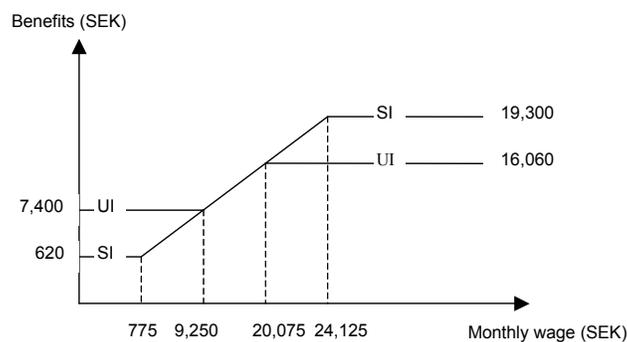
HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

monitoring instruments, sanctions, time-limits for maximum benefit duration, and the benefit ceilings are different.

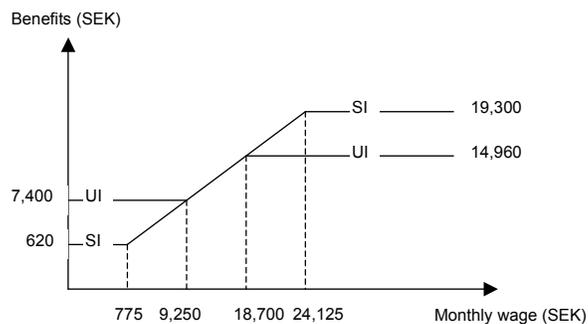
Some of these differences may affect the incentives to switch from UI to SI (or vice versa). In the present paper, the focus is on the benefit ceilings. Figure 1 illustrates the benefit levels from UI and SI as described above. The marginal replacement rate is indeed the same, 80 percent, but the different floors and ceilings imply that, for many individuals, benefits from UI and SI are not identical.

Figure 1. UI and SI benefits in May 2003

1a. Days 6-100 of unemployment



1b. Days 101-300 of unemployment



Unequal ceilings imply that it is more advantageous for persons with monthly wages above the UI ceiling to be on SI than on UI. Thus, unemployed whose previous earnings exceed the UI benefit

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

ceiling have an incentive to report sick. Similarly, persons with monthly wages below the UI floor receive more from UI than from SI.

Another difference that has been shown to affect the unemployed concerns the formal time-limits for maximum benefit duration. UI benefits are limited to 300 days, whereas SI benefits can in principle be received forever.¹¹ In practice, though, the time-limit of UI is not strict, as it is possible to receive a new period of 300 UI benefit days instead of participating in the activity guarantee. Nevertheless, Larsson (2002) shows that the probability of reporting sick increases as the UI benefit expiration date approaches. One plausible explanation is that the unemployed person reserves his UI benefits and postpones the expiration date by reporting sick and thus receiving SI instead.

2. Why are the systems different?

2.1. Designing an optimal social insurance

In a standard economics textbook insurance model, the demand for insurance arises as risk-averse individuals are exposed to a risk of (income) loss. Risk aversion means that the individuals prefer a safe outcome to a gamble. In such a situation, utility maximizing individuals choose a full insurance against the risk. In perfect competition and with perfect information, insurance companies are willing to provide full insurance for an actuarially fair rate that equals the individual's risk. We would thus observe voluntary full insurance, i.e. replacement ratios of 100 percent, against both unemployment and sickness.

However, the underlying assumptions of the model are seldom fulfilled in the real world where full insurance is more of an exception than a rule. First of all, the model requires perfect information. In reality, the accident risk varies among individuals, and the insurer cannot observe the individual risk. On a private insurance market, this asymmetry would lead to *adverse selection*. The insurance companies would have to base their rates on the "worst-case" forecasts and consequently, only the "worst-case" individuals would purchase these insurances. A compulsory insurance solves this problem as all individuals are forced to purchase the insurance and the rate can be based

¹¹ In practice, however, persons who are too sick to return to their jobs eventually switch to disability pension. In 2001, the average length of an SI period prior to a disability pension period was 685 days. (Source: National Social Insurance Board.)

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

on the average incidence of accident. Thus, adverse selection provides a rationale for the compulsory social insurance.¹²

Another problem with asymmetric information is *moral hazard*. It means that the existence of insurance causes individuals to change their behavior towards greater risk, thus increasing their use of insurance. Moral hazard can be reduced by lowering the insurance generosity or by increasing the control. In fact, if perfect monitoring of the insurance applicants were possible, no moral hazard would occur. However, perfect monitoring is seldom an option as it is very expensive and difficult to implement. Consequently, uncompensated days, replacement rates below 100 percent, and limited duration of the benefit periods are cheaper and easier ways to reduce moral hazard. Theoretical and empirical evidence of the relationship between moral hazard and the generosity of UI and SI is presented in more detail in the following sections.

Designing a socially optimal social insurance system of course involves other aspects than asymmetric information. Values and norms concerning income redistribution and a minimum level of maintenance for each citizen form the basis of the social insurance system. For example, financing through progressive taxes and decreasing marginal replacement rates are ways of leveling out income differences. Furthermore, the administrative costs of running an insurance system depend on the complexity of the rules for e.g. eligibility, replacement and premiums. This is an often used argument for a general and uniform instead of a means-tested system.¹³

An optimal design is derived from weighing all efficiency and equity (and other) aspects together. The bottom line is that in an optimal system, all costs for moral hazard, control and administration are taken into account. Thus, some moral hazard may indeed exist in an optimal system as it is weighed against monitoring, administration, income redistribution, etc. This leads us to the next question of

¹² As described in the previous section, SI in Sweden is compulsory whereas UI is formally voluntary. However, the design of the state-subsidized UI is so generous that it is clearly advantageous for basically every worker to be a member.

¹³ The very fundamental question is whether society should provide any social insurance at all. The political, economic and philosophical arguments for and against a publicly provided welfare system are numerous. Asymmetric information, as discussed in the previous section, is one example. However, the rest of this paper presupposes the existence of Government subsidized social insurance.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

whether the design of UI and SI as illustrated in Figure 1 can be regarded as optimal.

2.2. Can different UI and SI ceilings be optimal?

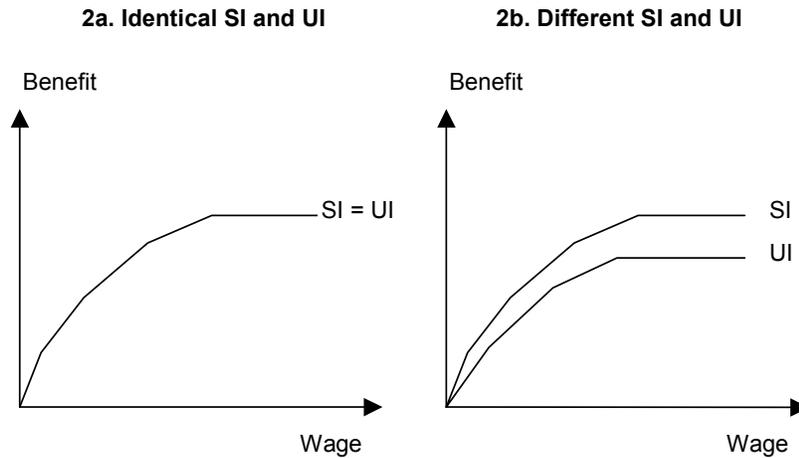
Let us consider two alternative optimal designs of UI and SI. Both presume that the marginal replacement rate is less than 100 percent because of moral hazard among the benefit recipients. Furthermore, high-income earners are assumed to be more inclined to increase their risk of sickness or unemployment due to generous insurance than low-income earners. Thus, the average replacement rate is decreasing.¹⁴

Figure 2a illustrates a first possible optimal design based on these assumptions. The individuals' risk behavior is assumed to be as sensitive to the generosity of UI as that of SI, so the benefit-wage profile is identical in UI and SI.

Another optimal design is illustrated in Figure 2b. Here, it is assumed that the individuals' risk behavior is *more* sensitive to the generosity of UI than SI; that is, high UI benefits cause more moral hazard than high SI benefits. The average replacement rate of UI is then lower than that of SI, *ceteris paribus*, for all wages. Alternatively, we could assume that monitoring whether unemployment is voluntary or not is more costly than monitoring a person's health status. Thus, to allow the same amount of moral hazard in UI and SI systems at the same monitoring cost, the benefit-wage profile of UI must be flatter than that of SI. Third, society might simply be willing to allow for more moral hazard among the sick than among the unemployed. Nevertheless, the optimal average replacement rate from SI is constantly higher than from UI.

¹⁴ Taslimi (2003) derives an optimal wage-UI benefit profile from a search model framework with heterogeneous workers. According to his results, the optimal average replacement rate is decreasing. Fredriksson and Holmlund (2003) discuss other efficiency aspects of designing optimal unemployment insurance.

Figure 2. Two possible designs of SI and UI



Can the design in Figure 1 with the same constant marginal replacement rates up to different ceilings ever be regarded as an approximation of some of the optimal designs in Figure 2? Most likely not. A constant replacement rate up to a ceiling *per se* may be an approximation of the designs in Figure 2, as it makes the system more uniform and simple to administer than a continuously decreasing replacement rate. But an approximation of Figure 2a would be a design with *different* (constant) replacement rates up to *different* ceilings, whereas an approximation of Figure 2b would imply the *same* (constant) replacement rates up to the *same* ceilings.

The present design with the *same* (constant) marginal replacement rates up to *different* ceilings looks like a mixture of these two, and it is very difficult to find a rationale for such a design. It presumes that low-income earners are as sensitive to UI and SI generosity, but that high-income earners are more sensitive to UI than SI generosity.

Moreover, it is not likely that Figure 2b illustrates an optimal design, since it implies incentives for the unemployed to report sick. Recall that an optimal design presumes that all costs for moral hazard etc are regarded. This means that even moral hazard among *unemployed* SI recipients would be taken into account, which seems unrealistic.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

It seems likely that the present design is a result of a long history of political compromises rather than an optimal design. A glance at the UI and SI history gives the impression that the systems emerged and developed quite separately (though at the same time), and that their interplay has not been an issue when designing them. From the very beginning, they have differed in some details and been identical in others.¹⁵ The numerous reforms during the 20th century have not, at least not systematically, strived at harmonizing them.

In sum, *if* there is no rationale for the UI and SI systems to be different, harmonization is motivated *given* that it moves us closer to the optimal design. However, in such a complex system as the Swedish social insurance, reducing moral hazard in one group of individuals may increase it in another group or increase the administration cost. Thus, a cost-benefit analysis of various harmonization alternatives should take into account the *net changes* in moral hazard and administrative costs, as well as the potential indirect effects of each alternative.

3. Behavioral effects of different ceilings

The study by Larsson (2002) suggests that unemployed whose previous wage exceeds the UI ceiling report sick more often than they would if the ceilings were the same. In other words, different ceilings do seem to cause moral hazard among the unemployed. Here, the word moral hazard comprises even pure misuse of the system. However, the study does not find any incentive effect that increases the average length of the sick period; that is, unemployed who can benefit from reporting sick do it more often but not for longer periods. A possible interpretation is that the requirement of a doctors' certificate after all makes it difficult to stay on SI for more than one week if not truly sick.

Larsson (2002) is based on data for the period 1998-1999.¹⁶ Before going into more detail in describing the analysis in that study, let us look at more recent data on SI spells among the unemployed. This will serve two purposes. First, the data give an impression of how

¹⁵ Lindqvist (1990) is a nice overview of SI history in Sweden. Marklund (1982) describes the history of both UI and SI in European countries, Sweden included, and USA.

¹⁶ Data from 1997 were also used to control for sickness and unemployment history.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

common it is that unemployed individuals report sick. Second, we can apply the results from Larsson (2002) on these to estimate how much moral hazard the different benefit ceilings caused during the period 1998-2001.

3.1. The data

Larsson (2002) and the present paper use the same data sources. Information on the individuals' UI spells is collected from the UI funds' register database (AKSTAT). Information on the SI spells is collected from the sickness period register (sjukfallsregister), administered by the National Social Insurance Board. These registers are matched within the LINDA database (Longitudinal INdividual DATabase) that is a 3.35 percent representative sample of the Swedish population.¹⁷ LINDA includes a rich set of individual characteristics.

UI and SI records are matched annually. In other words, SI spells in 1998 are matched to UI spells in 1998. Start and end dates for all UI and SI spells are observed. The combined data set includes all individuals who received either UI or SI benefits during that year. Thus, the data set shows the representation of *insured openly unemployed* among the SI recipients during that year. Similar combined data sets are constructed for 1998, 1999, 2000, and 2001.

Henceforth, *unemployed* refers to individuals observed in the UI statistics some time during the calendar year. *SI recipients* are individuals observed in the SI statistics. An SI recipient is defined as an *unemployed SI recipient* if he switches from UI to SI or vice versa, that is, the SI spell must be either preceded or followed by an UI spell.¹⁸

3.2. Sick spells among unemployed 1998-2001

Let us start by looking at how many of all SI recipients are unemployed. Figure 3 defines the unemployment rate among SI recipients as the number of all unemployed individuals starting a sick spell dur-

¹⁷ For a detailed description of LINDA, see Edin and Fredriksson (2000). Larsson (2002) includes a detailed description of UI and SI data.

¹⁸ Since the data are not matched over calendar years, this definition implies that the unemployed are not fully correctly represented in the stock on 1 Jan each calendar year. Only those SI recipients in the stock on 1 January whose SI spell is *followed* by an UI spell are defined as unemployed SI recipients. Some of the SI recipients in the stock are thus falsely defined as "not unemployed" as I do not observe their preceding UI spell during the previous year. Thus, the stock of unemployed is excluded from most of the descriptive statistics in this section.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

ing the year, divided by all individuals starting a sick spell. During the period studied, this rate was twice as high as the official open unemployment rate in the economy. However, the data in Figure 3 suggest that the probability of reporting sick is approximately four times higher than the overall probability of reporting sick among all insured.¹⁹

Figure 4 shows another estimate of the overall sick report rate among the unemployed, as compared to all insured. The continuous line relates the number of individuals, who some time during the calendar year start an SI spell, to the average population of insured during the year. Similarly, the dashed line relates the number of unemployed individuals starting an SI spell to the average stock of unemployed during the year. Both these lines only include individuals starting a sick spell longer than 14 days.²⁰

The unemployed seem to be clearly overrepresented among the SI recipients. The share of SI recipients was 1.8-2.3 times higher among the unemployed than in the population. Furthermore, during the period 1998-2001, the sick report rate has *risen* more among the unemployed than in other groups.

¹⁹ Note that the unemployment rate among SI recipients is based on the inflow of new SI recipients, whereas the official open unemployment rate reports the average stock of unemployed divided by the average work force during a year. However, the data in Figure 3 can be used to estimate the relationship between the probabilities of reporting sick among the unemployed and in the population. Consider the following notation:

p = probability of reporting sick among (insured) unemployed

q = overall probability of reporting sick

T = the number of sick reports among unemployed

N = the number of sick reports

U = the number of unemployed

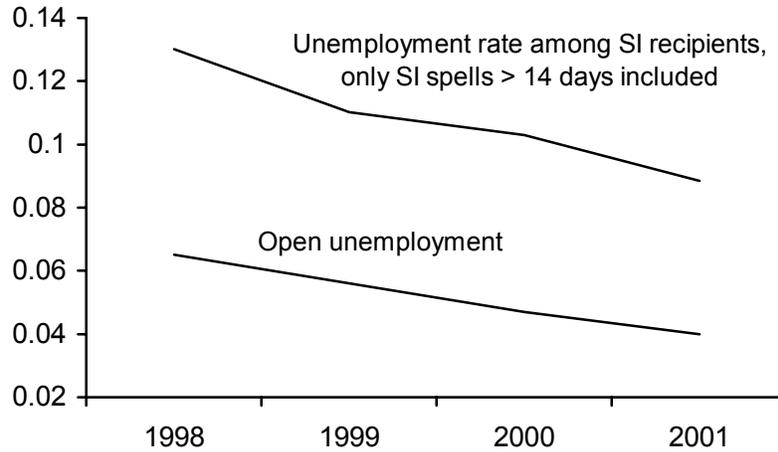
L = labor force

The curves in Figure 3 show T/N (upper) and U/L (lower). Let us assume (quite realistically), that 70 percent of all unemployed are insured, and that the number of individuals covered by the SI is 1.25 times the labor force. Thus, T/N can be written as $T/N = [p * 0.7 * U] / [q * 1.25 * L]$, implying $p/q = (T/N)(1.25/0.7)(L/U)$. According to Figure 3, $T/N = 0.089$ and $U/L = 0.04$ in 2001. Consequently, $p/q = 3.97$. The probability of reporting sick is four times higher among the unemployed than in the population.

²⁰ Recall from the description in Section 1 that employers pay for the first 14 days of an employee's sick period. Thus, sick periods of *employed* individuals shorter than 15 days do not show up in the data.

HARMONIZING UNEMPLOYMENT AND SICKNESS
INSURANCE: WHY (NOT)?, Laura Larsson

Figure 3. Unemployment rate in the annual inflow of SI recipients and in the work force, 1998-2001

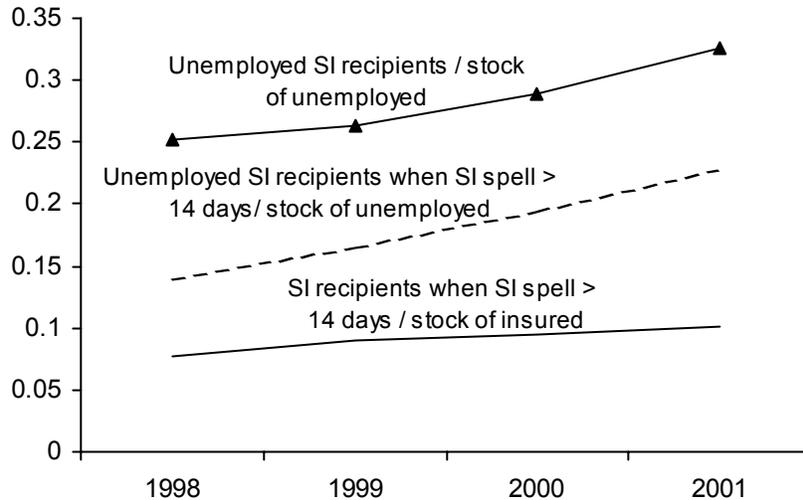


Notes: Unemployment rate among SI recipients in a calendar year is defined as: the number of unemployed persons who start an SI spell longer than 14 days during the calendar year / the total number of persons who start an SI spell longer than 14 days during the calendar year. The open unemployment rate is collected from the Labor Force Surveys 1998-2001.

Finally, the line with triangles in Figure 4 includes even short SI spells among the unemployed showing that, each year, 25-33 percent of the average stock of unemployed received SI benefits for some period.

HARMONIZING UNEMPLOYMENT AND SICKNESS
INSURANCE: WHY (NOT)?, Laura Larsson

Figure 5. Inflow of SI recipients in the population and among the unemployed



Notes: Only SI spells longer than 14 days included (continuous and dashed lines) and all SI spells included (line with triangles). The numerator is defined as the sum of persons with an SI spell starting 1 Jan–31 Dec each year. Unemployed SI recipients are defined as persons whose SI spells are connected with an SI spell, either before or after. The denominator “stock of insured” is defined as 3.35 percent (LINDA sample size) of the average annual work force by the Labor Force Survey (AKU) times 1.25, as the number of insured is approximately 25 percent greater than the labor force. The denominator “stock of unemployed” is defined as the annual average of the stock of UI recipients each week in the AKSTAT database.

What about the length of SI spells among unemployed as compared to other SI recipients? According to a report by the National Social Insurance Board (RFV, 2003), SI spells in 2001 were on average 1.5 times longer among the unemployed than among the employed.²¹ For comparability, I have applied a similar sampling to study the average SI spell length in the matched UI and SI data.²²

²¹ See Table 3 in RFV (2003).

²² As in the RFV study, the sample in Table 1 includes all SI spells starting on 1-16 February. However, the observation windows differ somewhat: in my data; all spells that last longer than until 31 December are censored, whereas RFV (2003) observes

HARMONIZING UNEMPLOYMENT AND SICKNESS
INSURANCE: WHY (NOT)?, Laura Larsson

Table 1 reports the results. Note that, as in previous figures, the unemployed are related to the entire sample of SI recipients (including unemployed) instead of employed as in RFV (2003).²³ The SI spells were longer among unemployed only in 2001. However, that difference is not as large as in RFV (2003). One explanation can be that SI spells are shorter among openly unemployed who are eligible for UI benefits than among other unemployed.

Table 1. SI spell length among unemployed and all SI recipients, inflow 1-16 February 1998-2001

	All SI recipients			Unemployed SI recipients		
	Mean SI	Median	N	Mean	Median	N
1998	125.0	69	613	103.2	56	99
1999	90.6	37	1073	84.9	35	77
2000	106.7	46	1116	101.4	46	95
2001	102.4	45	1100	116.0	54	87

Notes: The samples of all SI recipients include persons who start an SI spell on 1-16 February. Only spells longer than 14 days are included.

In sum, the unemployed were clearly overrepresented among SI recipients during the whole study period 1998-2001. However, their SI spells were not longer than the average. Of course, the overrepresentation may be due to demographic differences between the groups, stress caused by unemployment, or other factors. Nevertheless, some of it may be explained by the design of the UI and SI systems. The next step is to see how much. In other words, how large is the *excess sick report rate* due to different benefit ceilings?

the spells until 1 March the following year. Thus, the mean of SI spell length is shorter in my data.

²³ SI recipients who are not unemployed are not necessarily employed. For example, they can be students or participate in some active labor market program. Thus, it would not be correct to exclude the unemployed from the sample of all SI recipients and call the rest *employed*.

3.3. Excess sick reports due to different ceilings

The conclusion in Larsson (2002)—that unemployed who can benefit from reporting sick do it more often but not for longer periods—is based on results from a duration analysis. The appendix discusses the method in more detail, but in short, the basic idea is to estimate the probabilities of reporting sick for each point in time. The question is “What is the probability of reporting sick after 2 (or 4, 6, etc) weeks of unemployment, conditional on the individual still being unemployed after 2 (or 4, 6, etc) weeks?”. A rich set of control variables, such as age, gender, education, and sickness and unemployment history, is included in the estimations. The results show that, among individuals who can benefit from reporting sick, all these probabilities are higher when the ceilings are different than they would be if the ceilings were the same.

To determine the effect of different ceilings in the entire sample, we must aggregate the conditional probabilities. Moreover, the estimated aggregate sick report probability must be compared to the hypothetical situation where the UI and SI ceilings are identical. Such an analysis (see the Appendix) suggests that, on average, the sick report rate would have been 25 percent lower among the middle- and high-wage unemployed if the SI ceiling were as low as the UI ceiling. In other words, the different benefit ceilings cause an *excess sick report rate* of approximately one third in that group.

What does this figure mean in terms of SI expenditure? That is, how much do the excess sick reports cost each year? First, the answer depends on the wage distribution among unemployed SI recipients and the length of their SI spells. The fewer middle- and high-wage unemployed there are among SI recipients, and the shorter their SI spells, the smaller is the cost of moral hazard.

Given that the number of SI recipients would be 25 percent lower but the SI spells would be as long, the annual sum of SI days would be 25 percent lower among the middle- and high-wage unemployed. We can thus obtain an approximation of the cost of excess sick reports for the period 1998-2001 by using the descriptive data in Table 2. It comprises all unemployed SI recipients for each of the four calendar years; that is, the populations consist of all unemployed individuals who had an ongoing SI spell sometime during the calendar

HARMONIZING UNEMPLOYMENT AND SICKNESS
INSURANCE: WHY (NOT)?, Laura Larsson

year.²⁴ Annual SI days is the average sum of all sick days during the year for this population.²⁵

Table 2. Wage distribution among unemployed SI recipients and annual SI statistics, 1998-2001

	Annual stock 1999			
	Wage below UI ceiling	Wage be- tween the ceilings	Wage above SI ceiling	All
No of individuals	2,304 (76%)	657 (22%)	71 (2%)	3,032
Annual SI days	54	60	71	56
	Annual stock 1999			
No of individuals	1,825 (69%)	760 (29%)	76 (3)	2,661
Annual SI days	61	72	52	64
	Annual stock 2000			
No of individuals	1,578 (62%)	859 (34%)	96 (4%)	2,533
Annual SI days	68	73	84	70
	Annual stock 2001			
No of individuals	1,855 (83%)	290 (13%)	93 (4%)	2,238
Annual SI days	76	81	88	77

Notes: Figures in parentheses report shares of total population. The population each year consists of both the stock of SI recipients on 1 January and the inflow of new SI recipients during the year. However, the stock may be an underestimate of the true stock, see footnote 18.

Second, the cost of excess sick reports depends on what these individuals would have done instead had they not received SI benefits. In other words, would they have received UI benefits for some or all of the period? If not, the cost of excess sick reports is determined by the amount of their SI benefits. If yes, the cost is determined by the difference between their UI and SI benefits. Two examples illustrate.

Consider first an example where SI postpones the moment the average unemployed person finds a job. When the SI ceiling is *higher* than the UI ceiling, the person (with a wage above the UI ceiling) reports sick after 50 days of unemployment. He stays sick for 20 days and receives SI for 19 days. After that, it takes 40 days for him to find a job. Thus, the time until employment is $50+20+40=110$. When the SI ceiling is *equal* to the UI ceiling, he stays on UI for $50+40=90$ days.

²⁴ Both the inflow of new SI recipients and the stock at the beginning of the calendar year are included.

²⁵ All SI spells during the calendar year are counted, even if only one of them is connected to an UI spell.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

In this case, an estimate of the cost of excess sick reports can be obtained by the following formula:

$$\frac{1}{0.0335} \left(\frac{0.25 * \text{no of SI recipients} * \text{annual compensated SI days} *}{\text{average daily SI benefits}} \right)_{UI < \text{avg} \leq SI} + \frac{1}{0.0335} \left(\frac{0.25 * \text{no of SI recipients} * \text{annual compensated SI days} *}{\text{average daily SI benefits}} \right)_{\text{avg} > SI}, \quad (1)$$

where the denominator refers to the LINDA sample size of 3.35 percent of the entire Swedish population. In 1998, the cost according to formula (1) was approximately SEK 156 million; in 1999 SEK 206 million; in 2000 SEK 252 million; and in 2001, SEK 127 million.²⁶ This is the *maximum cost of excess sick reports*.

Then, consider another example where it does not matter whether the unemployed receives SI for some period(s). He finds a job as quickly—after 90 days in the above example—in any case. Now, the cost is determined by the difference between the SI bill and the UI bill for the 20 days the person is on SI. Using the descriptive data in Table 2, we can calculate the *minimum cost of excess sick reports*: SEK 17.2 million in 1998; SEK 22.4 million in 1999; SEK 30.7 million in 2000; and SEK 11.0 million in 2001.

In sum, the cost of moral hazard due to the different benefit ceilings was somewhere between SEK 11 and 127 million in 2001. Is this little or much? Related to the total Government expenditure for SI, SEK 36,700 million in 2001, it may seem little. But we should relate it to the total expenditure of our population of unemployed SI recipients in Table 2. Then, it corresponds to 2-25 percent of the expenditure. Thus, moral hazard is potentially very costly.

4. Consequences of harmonizing the ceilings

So far, I have shown that moral hazard due to different UI and SI ceilings is potentially very expensive. However, altering the ceilings may be associated with other costs. This section looks closer into po-

²⁶ Expressed in EUR, the cost was 16.7 million; 22.0 million; 27.0 million; and 13.6 million (February, 2004). The average number of SI spells and thus the number of uncompensated days is assumed to be two. The relatively low figure for the last year is due to the UI reform in 2001 that increased the UI ceiling for the first 100 days of unemployment. In the calculation, I have used the higher UI benefit ceiling.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

tential incentive effects and other consequences that arise when the ceilings are altered. Both a *partial* and a *general* harmonization are discussed. Partial harmonization refers to the reform from 1 July, 2003, that equalized the ceilings only for unemployed persons. A general harmonization alters the ceilings for all workers.

4.1. How many people are affected?

To start with, let us see how many people are affected if some or both of the ceilings are altered. Table 3 shows descriptive wage data for the stock of UI recipients, SI recipients, and the work force. Table 2 in the previous section shows the wage distribution among unemployed SI recipients.

In the short run, changes in the UI and SI ceilings will affect persons who receive these benefits. Thus, the size of these populations is interesting when determining the immediate effect of a harmonization—for example the SI or UI expenditure saving. Of course, if the harmonization only applies to unemployed SI recipients, they define the population of interest.

In the long run, however, more people than those initially on the benefits are affected as a changed benefit structure alters the incentives to use the benefit. Consequently, the wage distribution in the work force is interesting when determining the moral hazard effect of a harmonization or the political possibilities to implement the harmonization.

Table 3 shows that the wage distributions among UI and SI recipients and in the work force differ quite dramatically. In the two benefit recipient groups, the share above the (lowest) UI ceiling increased from approximately one third to one half during the period 1998-2001. In the work force, almost 60 percent had a wage above the UI ceiling already in 1998. In 2001, the share was over 80 percent. Consequently, all general changes in the benefit ceilings would affect large groups immediately, and up to 80 percent of the work force in the long run.

HARMONIZING UNEMPLOYMENT AND SICKNESS
INSURANCE: WHY (NOT)?, Laura Larsson

Table 3. Income distributions in the stock of UI and SI recipients and in the work force, 1998-2001, nominal terms

1998				
	Below UI ceiling	Between UI and SI ceilings	Above SI ceiling	
	Below 15,950	15,950-22,750	Above 22,750	
UI recipients	0.64	0.32	0.04	
SI recipients	0.65	0.29	0.05	
Work force	0.41	0.44	0.15	
1999				
	Below 15,950	15,950-22,750	Above 22,750	
UI recipients	0.59	0.36	0.05	
SI recipients	0.58	0.35	0.07	
Work force	0.33	0.49	0.18	
2000				
	Below 15,950	15,950-22,875	Above 22,875	
UI recipients	0.54	0.41	0.05	
SI recipients	0.52	0.39	0.09	
Work force	0.27	0.53	0.21	
2001				
	Below low UI ceiling	Between UI ceilings	Between high UI and SI ceiling	Above SI ceiling
	Below 15,950	15,950-18,700	18,700-23,063	Above 23,036
UI recipients	0.50	0.27	0.17	0.06
SI recipients	0.46	0.24	0.20	0.11
Work force	0.20	0.28	0.28	0.25

Notes: The wage distribution among UI recipients each year is determined as the mean of wage distributions in weekly stocks in the UI funds' register. Only persons who have received income-related UI benefits are included. The wage distribution among SI recipients is determined as the mean of wage distributions in monthly stocks in the SI register. The wage variables underlying the distribution among UI and SI recipients are thus slightly different. The wage distribution in the work force is obtained from Statistics Sweden wage statistics (Lönestatistisk Årsbok).

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

4.2. Partial harmonization of the ceilings

The reform of 1 July, 2003, decreased the SI benefit ceiling for unemployed SI recipients. The new SI ceiling equals the higher UI ceiling that is valid during the first 100 days of unemployment, see 1a.; that is, the maximum monthly SI benefit decreased from SEK 19,300 to SEK 16,060.

Given the 2001 wage distribution shown in Table 2, this reform immediately affects 17 percent of the unemployed SI recipients. The SI benefits of the unemployed in the highest wage category, 4 percent of the population, decrease by approximately SEK 107 per day. For the unemployed with wages between the old and the new ceiling, the decrease is smaller and depends on their previous wages. In 2001, a corresponding reform would have led to an immediate SI expenditure saving of approximately SEK 57 million among openly unemployed UI recipients. Based on the data in this paper, a very conservative estimate for the entire unemployed population in 2003 is approximately SEK 110 million.²⁷ The long-run saving is even larger as moral hazard due to different ceilings among the unemployed SI recipients decreases.

The reform may thus seem an easy way of reducing Government expenditure and moral hazard. However, there are at least four issues that might make this reform less effective than expected. First, it makes the SI system less uniform. The literature on the administration and implementation of public policies includes good arguments for general, uniform policies. Selective and means-tested policies demand more control and imply borderline cases. The administration of such policies easily becomes very heavy.²⁸ In our case, different ceilings for unemployed and others require more control of the SI recipients' labor market status to make sure that everybody receives the correct SI benefits.

²⁷ This figure is based on the assumption that the population of unemployed in this paper is approximately 63 percent of the entire unemployed population including program participants. 63 percent correspond to the share of openly unemployed of all unemployed in statistics from the National Labor Market Board. Furthermore, I have assumed that program participants have similar SI spells as in Table 2. Thus, the estimated saving in 2001 is SEK 90 million. Assuming that the SI expenditures of the unemployed have followed the average SI expenditure growth rate of 25 percent, the estimated figure for 2003 would be SEK 113 million.

²⁸ For a discussion, see e.g. Rothstein (2002).

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

Second, new incentives to switch status on the labor market arise. It is more advantageous to report sick when employed than when unemployed. Individuals who risk unemployment or whose temporary employment is about to end may thus report sick before they become unemployed. In that case, we will observe increased flows from employment to SI.²⁹ Furthermore, interaction between UI and SI is hardly the only interaction within the social insurance system. As SI becomes less generous, other insurances may become relatively more attractive. Palme and Svensson (2003) provide some evidence of interaction between UI, SI, and early retirement pensions. Parents' insurance to take care of a sick child is another example of insurance schemes that may get relatively more attractive.

Third, we should not expect moral hazard among unemployed SI recipients to decrease drastically until all the differences between the UI and SI systems are harmonized. After all, different ceilings are not the only source of moral hazard among unemployed SI recipients. Larsson (2002) shows that the probability of reporting sick increases as the UI benefit expiration approaches. When receiving SI, unemployed people "preserve" their UI benefits, thus postponing the expiration date. So even if the ceilings are harmonized, the unemployed still have incentives to report sick. Furthermore, the fact that SI benefits are paid 7 days and UI benefits 5 days per week implies that sickness periods lasting over a weekend are attractive for all unemployed, irrespective of their previous wage.

Even after the reform, many unemployed can receive higher benefits from SI than from UI. Unemployed persons who are not entitled to income-related UI benefits, who are suspended from UI, who receive reduced UI due to refused work offer, or who have been unemployed for more than 100 days, are examples of this.

Fourth, besides the public UI and SI benefits, many unemployed receive benefits from contractual insurances against sickness and unemployment. These insurances are regulated by collective agreements between unions and employers' organizations. A survey of various contractual insurances by Adolphson (2003) shows that it can still clearly be profitable for a high-wage unemployed to report sick, even

²⁹ According to the new rules, individuals who become unemployed during their SI period must report this to the local social insurance office in order to get their SI benefits reduced. Obviously, the incentives not to report it are strong. Controls and sanctions are needed which, in turn, will increase the administrative costs of running the system.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

if the public UI and SI ceilings are harmonized. Some of the high-wage unemployed receive considerably higher contractual benefits from SI than from UI.

4.3. General harmonization of the ceilings

The UI and SI ceilings remain different for most insured after the partial reform. Section 2 showed that a design with identical replacement ratios but different ceilings is hardly optimal.³⁰ Even if the purpose of this paper is not to speculate on exactly what the optimal design looks like, some general harmonization of the ceilings may be a step in the right direction. Such a harmonization either implies that the SI ceiling has decreased or the UI ceiling increased (or both) for all insured.

To begin with the expected moral hazard effects of such harmonization, let us look at how benefit generosity affects unemployment or absence due to sickness in the economy. In short, the results from the international literature suggest that more generous UI benefits increase the average length of unemployment periods and the number of unemployed in the economy. Similarly, higher SI benefits increase both the incidence and the duration of the sickness periods.

Since 1970s, search theory provides the most common theoretical tool for studying the effect of UI on unemployment.³¹ In search models, the expected duration of unemployment is determined by the (unemployed) individual's search activity and the labor market situation. An unemployment period ends sooner, the more vacancies are available, the more actively the individual seeks for a job, and the less choosy he is to accept a job. The size of the UI benefits affects the tendency to accept a job offer: the higher the benefits, the choosier the unemployed individual. Of course, if the employment service authorities are very efficient in "forcing" the unemployed to accept any job offer, the size of the UI benefits is of less importance.³² More-

³⁰ The recent reform that decreased the replacement ratio of SI from 80 percent to 77.6 percent makes it even harder to motivate the design as it now implies that SI has a lower replacement ratio but a higher ceiling than UI.

³¹ The first search theoretical models are presented in Mortensen (1977) and Burdett (1979). For surveys of both theoretical and empirical evidence up to the late 1990s, see Atkinson and Micklewright (1991) and Holmlund (1998).

³² In the search theoretical framework, it can be shown that higher benefits may also reduce the duration of unemployment among non-insured individuals. In Sweden, as in many other countries, an individual qualifies for UI benefits through

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

over, other aspects of the UI benefits, such as the duration of benefits or sanctions, are shown to affect the unemployment duration.

Krueger and Meyer (2002) is the most recent international survey of the empirical evidence on how UI benefit generosity affects unemployment.³³ They summarize the international literature as follows:

“An elasticity of unemployment duration with respect to benefits of 0.5 is not an unreasonably rough summary, though there is a wide range of estimates in the literature. Such an elasticity is not very different from the central tendency of the duration elasticities reported in the Atkinson (1987) survey.”

The results from early Swedish studies provide some support for these results (see Björklund, 1978; and Björklund and Holmlund, 1989). However, a recent study by Carling et al (2001) suggests rather strong effects. They analyze the reform in 1996 when the replacement ratio was reduced from 80 percent to 75 percent. The fact that the reduction only affected individuals with earnings below the UI ceiling (the ceiling was not altered) implies that the groups above the ceiling can be used a control group. They estimate an elasticity of 1.6: a 10 percent increase in UI benefits is associated with a 16 percent increase in the unemployment duration. The standard error of the estimate is quite large, though.

Higher UI benefits may also increase the number of unemployed. One potential mechanism is through wages: higher UI benefits lead to higher wages and thus, lower employment. First, assume that wages are set in negotiations between unions and employers, and that unions care about the relative cost of unemployment among their members. Higher UI benefits reduce this cost and thus, unions are more inclined to claim higher wages. Second, higher UI benefits may attract more workers to quit their jobs. In order to prevent this, employers

work experience. Higher UI benefits make it more attractive to take a job and thus qualify for the benefits.

³³ They also provide an exemplary discussion on identification of the UI effects. In cross-sectional studies, the effect of UI benefits is identified by regressing the duration of unemployment on the replacement ratio that, in turn, is determined by the previous wage and other individual characteristics. It is thus difficult to compare two identical individuals with different replacement ratios. Consequently, the estimated effect may not necessarily show any causal relationship. Studies where identification is based on regional variation (such as across US states) or some partial reform that changes the replacement ratio for some, but not all, individuals are thus more reliable. Carling et al. (2001) is an excellent Swedish example of the latter strategy.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

may be willing to offer higher wages. Eventually, higher wages will thus imply lower employment.

Holmlund (1989), Forslund (1992), and Holmlund and Kolm (1995) are examples of Swedish studies analyzing the effect of UI benefits on wages. They provide some support for the above hypothesis. However, identification of the causal effect is somewhat complicated as wages more or less perfectly determine the size of the benefits. Krueger and Meyer (2002) provide a survey on US studies. Their conclusion is that the elasticity of UI claims with respect to UI benefits is approximately 0.5. Thus, an increase in the UI benefits by 10 percent would lead to a 5 percent increase in the number of UI recipients. However, the institutional setting in the US differs quite a bit from the Swedish, and thus the mechanisms through which UI generosity affects the number of unemployed differ as well. Consequently, one should be careful in generalizing their estimates to the Swedish context.

Similar to the UI literature, the literature on SI provides evidence of strong incentive effects: higher SI benefits increase both the incidence and the duration of sickness periods. Theoretical studies have traditionally analyzed sickness as absence from work in the labor supply framework. In these models, absence from work emerges in a situation where the employment contract obliges the worker to supply a certain amount of labor that exceeds the worker's optimal labor supply. The worker maximizes his utility over income and leisure under income and time constraints. Absence is associated with a cost in terms of lost income: the lower the SI benefits, the higher the loss of income.³⁴

In such a framework, it is straightforward to show that an increase in the SI benefits leads to more absence from work. Higher benefits imply a lower cost associated with absence and thus alter the worker's budget constraint. Given that leisure is a normal good, this leads to a decrease in the worker's optimal labor supply. Consequently, the incidence and the duration of absence increase.

Empirical studies confirm this theoretical result. Broström et al. (2002), Henrekson and Persson (2004), and Johansson and Palme (1996 and 2002) present Swedish evidence that higher SI benefits are

³⁴ Examples of such models and empirical applications are provided by Allen (1981), Barmby, Orme and Treble (1991), Barmby, Sessions and Treble (1994) and Brown and Sessions (1996). Currie and Madrian (1999) summarize international research on the subject.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

associated with more sickness absence. For example, in a Swedish summary of their 2002 paper, Johansson and Palme calculate the elasticity of sickness incidence with respect to benefits to be 0.5 for males and slightly higher for females. They do not, however, find any evidence that the size of SI benefits would significantly affect the length of the SI periods (Johansson and Palme, 2003).

In sum, the moral hazard literature seems to suggest that an increase in the UI benefit ceiling would increase equilibrium unemployment, whereas a reduction in the SI ceiling would decrease the equilibrium absence due to sickness. The groups affected by these reforms would be large. Thus, increasing the UI ceiling would imply that both the daily UI benefits *and* the number of benefit days increase for approximately 50 percent of the entire population of UI recipients. Moreover, even if the percentage increase in the number of new unemployed were moderate, the absolute increase could still be considerable as 80 percent of the work force have wages above the UI ceiling (Figures for 2001 in Table 3).³⁵ Similarly, decreasing the SI ceiling would save a great deal, both in terms of reduced SI expenditure per day *and* reduced number of days for more than half the entire SI recipient population.

Thus, a reduction in the SI ceiling is a much cheaper harmonization than an increase in the UI ceiling. The administrative costs of such general reforms hardly differ either; both should be quite low. However, most question marks associated with a partial reform concern even these general reforms. For example, interactions between SI and other social insurances—such as early retirement pensions or parents' insurance—may imply that these other insurances are utilized considerably more when SI is made less generous. Moreover, a real harmonization of the ceilings is not reached until the contractual insurances are harmonized, on which it is difficult for the Government to decide.

³⁵ Consider the following example: If the UI benefit ceiling was increased to equal the SI ceiling, the increase would be 29 percent (from SEK 14,960 to 19,300 per month) at most for individuals with earnings equal to or above the SI ceiling. According to the Carling et al. (2001) estimate, their expected unemployment duration would then increase by 46 percent. The Krueger and Meyer (2002) estimate would imply a 14.5 percent increase in the unemployment duration. Assuming that the average length of unemployment is 6 months, the increase would thus be 4 to 12 weeks at most. The expected increase would naturally be smaller for individuals with earnings closer to the UI ceiling.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

Decreased absence from work is not necessarily all that efficient. If workers attend their job sick, their productivity may be lower. However, there is no evidence that the “sick-presence” would increase when benefits are decreased.

Last but certainly not least, the wage distribution in the work force does not only affect whether the reforms are economically possible and motivated. It is also important from a political perspective. Harmonizing the ceilings by reducing the SI ceiling to equal the UI ceiling would concern a vast majority of all workers. Whether such a reform is politically feasible or not is, of course, beyond the scope of the present paper.

5. Concluding remarks

Harmonization of the social insurance is not quite a new topic in the political debate. In March 1993, some of the leading economists and political scientists in Sweden, known as the “Lindbeck Commission”, published a report on how to improve the Swedish economy. Among many other things, the authors emphasized the need for reforms within the social insurance system. They already noticed the problem of interactions between various insurances due to different benefit levels, and argued for as uniform systems as possible.³⁶

Today, more than ten years after the report, many of the differences in benefit generosity still remain. It is thus interesting to see whether the present harmonization debate will lead to more comprehensive reforms. My aim with this paper has been to contribute to the debate by bringing out facts about the part of the social insurance system about which I know most, namely unemployment and sickness insurance. These two insurances are interesting to discuss also because of the recent reform that harmonizes the replacement ratios for the unemployed.

The conclusions from this paper are that first, the design of UI and SI with equal replacement ratios but different benefit ceilings is hardly optimal. An optimal system weighs the cost of moral hazard against the cost of monitoring, administration etc. However, in our case it is difficult to argue that the moral hazard among unemployed SI recipients would be optimal.

³⁶ See SOU 1993:16 or Lindbeck et al. (1994).

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

Second, statistics from the period 1998-2001 clearly show that the unemployed are overrepresented among SI recipients. It is not obvious, however, that their SI spells are much longer than the average.

Third, results from Larsson (2002) applied on the data in this paper suggest that moral hazard among unemployed SI recipients due to different benefit ceilings has potentially been very costly. Consequently, some harmonization at least among the unemployed is motivated.

Fourth, reducing moral hazard in some parts of the social insurance is seldom a free lunch when the system is as complex as the Swedish one. UI and SI are hardly the only social insurances that interact. Altering the generosity of UI and SI not only alters the use of those insurances, but also implies indirect effects on the use of other insurances. Thus, reforming only some of the insurances but leaving the others unaltered does not necessarily lead to the desired effects. When designing a reform, all insurances should be considered simultaneously.

Finally, general reforms that alter the benefit ceilings for all insured concern a very large number of people, as most workers have a wage above the UI ceiling. Introducing such reforms may thus be politically difficult. Progressive taxes together with benefit ceilings imply that the financial burden of UI and SI already today is relatively much heavier for people with wages above than below the ceiling. Moreover, the average financial burden has gotten heavier during the past years, as wages have increased more than the ceilings. An important condition for a legitimate system is that citizens perceive the financial burden as fair. Thus, a reduction of the SI ceiling would probably be perceived as unfair, and such a reform would be unlikely to appear politically feasible.

The question of legitimacy is, of course, more complex than that. Alarming reports about the misuse of social insurance benefits may undermine the legitimacy of the existing system. If so, some reforms are necessary to prevent a collapse of the citizens' confidence in the long run. Solidarity on the tax payers' side requires solidarity on the beneficiary side.

The system must not only be perceived as legitimate among voters, but also among the implementing authorities. If they do not agree with the rules and regulations, the system may turn out to be entirely different in practice than on paper. The authorities must, of course, be well acquainted with the rules in order to implement them, as well.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

The more complicated the system, the higher the risk of misinterpretation and misuse. Bad implementation may imply a legitimacy problem among citizens, as their confidence in the implementation process collapses. A successful reform concerning UI and SI thus requires that all implementing authorities—employment offices, UI funds, local social insurance offices, the medical profession, and the National Labor Market Board and the National Social Insurance Board at the top—find it fair and support it.

References

- Adolphson, E. (2003), Trygghetsutsikter (Security Outlook), 1-2003, Länsförsäkringar.
- Allen, S.G. (1981), An empirical model of work attendance, *The Review of Economics and Statistics* 71, 77-87.
- Atkinson, A. and Micklewright, J. (1991), Unemployment compensation and labor market transitions: A critical review, *Journal of Economic Literature* XXIX, 1679-1727.
- Barnby, T., Orme, C. and Treble, J. (1991), Worker absenteeism: An analysis using microdata, *Economic Journal* 101, 214-229.
- Barnby, T., Sessions, J. and Treble, J. (1994), Absenteeism, efficiency wages and shirking, *Scandinavian Journal of Economics* 96, 561-566.
- Björklund, A. (1978), On the duration of unemployment in Sweden, *Scandinavian Journal of Economics* 80, 421-439.
- Björklund, A. and Holmlund, B. (1989), Effects of extended unemployment compensation in Sweden, in B. Gustafsson and A. Klevmarken (eds.), *The Political Economy of Social Security*, North-Holland, Amsterdam.
- Broström, G., Johansson, P. and Palme, M. (2002), Economic incentives and gender differences in work absence behavior, Working Paper 2002:14, Institute for Labour Market Policy Evaluation.
- Brown, S. and Sessions, J.G. (1996), The economics of absence: Theory and evidence, *Journal of Economic Surveys* 10, 23-53.
- Burdett, K. (1979), Unemployment insurance as a search subsidy: A theoretical analysis, *Economic Inquiry* 17, 333-343.
- Carling, K., Holmlund, B. and Vejsiu, A. (2001), Do benefit cuts boost job finding? Swedish evidence from the 1990s, *Economic Journal* 111, 766-790.
- Currie, J. and Madrian, B. (1999), Health, health insurance and the labor market, in O. Ashenfelter and D. Card (eds.), *Handbook of Labor Economics*, Volume III, North-Holland, Amsterdam.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

- Edin, P.-A. and Fredriksson, P. (2000), LINDA—Longitudinal INdividual DAta for Sweden, Working Paper 2000:19, Department of Economics, Uppsala University.
- Forslund, A. (1992), Arbetslöshet och arbetsmarknadspolitik (Unemployment and labor market policies), bilaga 7 till Långtidsutredningen 1992, Allmänna Förlaget.
- Fredriksson, P. and Holmlund, B. (2003), Improving incentives in unemployment insurance: A review of recent research, Working Paper 2003:5, Institute for Labour Market Policy Evaluation.
- Fröberg, D. and Persson, K. (2002), Genomförandet av aktivitetsgarantin (Implementation of activity guarantee), Working Paper 2002:2, Institute for Labour Market Policy Evaluation.
- Henrekson, M. and Persson, M. (2004), The effects of sick leave in changes in the sickness insurance system, *Journal of Labor Economics* 22, 87-113.
- Holmlund, B. (1989), Wages and employment in unionized economies: Theory and Evidence, in B. Holmlund, K.-G. Löfgren and L. Engström (eds.), *Trade unions, employment, and unemployment duration*, Oxford University Press, UK.
- Holmlund, B. (1998), Unemployment insurance in theory and practice, *Scandinavian Journal of Economics* 100, 113-141.
- Holmlund, B. and Kolm, A.-S. (1995), Progressive taxation, wage setting, and unemployment: Theory and Swedish evidence, *Swedish Economic Policy Review* 2, 423-460.
- Johansson, P. and Palme, M. (1996), Do economic incentives affect work absence? Empirical evidence using Swedish micro data, *Journal of Public Economics* 14, 161-194.
- Johansson, P. and Palme, M. (2002), Assessing the effect of public policy on worker absenteeism, *Journal of Human Resources* 37, 381-409.
- Johansson, P. and Palme, M. (2003), Påverkar ekonomiska incitament sjukskrivningsbeteendet och deltagandet i arbetskraften? (Do economic incentives affect sickness absence and labor force participation?), in B. Swedenborg (ed.), *Varför är svenskarna så sjuka? (Why are the Swedes so sick?)*, SNS Förlag, Stockholm.
- Krueger, A. and Meyer, B. (2002), Labor supply effects of social insurance, forthcoming in Auerbach, A and M Feldstein (eds.), *Handbook of Public Economics*, Vol 4, North Holland, Amsterdam.
- Larsson, L. (2002), Sick of being unemployed? Interactions between unemployment and sickness insurance in Sweden, Working Paper 2002:6, Institute for Labour Market Policy Evaluation.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

- Lindbeck, A., Molander, P., Persson, T., Petersson, O., Sandmo, A., Swedenborg, B. and Thygesen, N. (1994), *Turning Sweden Around*, MIT Press, Cambridge Massachusetts.
- Lindqvist, R. (1990), *Från folkrörelse till välfärdsbyråkrati. Den svenska sjukförsäkringssystemets utveckling 1900-1990 (From popular movement to welfare bureaucracy. The development of the Swedish sickness insurance system 1900-1990)*, Studentlitteratur, Lund.
- Marklund, S. (1982), *Capitalisms and collective income protection*, Research Report 33, Department of Sociology, University of Umeå.
- Mortensen, D. (1977), *Unemployment insurance and job search decisions*, *Industrial and Labor Relations Review* 30, 505-517.
- Palme, M. and Svensson, I. (2003), *Pathways to retirement and retirement incentives in Sweden*, in T. Andersen and P. Molander (eds.), *Alternatives for Welfare Policy*, Cambridge University Press, Cambridge.
- RFV - Riksförsäkringsverket (2003), *Regionala skillnader i sjukskrivning—hur ser de ut och vad beror de på? (Regional differences in sickness reporting—patterns and causes)*, RFV analyserar 2003:12, The National Social Insurance Board, Stockholm.
- Rothstein, B. (2002), *Vad bör staten göra? (What should the State do?)*, SNS Förlag, Stockholm.
- Taslimi, M. (2003), *Optimal earnings-related unemployment benefits*, Working Paper 2001:6, Department of Economics, Uppsala University.
- SOU 1993:16, *Nya villkor för ekonomi och politik*, Ekonomikommisionens förslag.

Appendix

A.1. Identification of the incentive effect in Larsson (2002)

The strong connection between income and health, as documented in a series of studies, makes it difficult to identify the effect of differing benefit ceilings.³⁷ Higher income is shown to correlate with better health, thereby implying a lower probability of sickness. There are several potential explanations for this. High wage earners may have healthier living habits, or employers may discriminate against individuals with bad health and offer them lower wages. Nevertheless, this positive correlation between wages and health would imply that individuals with previous wages above the UI ceiling have a lower probability of being on SI instead of UI. The incentive effect due to different ceilings, in turn, implies that individuals with previous wages above the UI ceiling have a *higher* probability of being on SI instead of UI. Thus, wages are expected to have two opposite effects on the probability of being on SI.

Larsson (2002) applies non-parametric discrete hazard models to estimate sick report rates and the length of the sick period. The *incentive effect* of wages is separated from the *health effect* by separately estimating the effect of wages on the sick report probability for the three wage categories: previous wage below the UI ceiling (group I), between the UI and SI ceilings (group II), and above the SI ceiling (group III). In groups I and III, a change in wage does not alter the difference between SI and UI benefits, whereas in group II, the difference increases with the wage. The same approach is used to estimate the length of the sick period.

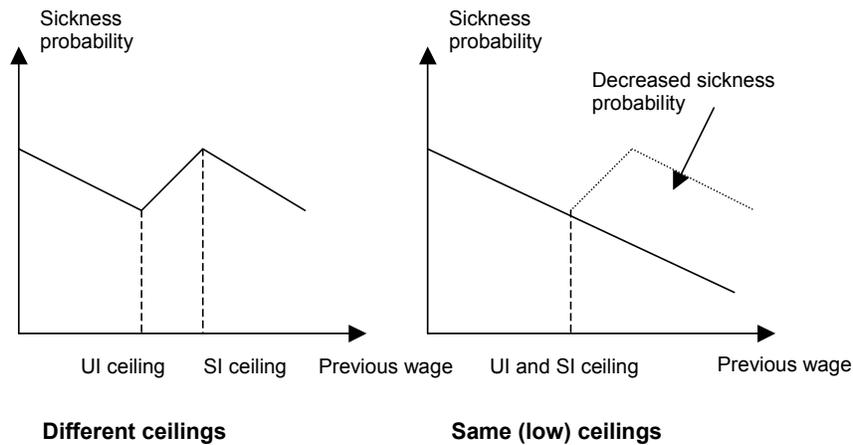
The results show that, in groups I and III, the wage has a significantly negative effect on the hazard rate into sickness, reflecting the health effect. In group II, however, the effect of wage on the hazard rate into sickness is significantly positive. The positive incentive effect is thus strong, since it dominates the negative health effect.

³⁷ For a summary of studies concerning the interplay between health and labor market outcomes, see Currie and Madrian (1999).

A.2. Calculation of the excess sick report rate due to moral hazard

We can derive the incentive effect on the overall probability of reporting sick from the hazard estimates for each time interval. The question is: *How much (less) would the unemployed with wages above the UI ceiling report sick if the SI ceiling were as low as the UI ceiling?* This hypothetical experiment is illustrated in Figure A1.

Figure A.1. How to estimate the cost of moral hazard according to the Larsson (2002) study



First, I use the parameter estimates in Larsson (2002) to estimate the hazard for each individual with a wage above the UI ceiling and each time interval. Low-wage individuals are excluded, since their sick report rate is assumed to remain unaltered. The individual probability of reporting sick within the total time period is obtained from equation A1:

$$P(\textit{sick}) = 1 - \prod_{t=1}^5 (1 - h_t), \quad (\text{A1})$$

where h_t is the estimated individual hazard for time interval t . Aggregating these individual probabilities gives us an estimate of the overall sickness probability *when the ceilings are different*.

HARMONIZING UNEMPLOYMENT AND SICKNESS INSURANCE: WHY (NOT)?, Laura Larsson

Then, I apply exactly the same procedure but use the hypothetical parameter estimates for the wage effect *when the ceilings are the same*. As a result, I obtain an estimate of what the sickness probability would be if the SI ceiling were as low as the UI ceiling. The percentage effect of lowering the SI ceiling is obtained from equation A2:

$$\Delta P(\textit{sick}) = \frac{P_{\textit{same ceilings}} - P_{\textit{different ceilings}}}{P_{\textit{different ceilings}}}. \quad (\text{A2})$$

The result $\Delta P(\textit{sick}) \approx -0.25$ means that, on average, the sick report rate would have been 25 percent lower among the middle- and high-wage unemployed if the SI ceiling were as low as the UI ceiling.