

# Unemployment Insurance in Finland: A Review of Recent Changes and Empirical Evidence on Behavioral Responses

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*Tomi Kyyrö*

*Hanna Pesola*

*Aarne Rissanen*

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Tomi Kyyrä  
Hanna Pesola  
Aarne Rissanen

Tomi Kyyrä, VATT Institute for Economic Research, Helsinki, IZA Bonn,  
email: tomi.kyyra@vatt.

Hanna Pesola, VATT Institute for Economic Research, Helsinki,  
email: hanna.pesola@vatt.

Aarne Rissanen, VATT Institute for Economic Research, Helsinki,  
email: aarne.rissanen@vatt.

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Tomi Kyyrä – Hanna Pesola – Aarne Rissanen

## Abstract

The goal of this report is twofold. The first is to provide an overview of the Finnish unemployment insurance (UI) system. We describe all major changes in eligibility criteria, benefit levels and benefit durations since 2000. We also assess how these have changed the overall generosity of the benefit scheme over time. The second is to summarize what we know about the effects of UI benefits in the context of the Finnish labor market. For background we provide a brief look at the economic theory of UI, but our main focus is on empirical evidence on behavioral responses. We survey the existing evidence and present some new results for the effects of eligibility criteria, benefit levels and benefit durations on labor market outcomes in Finland.

**Keywords:** Unemployment insurance, layoffs, unemployment

**JEL classes:** J21, J63, J64, J65

## Tiivistelmä

Raportilla on kaksi tavoitetta. Ensimmäinen on tarjota kattava kuvaus Suomen ansiosidonnaisesta työttömyysturvasta 2000-luvulla. Dokumentoimme kaikki keskeiset muutokset ansioturvan saantiehtoissa, päivärahojen tasoissa ja päivärahakausien kestoissa. Arvioimme myös näiden muutosten yhteisvaikutuksia ansioturvan anteliaisuuteen. Toinen tavoite on kerätä yksiin kansiin tämänhetkinen tieto ansioturvan käyttäytymisvaikutuksista Suomen työmarkkinoilla. Taustaksi tarjoamme suppean katsauksen työttömyysvakuutusta käsittelevään talusteoreettiseen kirjallisuuteen. Päähuomio on kuitenkin ansioturvan käyttäytymisvaikutuksia koskevissa empiirisissä tuloksissa. Käymme läpi aiemmat suomalaiset tutkimustulokset sekä raportoimme uusia tuloksia siitä, miten työssäoloehdon pituus, ansioturvan taso ja kesto vaikuttavat työttömyyteen sekä työttömyyden jälkeisten työsuhteiden laatuun Suomen työmarkkinoilla.

**Asiasanat:** Työttömyysvakuutus, irtisanomiset, työttömyys

**JEL-luokat:** J21, J63, J64, J65

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Unemployment Insurance in Finland</b>	<b>2</b>
2.1	Current Rules . . . . .	2
2.2	Employment Condition . . . . .	5
2.3	Benefit Level . . . . .	6
2.3.1	Full-Time Benefits . . . . .	6
2.3.2	Partial Benefits . . . . .	11
2.4	Benefit Duration . . . . .	14
2.5	Overall Benefit Generosity . . . . .	15
<b>3</b>	<b>Theoretical Background</b>	<b>22</b>
3.1	Key Issues of UI . . . . .	22
3.2	Incentive Effects in a Job Search Model . . . . .	24
3.3	Other Potential Effects . . . . .	28
3.4	Optimal Design of UI . . . . .	34
3.5	Main Lessons . . . . .	39
<b>4</b>	<b>Evidence on Behavioral Effects</b>	<b>40</b>
4.1	Employment Condition and Unemployment Inflow . . . . .	40
4.2	The Effects of Benefit Level . . . . .	44
4.2.1	Full-Time Benefits . . . . .	44
4.2.2	Partial Benefits and Earnings Disregard . . . . .	49
4.3	The Effects of Benefit Duration . . . . .	52
4.3.1	The Spike at Benefit Exhaustion . . . . .	53
4.3.2	The Effect of Potential Benefit Duration . . . . .	56
4.3.3	Extended Benefits for Older Unemployed . . . . .	70
<b>5</b>	<b>Discussion of 2017 Changes</b>	<b>80</b>
<b>6</b>	<b>Summary</b>	<b>82</b>
<b>A</b>	<b>Data Sources</b>	<b>95</b>

# 1 Introduction

The unemployment insurance (UI) program provides insurance against income losses due to unemployment by paying earnings-related benefits to people who have lost their jobs. The UI benefits do not only help recipients to stay out of poverty but also allow them to search longer for a new job that matches their skills. This way UI benefits may improve the allocation of unemployed job seekers and vacant jobs. These benefits also work as an automatic stabilizer: when unemployment increases, the benefit payments automatically rise, which increases private spending among the unemployed and hence stimulates the economy during recessions. However, UI benefits also distort the incentives to work. Some benefit recipients may therefore search less intensively for a new job or simply wait longer until they take a job they would have accepted earlier without the benefits. In addition UI may also induce layoffs and quits by distorting the behavior of employed workers and their employers. Because of these negative side-effects, generous UI benefits are controversial.

The main difficulty in designing the UI program is to find the right balance between the benefits of the insurance provided and the costs of undesirable behavioral effects. The benefit scheme should be designed so that there is always an incentive to search for a new job rather than passively collect benefits. Indeed, many of the features of the Finnish UI scheme have been designed to mitigate the adverse incentive effects: (i) eligibility is made conditional on a certain amount of insured employment history, (ii) the benefits replace only a fraction of past earnings, (iii) the benefit payments begin only after a waiting period, which is substantially extended for those who voluntarily quit their job, (iv) the benefits can be received only for a limited period of time, and (v) the behavior of benefit recipients is subject to some monitoring, and those who do not comply to the rules take a risk of being exposed to sanctions. All these components have changed over the past 15 years, some of them many times.

This report provides an overview of the Finnish UI scheme. We document main changes in eligibility rules, benefit levels and benefit duration since 2000.<sup>1</sup> We also assess how these changes have affected the overall generosity of the UI scheme over time. Another objective of the report is to summarize empirical evidence on the behavioral effects of UI in the context of the Finnish labor market. We consider the effects of eligibility criteria, benefit levels and maximum benefit duration on unemployment inflow, unemployment duration and post-unemployment outcomes, such as the duration and wage of the next job. We discuss previous empirical work but also present plenty of new empirical evidence. Most of these empirical findings are based on recent and in part still ongoing research conducted at the VATT Institute for Economic Research, which will be published later

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<sup>1</sup>An overview of earlier reforms can be found in Uusitalo (2006).

in separate papers at a more detailed level. Throughout the report our focus is on the evidence obtained from Finnish data. We also discuss findings from other countries but our review of the international evidence is by no means comprehensive or representative. Before presenting the empirical results, we provide a brief look at the economic theory of UI. The aim of this discussion is to put our empirical findings in the right perspective by pointing out several possible effects of UI that are difficult to quantify and ignored in our empirical analysis. We also highlight some features found in the UI systems of other countries that might be adopted in Finland as well.

The report proceeds as follows. Section 2 describes the Finnish UI system and its changes since 2000. Section 3 provides a brief look at the economic theory of UI. Section 4 presents empirical evidence on the behavioral effects of eligibility rules and benefit generosity. This is followed by a section where we discuss the likely effects of the most recent changes in the Finnish UI scheme that came into effect at the beginning of 2017. Section 6 concludes.

## 2 Unemployment Insurance in Finland

### 2.1 Current Rules

To be eligible for unemployment compensation the claimant must register as an unemployed job seeker at the local Employment and Economic Development Office (TE-toimisto), search actively for a full-time job, and be ready and able to start working upon receiving a job offer. It is also required that the unemployed individual makes an activation plan that needs to be approved by a caseworker. This plan may require the benefit recipient to participate in labor market training or other activation measures.

Unemployment funds pay *earnings-related UI benefits* (ansiosidonnainen päiväraha) to their unemployed members who satisfy the *employment condition* (työssäoloehto), i.e. have been working and making membership payments for at least 26 weeks within the last 28 months. Most unemployment funds are administrated by labor unions, but the UI provided is by regulation the same across all of them.<sup>2</sup> Membership in unemployment funds is voluntary, and it is possible to enroll in a union-affiliated unemployment fund without being a member of the union. In 2015, 90% of employed workers were enrolled in unemployment funds and 76% were members of a labor union.

As of January 1, 2017, the maximum duration of UI benefits has been 400 days for

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<sup>2</sup>In most other countries, UI is a compulsory government program. Only in Finland, Sweden and Denmark UI is based on a voluntary system where benefits are paid by the unemployment funds which are mainly administrated by labor unions but subsidized by government. This is known as a “Gent system” because such an arrangement was first introduced in the Belgian town of Gent in 1901. (Holmlund, 1998)

those with at least of three years of work history, and 300 days for those with a shorter work history. Moreover, workers aged 58 or above may be entitled to 500 days, and those aged 61 or above on the day when their regular benefits expire may qualify for *extended UI benefits* (lisäpäivät) until retirement. These benefit extensions for the older groups are conditional on a sufficiently long work history.

The benefits are paid for weekdays, so that there are five payment days a week. As such, the maximum duration of regular UI benefits is 60, 80 or 100 calendar weeks depending on the length of work history and age. Throughout the paper we use the term UI days for actual payment days but the term UI weeks for calendar weeks consisting of five payment days.

There is a waiting period of seven weekdays at the beginning of the unemployment spell before UI benefit payments start. Receipt of the benefits can be divided over several unemployment spells, i.e. an individual who does not fulfill the employment condition at the beginning of the current unemployment spell may be entitled to unused UI days from the previous spell. When a worker becomes employed and fulfills the employment condition again, he or she will be awarded a new period of 300, 400 or 500 UI days, depending on his or her age and length of work history, at the beginning of the next unemployment spell.

The benefit level is determined by the average wage during the period of the insured employment weeks required for eligibility. Unlike in most other countries, there is no cap in the benefit level, but the replacement rate declines rapidly with the past wage rate. Higher benefits are paid for the duration of those active labor market programs (ALMPs) that are specified in the individual-specific activation plan.<sup>3</sup>

Unemployment fund members who exhaust their UI benefits or who do not satisfy the employment condition (and do not have unused UI days from the previous spell) can claim a flat-rate *labor market subsidy* (työmarkkinatuki) paid by the Social Security Institution. It is means tested but available for an indefinite period.<sup>4</sup> The unemployed who are not members of an unemployment fund but satisfy the employment condition are eligible for a flat-rate *basic unemployment allowance* (peruspäiväraha). This benefit is the same amount as the labor market subsidy but is not means tested. It is paid for the same limited period as the UI benefits would have covered. In practice, this benefit type is of minor importance as the vast majority of unemployed workers is either on earnings-related benefits or labor market subsidy. All unemployment benefits are taxable income.

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<sup>3</sup>These programs may include labor market training courses, job search training and career coaching, work and training trials, independent studies approved by employment authorities, and rehabilitative work.

<sup>4</sup>Capital income and certain social security transfers may reduce the amount of labor market subsidy. For those who still live with their parents, also parents' income may reduce the benefit level.



Unemployment benefit recipients may work a limited amount without losing all of their benefits. Earnings up to 300 Euros a month are disregarded when determining UI benefits, and UI recipients who take up a full-time job for less than two weeks or a part-time job may be entitled to *partial UI benefits* (soviteltu päiväraha). These workers are regarded as underemployed or part-time unemployed, and they should continue their search for a full-time job in exchange for the benefits.

Employers can also temporarily lay off workers either for a fixed period or without specifying the length of the layoff period. During a temporary layoff, the worker can receive unemployment benefits provided he or she satisfies the general eligibility conditions. The employer can also reduce the weekly working days or daily working hours for economic reasons, in which case the worker may be eligible for partial UI benefits.

Unemployment benefits are financed by tax revenue, compulsory insurance premiums paid by the employers and employed workers, and by membership fees of unemployment funds. Tax revenues are used to finance the base part of earnings-related UI benefits, which equals the full amount of the labor market subsidy, as well as all the flat-rate benefits. The earnings-related part of UI benefits, i.e. the difference between the UI benefit and labor market subsidy, is financed by the membership fees of unemployment funds and compulsory insurance premiums managed by the Unemployment Insurance Fund.<sup>5</sup>

In 2015, the unemployment funds paid approximately three billion Euros in benefits to their members. 38% of these benefits were financed by tax revenue, 56.5% by compulsory insurance premiums and 5.5% by membership fees. Of the amount funded by premiums, approximately 1.4 billion came from employers' premiums and 300 million from employees' premiums. In 2015 unemployed job seekers not entitled to earnings-related UI benefits were paid in total approximately two billion Euros in flat-rate benefits. These were financed by tax revenue (94%) and employees' premiums to the Unemployment Insurance Fund (6%). (Kela and Financial Supervisory Authority, 2016)

It should be stressed that the voluntariness of the Finnish UI program is somewhat misleading: individuals who opt out of the program by not enrolling in any unemployment fund do not qualify for UI benefits, but they nevertheless do contribute to financing the earning-related part of the UI benefits received by other workers through the compulsory insurance premiums. Non-members avoid paying unemployment fund membership fees but these payments account only for a very small fraction of the overall costs of the UI scheme. In other words, workers can opt out of receiving UI benefits but not out of paying insurance premiums when employed. Due to this asymmetry, e.g. Hiilamo et al. (2015)

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<sup>5</sup>Some exceptions to these principles exist. The base part of extended benefits and benefits during temporary layoffs is financed in total by the Unemployment Insurance Fund (94.5%) and unemployment funds (5.5%). Tax revenue is not used for these. In addition, the Unemployment Insurance Fund does not finance earnings-related benefit payments of entrepreneurs.

and Kotamäki and Mattila (2014) have suggested that universal unemployment insurance should be considered.

Next we describe how the employment condition, benefit levels and benefit durations have changed during the past 15 years. Then we assess how these changes have affected the generosity of the UI system across different groups.

## 2.2 Employment Condition

The current employment condition requires that the claimant has been working and making membership payments to an unemployment fund for at least 26 weeks (“contribution weeks”) within the last 28 months (“review period”) prior to the benefit claim. During each contribution week the claimant must have worked for at least 18 hours and been paid above a certain sector-specific minimum level. The 28-month review period may be extended if the claimant has been outside the labor force for an acceptable reason, such as illness, military service or taking care of a child under three. The review period can be extended up to seven years.

The changes in the eligibility conditions are listed below and illustrated in figure 1.

- In 2003, the employment condition was reduced from 43 to 34 contribution weeks for workers who need to re-qualify for the benefits (technically, this group included all those who had received UI benefits after 1996). At that time the review period was 24 months. For those who need to qualify for the benefits for the first time the condition remained at 43 weeks but the review period was extended by four months from 24 to 28 months for this group.
- In 2010, the change was extended to first time claimants, reducing their employment condition to 34 weeks as well. The review period was extended to 28 months also for past recipients of UI benefits.
- In 2014, the employment condition was reduced to 26 weeks for all unemployed workers.

The eligibility requirements have become more lenient in other respects as well. Namely, the rules regarding to what extent self-employment and subsidized employment are counted in the contribution weeks have been relaxed. Overall the eligibility conditions have been substantially relaxed since 2003. It is worth noting that these conditions have been brought back to the level they were in the early 1990s.

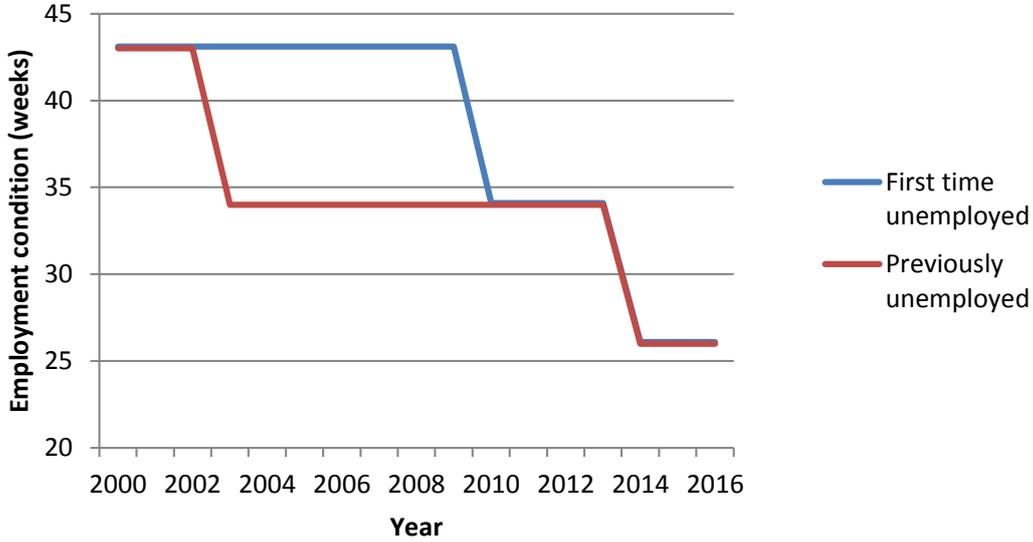


Figure 1: The employment condition during 2000–2016

## 2.3 Benefit Level

### 2.3.1 Full-Time Benefits

The daily benefit without child supplements is determined as

$$Y = \begin{cases} b + (w - b)r_1 & \text{for } w \leq w^* \\ b + (w^* - b)r_1 + (w - w^*)r_2 & \text{for } w > w^*, \end{cases}$$

where  $b$  is the base part,  $w$  is the past daily wage and  $w^*$  is a threshold for the past wage up to which a higher marginal rate of  $r_1 = 0.45$  (versus  $r_2 = 0.2$ ) is applied. The base part is equal to the full labor market subsidy (in 2017, 32.4 Euros a day).<sup>6</sup> The daily wage  $w$  is calculated by dividing the average monthly wage income during the contribution weeks of the employment condition used for determining benefit eligibility by 21.5. The wage threshold is defined as a multiple of the base part as  $w^* = k \cdot b/21.5$ , where  $k = 95$ . The benefit rule results in a piecewise linear relationship between the benefit level and past wage rate with a kink at  $w^*$  (corresponding to the monthly wage of 3078 Euros).

There are two exceptions that increase the benefit level: participation in the labor market training programs that are specified in the individual-specific activation plan, in which case the higher rates of  $r_1 = 0.55$  and  $r_2 = 0.25$  are applied, and having dependent

<sup>6</sup>The labor market subsidy and thus the base part is adjusted yearly based on the Finnish National Pensions Index, with a typical increase being approximately 0.5%.

children (a daily increase of 5–11 Euros based on the number of children).

Since 2000 the parameters of the benefit formula have been adjusted several times. We list these parameter changes in table 1 and illustrate their effects on the benefit level and replacement rates in figures 2–3. Apart from the annual index adjustments in the base part, the following changes have been implemented:

- In 2002, the level of the base part  $b$  was increased by 4% in addition to the normal index-based adjustment. Also the higher marginal rate of  $r_1$  was increased from 0.42 to its current level of 0.45.
- In 2003, workers with at least 20 years of work history who were laid off for economic reasons started receiving increased benefits. The increased rates were  $r_1 = 0.55$  and  $r_2 = 0.325$ , and they were applied for the first 150 payment days. Additionally, in order to make the unemployment benefits more comparable with pension levels, the rate  $r_2$  was also separately increased to 0.325 (while keeping  $r_1$  at 0.45) for the oldest workers receiving extended UI benefits. These increases replaced a previous severance pay system, which was abolished in 2003.
- In 2005, another category of increased benefits was introduced for workers with at least three years of work history who were laid off for economic reasons, and for those whose fixed-term contract ended and who had been employed at the same firm for at least 36 months. Conditional on drafting an activation plan with a caseworker, these workers became eligible for higher benefits at rates  $r_1 = 0.65$  and  $r_2 = 0.375$  for 20 days of self-directed job search and for the duration of active labor market programs specified in the activation plan. The maximum duration for this benefit increase was 185 days. Following this reform the increased benefits could be paid on the basis of a long work history or on the basis of ALMP participation (including 20 days for normal job search after the activation plan was signed).<sup>7</sup>
- In 2010, several changes were made as a part of a major reform. The maximum duration of increased benefits that could be paid during ALMPs was extended to 200 days. Those who fulfilled the requirements regarding previous work history and the cause of unemployment could receive increased benefits during ALMP at rates  $r_1 = 0.65$  and  $r_2 = 0.375$  as before. In addition, increased benefits were also paid during ALMPs to unemployed who did not fill the aforementioned requirements but at lower rates of  $r_1 = 0.575$  and  $r_2 = 0.35$ . The maximum duration for the increase

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<sup>7</sup>As of 2005 it was possible that an unemployed worker would first receive increased benefits based on a long work history for 150 days, and after that also receive increased benefits for participating in labor market programs for 185 days (i.e. the maximum durations would add up to 335 days). However, if the worker was simultaneously entitled to both types of increased rates, then each payment day would count towards both limits.

based on a work history of at least 20 years was reduced to 100 days. At the same time, the wage range covered by the higher rate of  $r_1$  was enlarged ( $w^*$  increased due to an increase of  $k$  from 90 to 105) and the increased rates based on a long work history were increased to  $r_1 = 0.575$  and  $r_2 = 0.35$ . These increased rates were also extended to benefit recipients who had been working for at least three years albeit only for a maximum duration of 20 days. Lastly, the automatic entitlement to increased rates was removed from the recipients of extended benefits (thus undoing the change made in 2003).

- In 2012, the level of the base part  $b$  was increased by approximately 17% on top of the normal index-based adjustment.
- In 2014, the different categories of increased benefits were simplified. Now the increased benefits were paid at the same rates  $r_1 = 0.65$  and  $r_2 = 0.375$  for both ALMP participation (for a maximum duration of 200 days, as before the reform) and long work history (for a maximum duration of 90 days, 10 days less than before). Increased benefits during ALMP participation were paid at the same rate regardless of work history or cause of unemployment. Lastly, the 20-day increase for unemployed workers with shorter work histories was removed.
- In 2015, the wage threshold  $w^*$  was reduced back to 95 times the base part and the rates for increased benefits were dropped to  $r_1 = 0.58$  and  $r_2 = 0.35$ .
- Since the beginning of 2017, increased benefits are only paid to unemployed workers who participate in certain ALMPs, which means that a long work history alone does not qualify a worker for increased benefits anymore. At the same time, the rates for increased benefits were reduced to  $r_1 = 0.55$  and  $r_2 = 0.25$ .

Table 1: Parameters of benefit formula and maximum benefit durations by period

Time period	Regular benefit		Increased benefit for laid off workers with 20+ years of work history		Increased benefit for duration of training periods specified in activation plan		
	$k$	$r_1$	$r_2$	Duration	$r_1$	$r_2$	Duration
2000–2001	90	0.42	0.2	500 days			
2002	90	0.45	0.2	500 days			
2003–2004	90	0.45	0.2	500 days	0.550	0.325	150 days
2005–2009	90	0.45	0.2	500 days	0.550	0.325	150 days
2010–2013	105	0.45	0.2	500/400 days <sup>(a)</sup>	0.575	0.350	100 days <sup>(c)</sup>
2014	105	0.45	0.2	500/400 days <sup>(a)</sup>	0.650	0.375	90 days
2015–2016	95	0.45	0.2	500/400 days <sup>(a)</sup>	0.580	0.350	90 days
2017	95	0.45	0.2	500/400/300 days <sup>(b)</sup>	0.550	0.250	200 days

a) 500 days if work history is at least 3 years, 400 days otherwise.

b) 500 days if at least 58 years old and work history is at least 5 years, 400 days if work history is at least 3 years, 300 days otherwise.

c) The increase was available in the years 2010–2013 also for those with 3 to 19 years of work history but for them only up to 20 days.

d) Until 2009 this increase was conditional on at least 3 years of work history and having been laid off for economic reasons (or termination of a fixed-term contract), and the maximum duration of 185 days also included an increased benefit for 20 days of self-directed job search given that the activation plan was first signed.

e) The higher rates were applied to those with at least 3 years of work history who were laid off for economic reasons (or whose fixed-term contract ended) and the lower rates to all others.

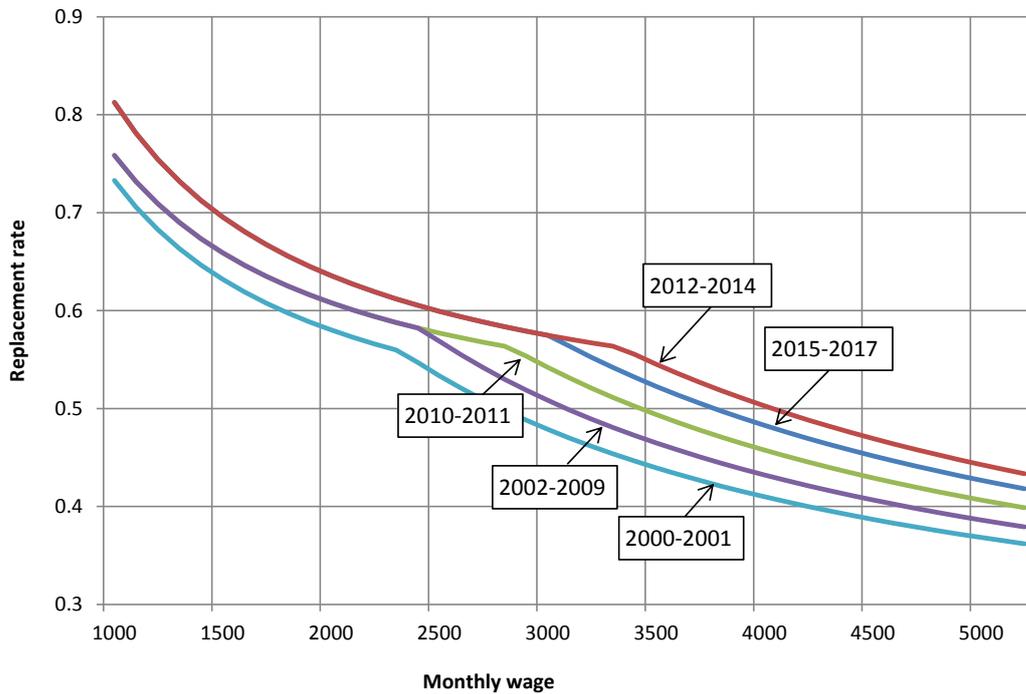
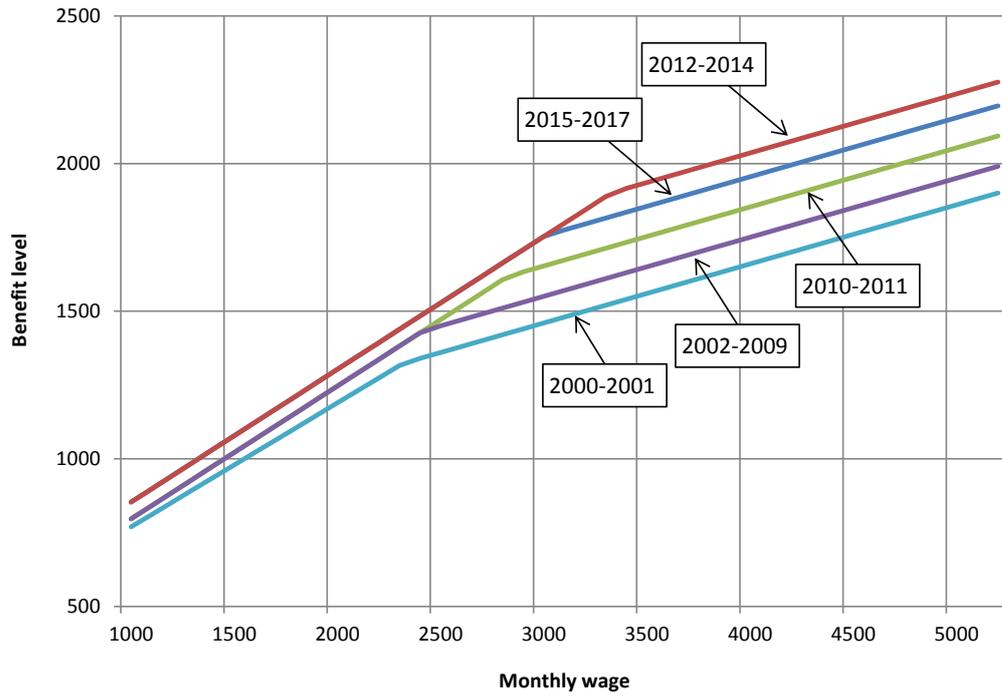


Figure 2: Monthly UI benefits (upper panel) and replacement rates (lower panel) for different past monthly wages during 2000–2017. Each curve represents a period of time between major reforms, and the base part of the benefit has been adjusted with the National Pensions Index (using year 2017 as the baseline).

As seen in the upper panel of figure 2, the 2002 change in  $r_1$  made the benefit profile steeper up to the wage threshold  $w^*$ . The increase in the base part in 2012 raised the UI benefit for all levels of the past wage, i.e. shifted the benefit profile upwards. The changes in the wage threshold in 2010 and 2015 only affected workers with relatively high past wages. Namely the 2010 increase raised benefits of workers with the past wage above the old threshold, whereas the 2015 decline caused a fall in benefit levels for all recipients above the new wage threshold. The corresponding changes in the replacement rates are shown in the lower panel of figure 2. In summary, the benefit levels were generally rising until 2014, with much larger benefit hikes directed to high wage workers. This trend was reversed in 2015 when only the highest benefits were cut.

The effect of increased benefits on the replacement rate over the unemployment spell in different years is illustrated in figure 3. The replacement rate is calculated for a worker whose past monthly wage was 2500 Euros and who is eligible for both types of benefit increases when available. We assume that the worker first receives a higher benefit due to a long work history for the maximum time, after which he or she participates in ALMPs that qualify for a higher benefit for the maximum time. The increase based on a long work history became available in 2003, raising the replacement rates of eligible workers for a maximum of 150 days as shown in the left panel of figure 3. Subsequently in 2005, participation in ALMPs made an unemployed job seeker eligible for increased benefits at a higher rate for 185 days provided the other eligibility criteria described above were also met. The increase in the base part resulted in a general upward shift in the replacement rates in 2012. The benefits based on a long work history and ALMP participation were paid at different rates (the rates for ALMP participation being higher) until 2014, when the rates were set at the same level. 2014 is also the year when the increased benefits were the most generous. After this, the rates were cut in 2015 and 2017, and the work history based increase was removed altogether in 2017, as shown in the right panel of figure 3.

### 2.3.2 Partial Benefits

UI recipients who take up a full-time job for less than two weeks or a part-time job (up to 80% of full-time work hours) may qualify for partial benefits. Since the introduction of the *earnings disregard* (*suojaosa*) in 2014, the level of the partial benefit has been based in the following way on the full benefit the person would otherwise receive: earnings up to 300 Euros a month are disregarded, so a person earning below 300 Euros a month would still receive full benefits. For higher earnings, all income above 300 Euros reduces benefits by 50% of the earned amount. For example, earning 1300 Euros a month would reduce monthly benefits by 500 Euros. In either case, the total amount of benefits and additional income cannot exceed the recipient's pre-unemployment earnings.



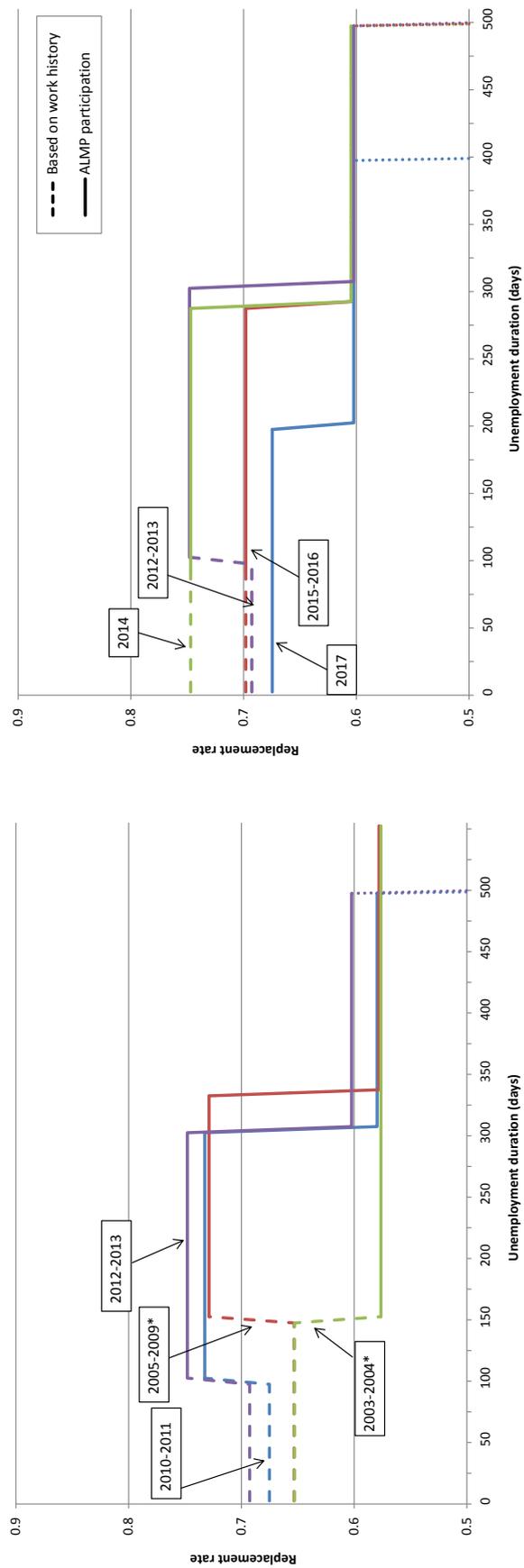


Figure 3: Replacement rates with increased benefits during 2003–2017 (2003–2013 in the left panel, 2012–2017 in the right panel) for a person whose past monthly wage was 2500 Euros and who is eligible for benefit increases due to both a long work history (received first for the maximum period) and ALMP participation (received thereafter for the maximum period). The benefit levels used in calculating the replacement rates have been adjusted using the National Pensions Index to the 2017 level.  
 \*) Before 2010 the training subsidy (equal to the UI benefit) was received during ALMPs, and hence program participation extended the maximum period of earnings-related benefits by the length of the programs.

The days on which partial benefits are paid are not counted as full days towards the maximum benefit duration. Instead, a day on partial benefits counts as a fraction of a day corresponding to the ratio of the partial benefit level to the equivalent full benefit level. For example, for a person receiving partial benefits that are 50% of the full benefits he or she would be entitled to, one day on partial benefits counts as 0.5 days towards the maximum duration.

Another important consideration is that work done while receiving partial benefits also counts towards the employment condition, provided that the weekly working time is at least 18 hours. If the employment condition is fulfilled again while working on partial benefits, the UI benefit level will be recalculated using the more recent wage income. This may result in benefit level dropping after the readjustment, although extreme changes are prevented by a rule which says that the adjusted benefit level must be at least 80% of the old level.

Since 1997, there have only been relatively minor adjustments in the partial benefits:<sup>8</sup>

- In 2003, the maximum length of a temporary full-time job qualifying for partial benefits was reduced from four weeks to the current two weeks.
- In 2012, the maximum working hours limit for a part-time job was increased to the current 80% of full-time hours from the previous 75%. In particular, this made employees who are working on a reduced four-day week eligible for partial benefits.
- In 2014, the earnings disregard for income below 300 Euros a month was introduced (previously all earnings affected the benefit level). Additionally, the maximum combined amount of partial benefits and wage income was increased to 100% of the pre-unemployment wage level (previously 90%).

Overall income for the part-time unemployed consisting of partial benefits and wage income is illustrated for different pre-unemployment wages and wage incomes while part-time unemployed (as a percentage of the pre-unemployment monthly wage) before and after the 2014 reform in figure 4. The introduction of the earnings disregard increased the benefit level for all partial benefit claimants whose total income was not already capped by the maximum limit, shifting benefit levels and replacement rates upwards compared to the purple baseline curve. The resulting change in the replacement rate was approximately 0.1 or slightly less for most wage levels. For example, the replacement rate for a person who used to earn 2500 Euros a month and now got 50% of that increased from 0.855 to 0.945. The increase in the maximum total income cap from 90% to 100% of the claimant's previous wage also had a notable effect on benefit levels and replacement

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<sup>8</sup>A description of the earlier history can be found in Haataja (2007).

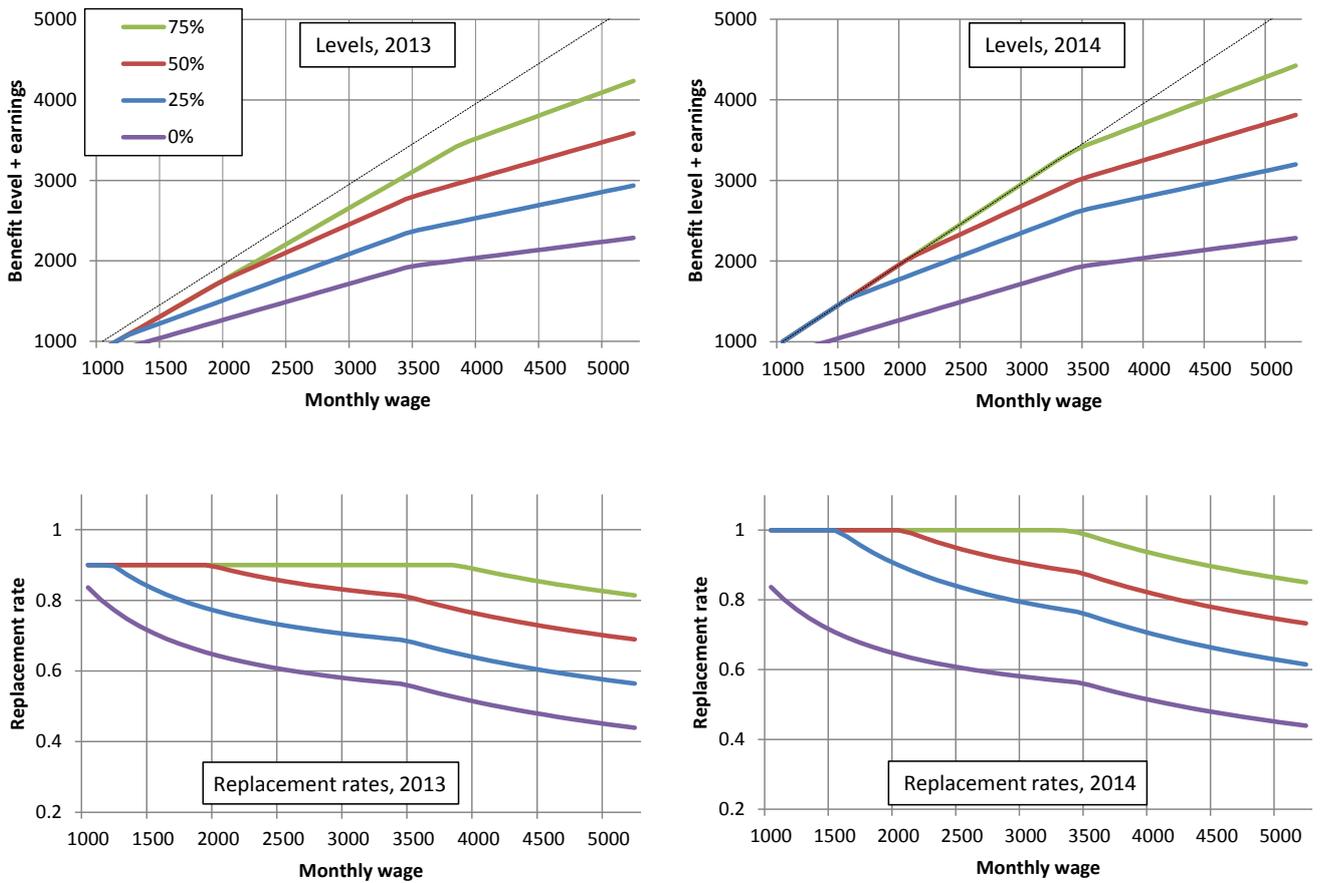


Figure 4: Income levels and replacement rates before and after the 2014 reform for a part-time unemployed person who is eligible for partial UI benefits, and whose current wage is either 25%, 50%, or 75% of his or her previous wage. The benefit formulas have been adjusted to 2017 prices using the National Pensions Index.

rates. This can be seen in figure 4, which shows in the bottom left panel that the 90% cap is binding for a relatively large range of wage levels. This is especially true for workers with a relatively high wage during part-time unemployment (75% of their previous wage, illustrated by the green lines in the figures), for whom the cap was binding for wages up to 3800 Euros under the 2013 rules.

## 2.4 Benefit Duration

There have been only a few major changes related to benefit duration in the period 2000–2017:

- In 2010, a specific training subsidy (koulutustuki) that was paid for the duration of labor market programs was abolished. Since this reform, the program participants have been receiving UI benefits and thereby the days spent in labor market training

started counting towards the duration limit. Previously, participation in ALMPs postponed the day of the UI benefit exhaustion by the length of the program period. As there was no upper limit for days spent in labor market training, it used to be technically possible for an unemployed person to receive benefits indefinitely by participating repeatedly in different training programs. In the same reform, another training subsidy (koulutuspäiväraha) was abolished. This subsidy allowed workers with at least ten years of work history to participate in more extensive vocational training for up to 500 days. Eligible workers could receive this subsidy and regular UI benefits up to a maximum of 565 days (113 weeks).

- In 2014, the maximum duration of earnings-related UI benefits was reduced from 500 to 400 days (from 100 to 80 weeks) for workers with a work history shorter than three years. These workers were, however, entitled to a benefit payment equal to the basic unemployment allowance for an additional 100 days after the 400 days of earnings-related UI benefits.
- At the beginning of 2017, the maximum benefit durations were reduced to 400 days (80 weeks) for most workers and to 300 days (60 weeks) for workers with a work history shorter than three years. Workers aged 58 or above with at least five years of work history in the last twenty years were exempt from this change, so that the maximum benefit duration for them remained at 500 days (100 weeks).

The oldest UI recipients can receive benefits until retirement. Namely, workers who are at least 61 years old (and have been working for at least five years in the last twenty years) when they reach their 500-day benefit limit qualify for extended benefits which can be received until entitlement to an old-age pension begins. As the age is checked only on the day when the regular benefits expire, the rule generally applies to people who become unemployed at the age of 59 (and 1 month) or later. The age limit at which the UI benefit payments can be extended until retirement has increased gradually from 57 to 59 years in 2005 (affecting workers born in or after 1950), to 60 years in 2012 (born in or after 1955), and to the current 61 years in 2015 (born in or after 1957). Long-term unemployed workers born before 1950 have also been entitled to an unemployment pension from age 60. This benefit was abolished in 2005 but only from later cohorts. The combination of regular and extended UI benefits is known as the “unemployment tunnel” (UT) scheme. The changes in the age limit of this scheme are summarized in figure 5.

## 2.5 Overall Benefit Generosity

We reported benefit levels and replacement rates for various levels of past earnings above. What the actual benefits and replacements rates are depend on the distribution of past

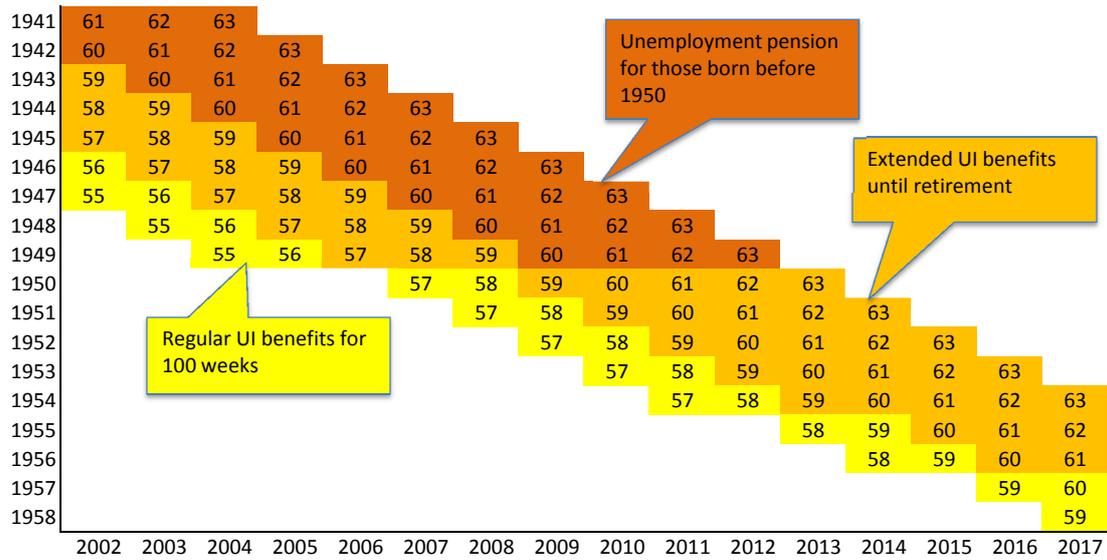


Figure 5: Eligibility for extended UI benefits and unemployment pension by cohort and year

earnings among the UI recipients. The benefits also depend on the number of children, receipt of some other benefits which reduce UI benefits, and prevalence of part-time working. To illustrate the distribution of realized replacement rates figure 6 displays kernel density estimates of replacement rates of UI benefits in 2003, 2008 and 2013.

The data used are from the Insurance Supervisory Authority (FIVA) and include earnings-related unemployment benefits (see the appendix on data sources).<sup>9</sup> The replacement rates are calculated for unemployment spells at the end of September each year. Some of the replacement rates are very low considering the benefit schedule. This is partly due to the fact that other benefits such as home care allowance when taking care of children as well as partial disability pension can lower the UI benefit an unemployed worker is entitled to. In addition, the partial unemployment benefits described above will be lower than the full benefit amount for a given wage (when excluding the wage from the part-time or temporary job).

In general, the daily benefit cannot exceed 90% of the underlying daily wage which restricts the benefit amount at low levels of earnings and shows up as a bump at the 90% replacement rate in the kernel density estimates. Replacement rates above 90% are possible for those who are entitled to increased benefits based on a long work history and other criteria detailed above. Replacement rates around 60% are the most prevalent

<sup>9</sup>Job alternation compensation is excluded from figure 6. Job alternation compensation can be claimed by an employee for the duration of job alternation leave (vuorotteluvapaa) if his or her employer employs an unemployed job seeker for the duration of the leave.

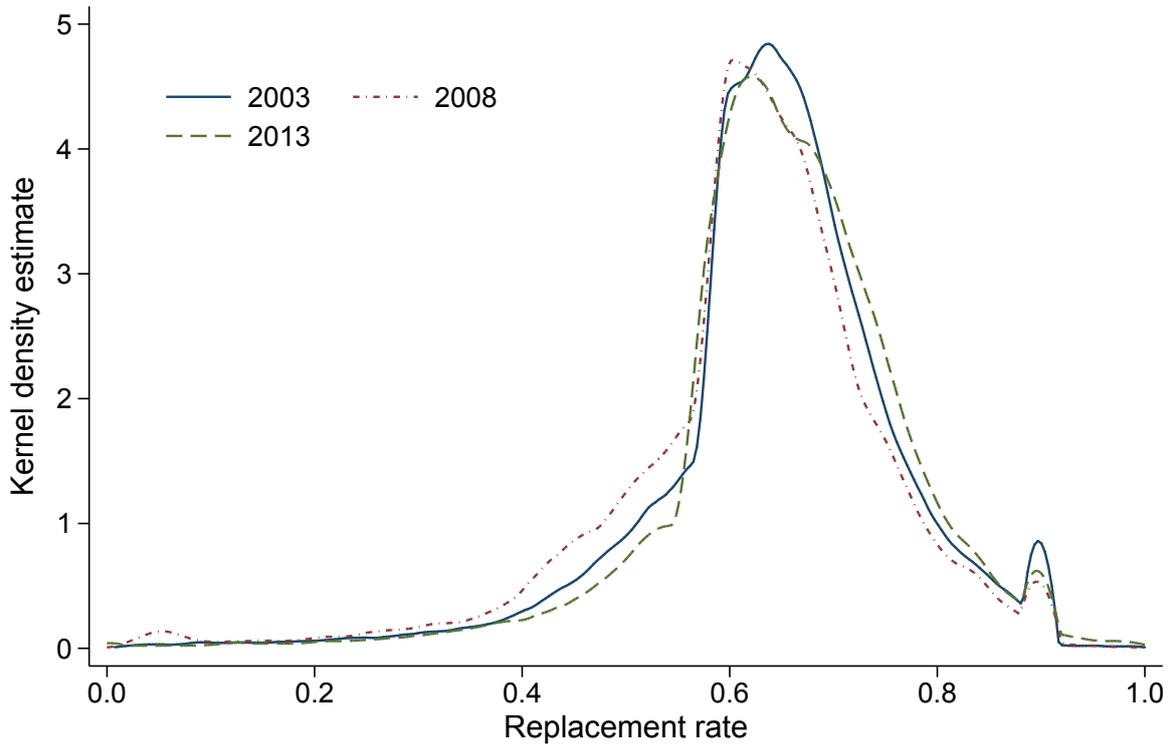


Figure 6: Kernel density estimates of replacement rates

in all three years. The increase in mass for replacement rates between 40% and 60% in 2008 compared to the 2003 situation is due to differences in the distribution of previous wages of unemployed job seekers between the two years. In 2008 a much larger share of unemployed had previous wages above the wage threshold  $w^*$ , i.e. a larger share had UI benefits calculated based on the lower rate  $r_1$  as described in section 2.3. In 2010 the wage threshold was increased, which led to a decrease in the share of unemployed with wages above the threshold. This shows up as a decreased mass at replacement rates below 60% in 2013 compared to the situation in 2008.

The changes in the unemployment insurance system described above have led to both increases and decreases in the generosity of the system over the years. As discussed in the previous sections, the changes have also affected job seekers differently based on their work history, age and past wage level. In order to better assess how the generosity of the system has changed overall, we use a reference population to calculate the average maximum benefit amount available using the benefit rules in effect in years 2000 to 2017.

We use data on unemployment spells in 2009 for employees who started their spell in full-time unemployment receiving either UI benefits or labor market subsidy.<sup>10</sup> Additionally we require that the previous job lasted no less than four weeks and ended within

<sup>10</sup>See the appendix for data sources.

four weeks prior to the benefit claim (this eliminates voluntary quits). We also limit the data to individuals who were in the labor force for at least 90% of the time during the last 28 months without being self-employed or hired with a wage subsidy and who were a member of an unemployment fund for at least 28 months. These restrictions are imposed in order to improve the accuracy of our measure of contribution weeks for the employment condition.

Figure 7 displays the average of the maximum available UI benefits for our reference population. The maximum duration is calculated assuming full take up of training benefits, which extended the duration to 565 days for job seekers with at least ten years of work history prior to 2010. In addition, the separate training subsidy which was available prior to 2010 is assumed to extend the duration with the average of training subsidy days in the whole population, i.e. 2.9 days.<sup>11</sup> For unemployed close to retirement, extended benefits are assumed to be claimed until age 63 with the eligibility to extended benefits changing during our observation period. The level of benefits is calculated assuming also full take-up of increased benefits based on a long work history and participation in labor market programs. The duration of increased benefits due to ALMP participation is assumed to be the maximum available duration. The fulfillment of the employment condition is calculated using contribution weeks. For those who do not fulfill the employment condition but have unused UI benefit days from a previous spell, the duration is adjusted to match the share of unused days. As we are focusing on earnings-related UI benefits, we set the benefit level to 0 for those who do not fulfill the employment condition and do not have unused UI benefit days left from the previous spell, and for those who have already received earnings-related UI benefits for the maximum duration during the current spell.

Figure 7 shows that the UI benefit system became more generous on average between 2000 and 2014 and since then the average maximum benefit amount has been decreasing. In 2017 the average of the maximum available UI benefits is back at its year 2000 level. The largest increase in the average maximum benefit amount during this period took place in 2003 when the employment condition was relaxed and unemployed workers with long work histories became entitled to increased benefits. This raised the averaged maximum benefit amount by 17%. It should be noted that the severance pay system that was in effect prior to 2003 is not included in the calculations. There was a notable increase also in 2014 when the marginal rate for increased benefits was raised and the employment condition was further relaxed. Between 2014 and 2017 the average maximum benefit amount has decreased by 25% due to reductions in benefit duration and an increase in the age limit of extended benefits.

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<sup>11</sup>5.5% of the spells in our sample include days on training subsidy and conditional on receiving training subsidy the average number of training subsidy days is 52.

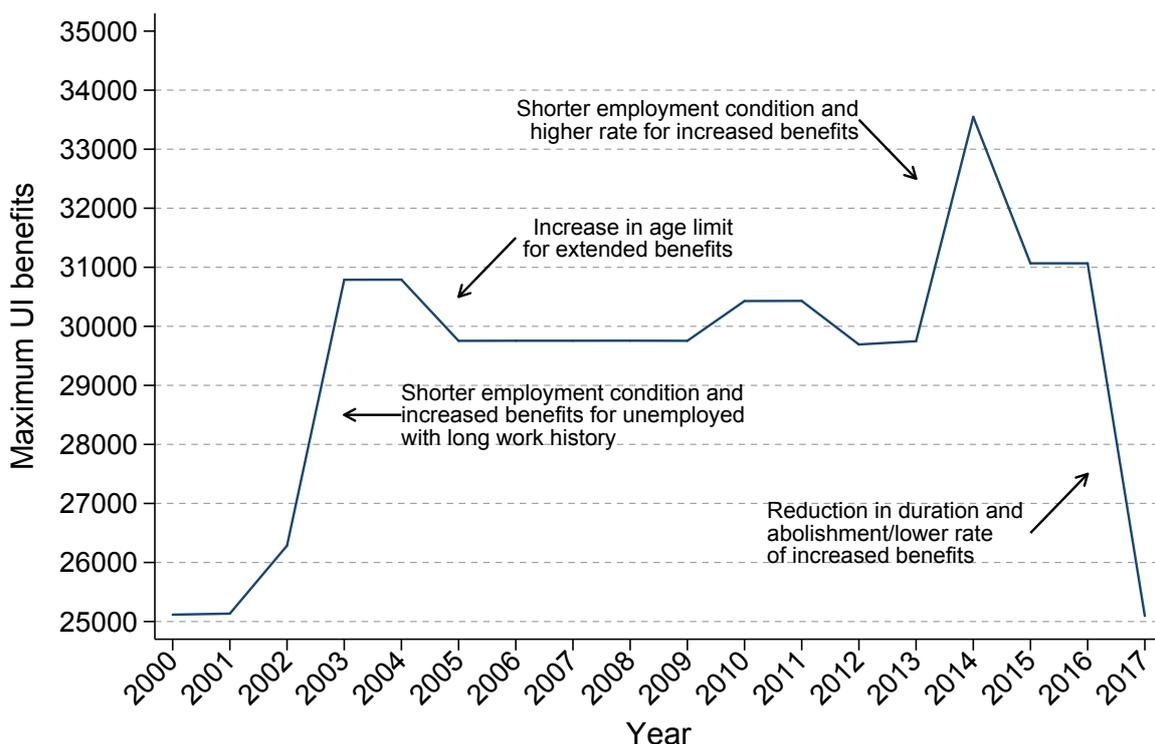


Figure 7: Average maximum UI benefit amounts by year

We examine these changes in more detail in figure 8 which shows the average of the maximum available UI benefits calculated separately for unemployed with less than 3, 3 to 19 and 20 or over years of work history. The changes to the employment condition, benefit level and benefit duration are presented in separate graphs and then combined to illustrate the overall changes. The changes in the employment condition and the benefit level have contributed to increasing the average maximum benefit amounts whereas the changes in the UI benefit duration have had a negative impact.

The top left graph in figure 8 displays the impact of the employment condition holding the UI benefit level and duration constant at their year 2000 levels. In 2000 the differences in the average maximum benefit amounts between the groups with different amounts of work history were due to differences in the wages used for calculating the earnings-related benefits and differences in the shares of employees who fulfilled the employment condition and those who were entitled to extended benefits. The reduction in 2003 of the employment condition for unemployed workers who had received unemployment benefits in the past shows up clearly in the figure. The increase in the share of unemployed who qualify for earnings-related UI benefits increases the average maximum benefit amount. The 2010 reduction in the employment condition of first time benefit claimants hardly shows up in the figure, as our sample includes very few first time unemployed with 34 to



43 contribution weeks. However, the 2014 reduction of the employment condition for all unemployed increases the maximum benefit amount notably in all three groups.

The top right graph in figure 8 shows the impact of changes in the UI benefit level holding the employment condition and benefit duration constant at year 2000 levels. The first change is apparent in 2002, when the base part was increased and the marginal rate for lower wages increased from 0.42 to 0.45, thereby increasing the average maximum benefit amounts in all groups. In 2003 unemployed workers with long work histories became eligible for increased benefits at the beginning of their unemployment spell and for the duration of extended benefits after their regular benefits were expired. As mentioned above, the calculations do not take into account the availability of severance pay prior to 2003. However, as seen from the decomposition of the 2003 rise in the average maximum benefit level, the bulk of the increase is explained by the more lenient employment condition. In 2005 those with at least three years of work history became eligible for increased benefits for the duration of ALMPs. Both the 2003 and 2005 increases show up as a rise in the average benefit amount for the relevant group.

In 2010 there were increases in benefit levels in all groups as those with less than three years of work history became eligible for increased benefits at the beginning of their unemployment spell, the increase for over 20 years of work history was raised slightly and all workers participating in ALMPs or studies (if agreed with their case worker) became eligible for an increase for 200 days. The increase that was paid on top of regular UI benefits to those receiving extended benefits was abolished in 2010. The 2012 increase in the base part shows up as a jump in the average maximum benefit amount in all groups. In 2014 the marginal rate of increased benefits based on a long work history and during ALMPs was increased before being reduced again in 2015. These changes are visible as slight upward and downward shifts in the average maximum benefit amounts. The last decreases in the levels of average maximum benefits in 2017 are due to the abolition of the benefit increase for those with a long work history and the decrease in the marginal rate for increased benefits during ALMPs.

The bottom left graph in figure 8 displays the impact of changes in the UI benefit duration holding the employment condition and UI benefit level constant at the year 2000 levels. For those with less than 20 years of work history the first change is the removal of the training subsidy in 2010, which effectively reduced the maximum duration of earnings-related unemployment benefits. Also the reductions in benefit duration by 100 days for those with less than three years of work history in 2014 and for all groups in 2017 decrease the average maximum benefit amount. For the group with 20 or more years of work history, the benefit duration and hence also the average maximum benefit amount starts decreasing in 2005 due to increases in the age limits for extended benefits.

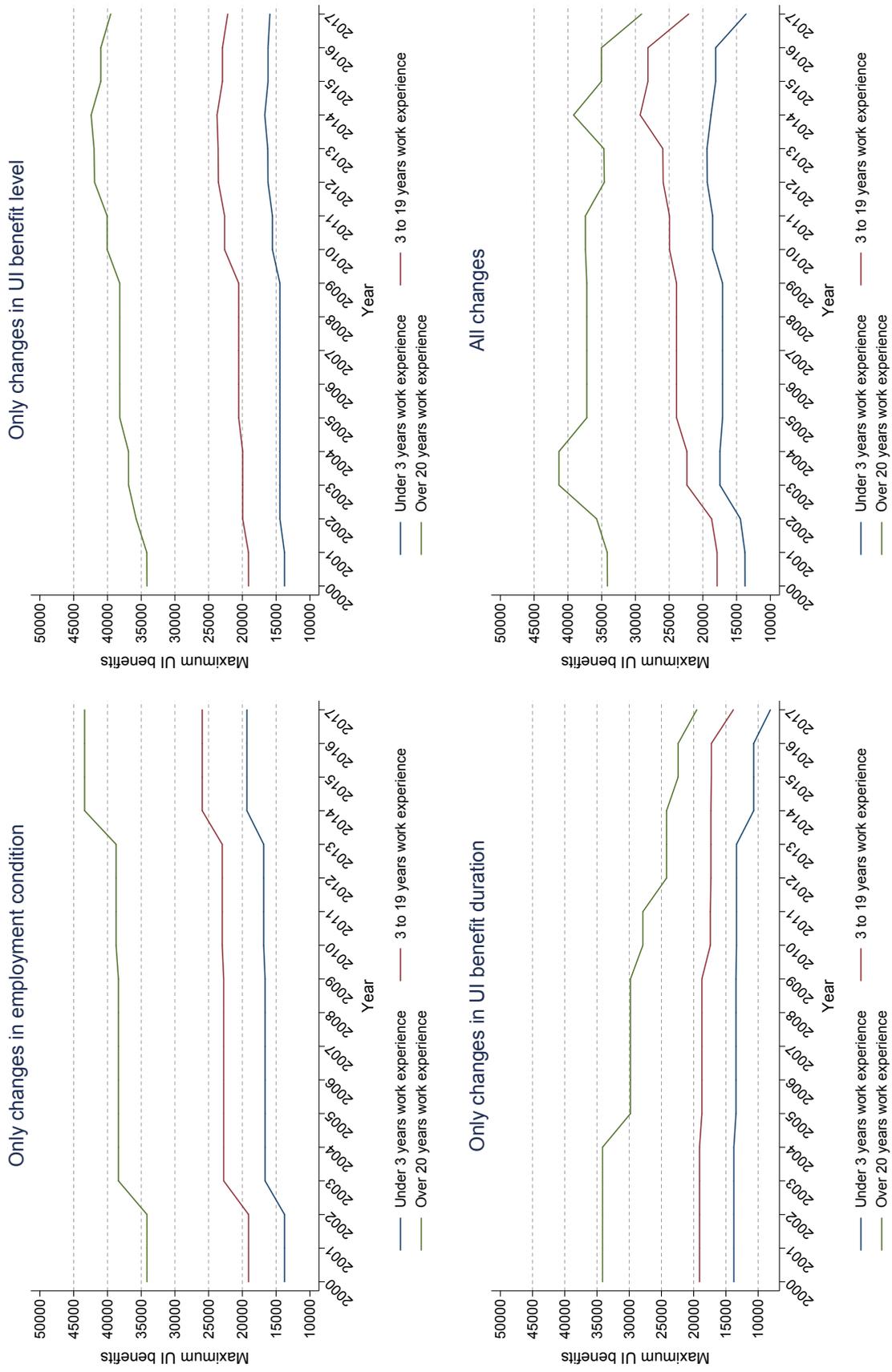


Figure 8: Components of changes in maximum UI benefit amounts by year

The bottom right graph in figure 8 illustrates the combined impact of the changes in the different elements of the UI system on the average maximum benefit amounts. Comparing the situation in 2000 to 2017, the negative impact of decreases in the benefit duration undoes the positive impact of changes in the employment condition and benefit levels for the group with less than three years of work history leaving their average maximum available benefit almost unchanged. For those with 3 to 19 years of work history, the positive impact of the changes in the employment condition and benefit levels dominate and the average maximum benefit amount remains over 20% higher than in 2000 despite the sharp decrease due to the reduction in benefit duration in 2017. Unemployed workers with 20 or over years of work history have, however, experienced a 15% decrease in the average maximum benefit amount primarily due to the changes in the age limits of extended benefits.

The averages in figure 8 conceal the fact that within each group with different work history, there are both winners and losers in terms of maximum available UI benefit amounts. Unemployed workers who were not entitled to earnings-related UI benefits in 2000 but are eligible for them in 2017 due to the more lenient employment condition, have all gained compared to the situation in 2000. This raises the averages in each group. The majority of those who were eligible for earnings-related UI already in 2000 are entitled to less UI benefits in 2017. The biggest losers in terms of maximum available UI benefits are older unemployed who are no longer entitled to extended benefits due to increases in the age limits.

### 3 Theoretical Background

This section provides a brief look at the economic theory of UI along with some references of relevant empirical findings. Our discussion relies heavily on reviews by Holmlund (1998; 2015), Fredriksson and Holmlund (2006), Tatsiramos and van Ours (2014), Gruber (2011), Chetty and Finkelstein (2013) and Schmieder et al. (2016).

#### 3.1 Key Issues of UI

In economics a widely accepted idea is that individuals prefer a stable path of consumption. Thus, when income is affected by transitory shocks, like unemployment, workers desire *consumption smoothing*. In other words, workers are willing give up some part of their consumption when employed for an increase in consumption when out of work. To some extent workers may be able to smooth their consumption over unemployment and employment spells by using savings and borrowing. This is called “self-insurance”. In practice, self-insurance is likely to be inefficient and incomplete for a variety of reasons.

First, an important limitation is that credit markets are imperfect in the sense that it is difficult or impossible for unemployed workers to borrow against future wage income to be spent on consumption over long periods of unemployment. Second, layoffs are difficult to forecast and the duration of unemployment spells is not known in advance. Because of this uncertainty, individuals would probably save either too much or too little to cover the costs of future layoffs, depending on how often they lose their jobs and how long their unemployment spells last. Third, unemployment can result in large income losses especially during recessions. At least for low-income families it would be difficult to accumulate sufficient amounts of savings to cover such losses even if the timing and length of unemployment spells were known in advance. For all these reasons workers' possibilities to self-insure against unemployment are rather limited.

The fact that unemployed workers cannot freely borrow against future wage income is a *market failure*. As a result, many unemployed with no savings are "liquidity constrained" and hence at risk of experiencing a large drop in consumption which would lead to a large welfare loss. In the presence of perfect credit markets, individuals would be able to perfectly smooth their consumption over unemployment and employment spells, in which case there would be less need for unemployment insurance.<sup>12</sup>

The UI program is a form of social insurance that pools risk across different individuals and provides insurance against income losses due to involuntary job separations. To some extent the UI program just crowds out self-insurance because workers save less to offset the negative income effect of job losses when they are insured against such events. However, to the extent the UI program provides *extra* consumption smoothing that would not have been possible without the unemployment benefits it enhances efficiency and increases welfare.<sup>13</sup>

Unemployment benefits enable workers to maintain their consumption at a reasonable level during a period of financial difficulty. As such, the benefits allow unemployed workers to stay out of work longer and search for a suitable job. This leads to longer spells of unemployment, but that is not necessarily a bad thing. It takes some time for an

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<sup>12</sup>The need for government intervention in providing UI is a distinct question. In principle, workers could buy UI plans from the private insurance markets. However, there are reasons why private UI would be problematic in practice. Perhaps the most important one is asymmetric information: workers know more about their unemployment risk than the insurer. This would lead to the problem of adverse selection and under insurance in some worker groups, yet another type of private market failure. Another problem is that unemployment risks are highly correlated over time. It follows that private insurers might go into bankruptcy during recessions when a lot of workers are laid off at the same time. Other arguments for public UI include redistribution (the government wishes to tax workers with a low unemployment risk in order to subsidize high-risk workers) and paternalism (the government may want force workers to take a sufficient insurance for their own good). See Gruber (2011) and Chetty and Finkelstein (2013) for a more detailed discussion on the motivations for public UI.

<sup>13</sup>Gruber (1997), Browning and Crossley (2001) and Bentolila and Ichino (2008) provide empirical evidence on the effect of UI on consumption smoothing.

unemployed worker to find a vacant job that fully utilizes his or her skills. In such a job the worker is more productive and earns a higher wage than in some less appropriate job. Also society gains from a higher output from the worker's effort. Thus longer unemployment spells are not necessarily undesirable if they lead to better matches between job seekers and vacant jobs. However, UI benefits also indirectly subsidize leisure, distorting the incentive to work and thus inducing *moral hazard*.<sup>14</sup> Benefit recipients may therefore search less intensively for a new job than they would without such benefits. The UI system can also induce layoffs and quits by distorting the behavior of employed workers and their employers. All in all, a more generous UI program is likely to increase the unemployment inflow and reduce the unemployment outflow, leading to higher unemployment.

If adverse behavior of workers and employers could be directly observed, it might be possible to eliminate the moral hazard problems by means of monitoring and sanctions, and provide full insurance against income losses due to unemployment. Since comprehensive monitoring is not feasible in practice, the UI programs provide only partial insurance. In designing the UI system the policy makers must strike a balance between the welfare gains of the insurance provided and the costs of adverse incentive effects on labor supply and demand.

In the next section we discuss the incentive effects of UI benefits using a stylized job search model. This model makes predictions on how changes in the benefit level and maximum benefit duration affect the re-employment probability over the course of the unemployment spell. Then we discuss various departures from this simplified framework which are relevant for understanding the effects of UI in a wider context as well as for interpreting our subsequent empirical findings. Finally, we briefly discuss the literature on the optimal design of UI which aims to determine the optimal level of benefit generosity and how the UI scheme should be structured.

### 3.2 Incentive Effects in a Job Search Model

In the economic literature, unemployment insurance is commonly analyzed by using various job search models. These models have shed light on how UI benefits can affect unemployment duration through the search effort and reservation wage. The seminal contribution of this literature is Mortensen (1977) who incorporated some key institutional features of UI that are also found in the Finnish scheme into the analysis of the incentive effects. In his model, only workers who are laid off qualify for UI, and the benefits can be received only for a limited period of time. These assumptions correspond to

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<sup>14</sup>The UI program also leads to higher labor taxes (i.e. insurance premiums paid by firms and workers) that are needed to finance the benefits to the unemployed. The higher tax rate further contributes to the disincentive to work.

a one-day employment condition and an infinite waiting period for those who quit their job voluntary.

Workers cannot save, nor borrow. When employed the worker faces an exogenous risk of being laid off. When unemployed the worker chooses optimal search effort and samples job offers from some known distribution. The unemployment spell ends when the worker receives an offer that exceeds a given reservation wage. The job finding rate — the probability of re-employment at a given point in the unemployment spell conditional on being unemployed until that point — increases with search effort (as the arrival rate of job offers increases) and decreases with the reservation wage (as the probability that a received offer is acceptable declines).

When the benefit recipient takes up a new job, the benefit payments are terminated. The expected amount of foregone benefit payments is the larger, the longer the remaining benefit entitlement at the time of re-employment is. A consequence is that the value of continued search as unemployed in comparison to that of re-employment decreases over the course of the compensated part of the unemployment spell. It follows that at the beginning of the unemployment spell the worker searches with a relatively low intensity and accepts only relatively high wage offers. As the worker approaches the date when the benefits will expire, the search effort increases and the reservation wage decreases. After the exhaustion of the benefits, the worker faces a stationary environment, and hence the search effort and reservation wage do not change anymore. The job finding rate therefore increases up to the point of benefit exhaustion and remains constant thereafter, as shown in figure 9.<sup>15</sup>

An important institutional feature in the model is that only laid off workers are eligible for UI. All workers, irrespective of their current employment status, know that with a positive probability they will be laid off in the future in which case they will qualify for UI benefits. This implies that more generous benefits do not only increase the value of unemployment for current benefit recipients but also the value of being unemployed in the future and hence the value of obtaining a job. While the former effect increases the incentive to remain unemployed for current benefit recipients, the latter — the *entitlement effect* — makes re-employment more attractive for all unemployed, including those who are not currently eligible for the benefits. The entitlement effect is the only effect affecting the non-recipients. The UI recipients are affected by both effects, which work in opposite

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<sup>15</sup>Krueger and Mueller (2010) analyze time use survey data from the U.S. and find that the time spent in job search increases prior to benefit exhaustion among UI recipients. They also find that UI recipients search less actively in the U.S. states with more generous benefits. While these findings are consistent with the predictions of the Mortensen's search model, the finding that the search effort declines after the benefit exhaustion rather than remains constant is not. The last finding is, however, in accordance with a common observation that the job finding rate often exhibits a spike around the time of benefit exhaustion. We return to this issues in section 4.3.

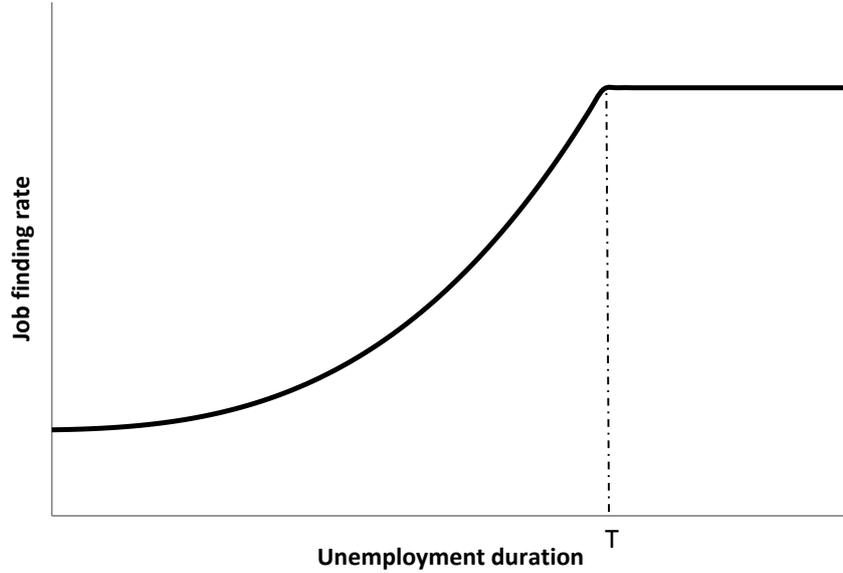


Figure 9: Job finding rate at different stages of unemployment. The expiration of UI benefits is marked by the point  $T$ .

directions, but the entitlement effect dominates close to the benefit exhaustion.

Because of the entitlement effect, the effect of an improvement in benefit generosity on the job finding rate changes its sign from negative to positive over the course of the unemployment spell. The effect of an increase in the benefit level is largest at the beginning of the unemployment, leading to a steeper job finding rate over the compensated part of the unemployment spell (the left panel in figure 10). The effect of an increase in the maximum benefit duration is largest at the previous point of the benefit exhaustion (the right panel in figure 10). In both cases the new job finding rate after benefit expiration is higher due to the entitlement effect, as getting re-employed and fulfilling the employment condition for the next unemployment spell has become more valuable.

The expected duration of an unemployment spell is a function of the job finding rate. Because of the entitlement effect, the effect of an improvement in benefit generosity on the expected unemployment duration is theoretically ambiguous. In practice, the disincentive effect is likely to be much stronger than the entitlement effect, which is the second-order effect, reflecting the gains of fulfilling the employment condition for the next unemployment spell. As such, higher benefits and longer maximum benefit duration are expected to lead to longer spells of unemployment in a sample of new UI benefit recipients. This claim is supported by a large body of empirical evidence. We discuss this evidence and present some new results for Finland in sections 4.2 and 4.3.

It should be stressed that the effect of any change in benefit generosity on the unem-

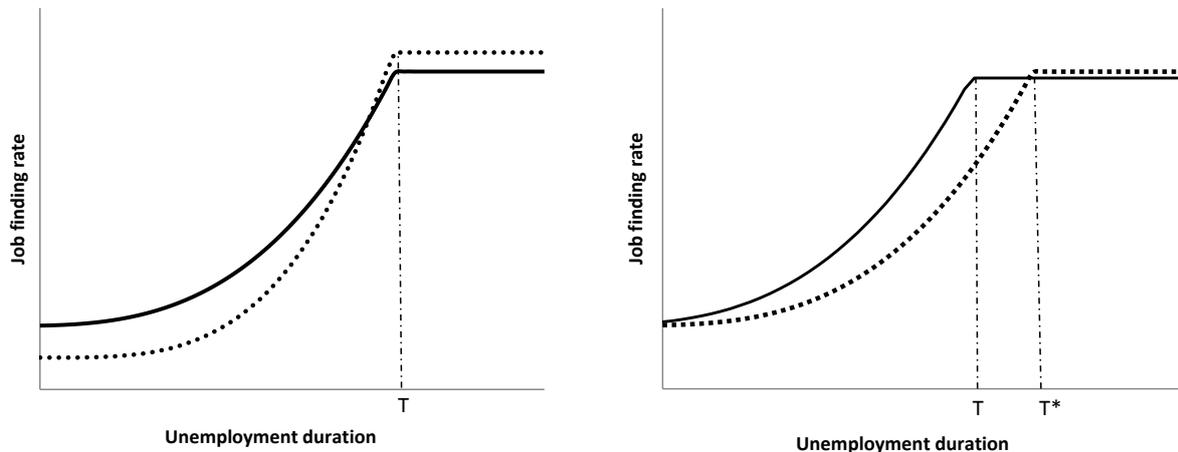


Figure 10: Incentive effects of an increase in the benefit level (the left panel) and an increase in the maximum benefit duration from  $T$  to  $T^*$  (the right panel). The dashed line is the job finding hazard after the change.

employment duration of new UI recipients is associated with an opposite effect on the unemployment duration of ineligible workers, such as labor market entrants and those whose benefits have already expired. By implication, the overall negative effect of UI benefits on the average unemployment duration is smaller than its effect on the duration of new UI spells.<sup>16</sup>

This simple model also provides some insights about the relative magnitude of the effects of the benefit level and benefit duration changes. If the average duration of UI spells is short compared to the maximum benefit duration, a change in the maximum benefit duration may have a relatively small impact on the average unemployment duration. This is because the effect of the benefit duration change is largest at the original point of the benefit exhaustion and by that time most of the unemployed have already left unemployment. This may be a relevant point when we consider the likely effect of the 2017 reduction in the maximum benefit duration because the maximum benefit duration is rather long in Finland and because most of the unemployment spells of UI recipients are quite short. Unlike in the case of the benefit duration change, a change in the benefit level is strongest at the beginning of the unemployment spell, affecting all new UI recipients.<sup>17</sup>

<sup>16</sup>Levine (1993) shows that higher UI benefits reduce the unemployment duration of those who are not eligible for the benefits. Valletta (2014) and Lalive et al. (2015) report similar spillover effects for the extensions of the UI benefit periods.

<sup>17</sup>Schmieder et al. (2016) survey a large number of empirical estimates from the U.S. and Europe and conclude that the unemployment duration elasticities with respect to the UI benefit level are typically somewhat higher than the elasticities with respect to the maximum benefit duration. This is also what we find from Finnish data in sections 4.2 and 4.3.



### 3.3 Other Potential Effects

The search model above focuses on how the UI benefits affect the job finding rate. Obviously the model abstracts away many important aspects of the real-world labor market. The UI system may affect labor market outcomes through several other channels as well. We list some possible effects below.

**Post-Unemployment Outcomes** The adverse effect of UI on unemployment duration may at least partly be compensated by a positive effect on subsequent job quality. Workers and jobs are heterogeneous along many dimensions. A worker's productivity in any given job depends on how well his or her skills match the requirements of the job. Therefore it may be inefficient to take the first job offered. Since UI benefits allow unemployed workers to search longer, more generous benefits can lead to better matches between job seekers and vacant jobs. In that sense UI benefits can subsidize productive job search and longer unemployment spells may not be a problem. This however requires that the search effort does not drop too much in response to more generous benefits. Moreover, human capital may depreciate during unemployment and employers can discriminate against long-term unemployed.<sup>18</sup> Thus the effect of more generous benefits on match quality can also be negative, in which case the longer unemployment spells are less acceptable from the viewpoint of the society. The match quality is difficult to measure in practice but the wage rate and job duration are commonly used proxies in empirical analysis. Empirical evidence on the effects of UI on these outcomes is mixed, as some studies find no effect at all while others report small positive or small negative effects. We report new results for the effects of UI benefits on post-unemployment outcomes for Finland in sections 4.2 and 4.3.

**Unemployment Inflow** One concern is that UI may contribute to higher unemployment also by increasing the unemployment inflow. Employed workers who can qualify for the benefits may more easily quit. For this reason only workers who are laid off for economic reasons are eligible for the benefits in many countries, or there can be a long waiting period for those who quit or who are fired for cause (like in Finland). But these restrictions do not necessarily eliminate the unemployment inflow effect entirely: eligible workers may work less hard on their current job (e.g. Wang and Williamson, 1996) or

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<sup>18</sup>Kroft et al. (2013) test the latter hypothesis by sending a large number of fictitious job applications to open vacancies in the U.S. labor market. Most of these fictitious applicants were assumed to have been unemployed for various lengths of time. The authors find that the likelihood of receiving a callback for job interview declines with the length of the ongoing unemployment spell, and that this decline is stronger when the local unemployment rate is low. These findings suggest that the employers use unemployment duration as a signal of unemployed applicant's unobserved skills and motivation but recognize that this signal is less informative during downturns.

they may search less actively for alternative jobs (e.g. Light and Omori, 2004), both of which increase their likelihood of becoming unemployed.

In some cases the distinction between voluntary and involuntary job separations can be blurry. The employer and worker may mutually agree to terminate the employment relationship in a “layoff”. In Finland, this might be a relevant concern in the case of older workers who can collect UI benefits until retirement. Furthermore, a temporary worker whose contract comes to an end may be less willing to sign a new one (at least with the old wage rate) after satisfying the employment condition. These worries are supported by the findings that the exit rate from work to unemployment increases when the employment condition is met (in some other countries, not necessarily in Finland) as well as at the age thresholds for extended benefits. These findings give support for a sufficiently long waiting period to discourage unemployment entry. We analyze the unemployment inflow effects and discuss previous empirical findings in sections 4.1 and 4.3.3.

**Part-Time Unemployment** The distinction between unemployment and employment is not always clear-cut because individuals may work part time and collect UI benefits at the same time. In Finland, eligibility for UI requires that the claimant is searching for a full-time job. However, an unemployed worker may qualify for a partial benefit if he or she takes up a part-time job (or a very short full-time job) when no full-time jobs are available. Working part time in such a case can be very helpful, allowing the worker to accumulate new skills and by providing contacts with potential employers and reducing the stigma of being fully unemployed, and may therefore provide a “stepping stone” out of benefits to self-supporting employment. A potential problem is that the partial benefits act as a subsidy for part-time employment, which can make working part time on partial benefits a very attractive alternative to both full-time unemployment and full-time employment. As such, the availability of partial benefits can encourage unemployed workers to search for subsidized part-time jobs at the expense of full-time jobs, which in turn may induce firms to create such jobs. This calls for some restrictions on the use of partial benefits. Ek and Holmlund (2015) show that providing partial benefits as part of the UI scheme can increase welfare. We discuss empirical evidence on the effects of partial benefits on unemployment duration in section 4.2.2.

**Labor Force Participation** Individuals do not only move between jobs and unemployment but also in and out of the labor force. Higher UI benefits may increase the number of people who decide to engage in job search, increasing the flow from inactivity to unemployment (and possibly directly to employment). Moreover, exhaustion of UI benefits may encourage some unemployed to withdraw from the labor force rather than to continue job search or accept lower wage offers. More generous benefits can reduce

such withdrawals through the entitlement effect, reducing the flow from unemployment to inactivity. This would lead to longer unemployment spells but a higher share of the spells ending in employment.

The UI benefits can also induce some individuals who are not truly interested in working to claim benefits, even though they must first establish eligibility by working for some time. Likewise, the availability of partial benefits may encourage some workers who are only interested in part-time work and thereby should not be eligible for UI to claim benefits. A sufficiently long employment condition and job search monitoring should reduce the risk of these kinds of adverse behavior.

**Other Benefit Schemes** Unemployed workers who are not eligible for UI may qualify for a labor market subsidy while all low-income families are eligible for social assistance and housing allowance. As a result, depending on the household structure and the income level of a possible spouse, family net income may depend little on whether the unemployed individual is receiving UI benefits or not, mitigating the incentive effect of UI. This is more likely to be the case for single parents and couples who both are out of work. While the structure of UI schemes is relatively similar across countries, there are large differences in secondary benefits available for the unemployed. This suggests that the estimates of the labor supply effects of UI from different countries may partly reflect cross-country differences in other benefit schemes, which should be kept in mind when comparing the estimates from different countries.

**Monitoring and Sanctions** Benefit eligibility is conditional on active job search and to some extent on participation in labor market programs, both of which involve some monitoring. In Finland, a new benefit claimant must meet a caseworker and sign an activation plan shortly after the start of the benefit period. The activation plan may require participation in some activation measures at given time intervals. During the benefit period the unemployed worker must meet the caseworker (or be in contact by phone) on a regular basis. In these meetings it is checked whether the activation plan has been followed. Those unemployed who do not show up at the scheduled meetings, who do not exhibit sufficient search activity, who reject a job offer that is regarded as suitable or who do not take part in the activation measures specified in their activation plan may receive a sanction. The sanction can be a temporary benefit cut or suspension of benefit payments altogether for some time. Under an effective monitoring system combined with sufficiently harsh sanctions the incentive effects of benefit generosity would be unimportant. Therefore, instead of making UI less generous, one alternative to minimize the risk of moral hazard behavior is to monitor the behavior of the unemployed and impose sanctions on those do not comply with the rules (see e.g. Fredriksson and Holmlund,

2006 for a formal analysis). In practice, effective and comprehensive monitoring of search behavior is difficult or impossible, and prohibitively costly.<sup>19</sup> Nevertheless, it is advisable to conduct monitoring up to some cost level.

**Labor Market Programs** In many countries, especially in other Nordic countries, labor market policy involves a heavy stress on various labor market programs. These programs are often targeted at the long-term unemployed who are approaching the end of their benefit entitlement period. Participation in such programs can postpone the exhaustion day of the benefits (like in the case of labor market training before 2010 in Finland) or even provide a way of regaining eligibility for the benefits (like in the case of job placement programs). Using a job search model Carling et al. (1996) illustrate how the existence of labor market programs can mitigate the incentive effects of the UI benefits. They also find a dramatic increase in the transition rate to labor market programs around the time of benefit exhaustion (yet they also find a spike in the job finding rate). On the other hand, if participation in the labor market programs is made mandatory after a certain time spent in unemployment, such programs may also work as a work-test provided they are not popular among the unemployed. There is some evidence that the job finding rate increases prior to the start of mandatory labor market programs (Black et al., 2003, Geerdsen, 2006, and Rosholm and Svarer, 2008), which gives support for the idea that these programs work as a screening device.

**Search Externalities** In the search model above, an increase in benefit generosity decreases the average search activity of UI recipients (although the search effort increases among those close to the benefit exhaustion) but increases the search intensity of non-recipients through the entitlement effect. Because the UI recipients search less actively, the search of non-recipients may also become more productive as they face less competition over the same vacant jobs (i.e. the likelihood of receiving a job offer with the same search effort increases), which would further increase the job finding rate of the non-recipients. This spillover effect due to “search externality” comes on top of the entitlement effect.

Analogously, when an UI recipient reduces his or her search effort in response to a general increase in UI benefits, the negative effect of a lower search effort on the arrival rate of job offers can partly be mitigated by a reduction in the aggregate search effort (provided

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<sup>19</sup>The system of monitoring in conjunction with sanctions has two potential effects. First, some unemployed workers may increase their search intensity and lower their reservation wage in order to reduce the risk of being caught from non-compliance. This effect (ex ante or threat effect) affects those who would not otherwise comply the rules regarding sufficient search activity and acceptable job offers from the start of the unemployment spell onwards. The second effect (ex post effect) is a change in behavior after being exposed to a benefit sanction. Busk (2016) presents evidence on the size of the latter effect in Finland. She finds that an ongoing sanction increases the exit rate to employment by 25% and the exit rate to inactivity by 82% among UI recipients.

that the search activity of non-recipients through the entitlement effect does not increase too much). That is, the recipient's search becomes more productive because all other UI recipients also reduce their search activity. One consequence of search externalities is that the effect of a benefit increase for a small group of UI recipients (say, for displaced workers with sufficiently long work histories) can be larger than the effect of the same benefit increase for all UI recipients. Empirical estimates of the UI effects are often based on the analysis of reforms that affected some small group of the unemployed. These estimates may thus overstate the effects of the large-scale reforms of similar changes in the benefits.

**Labor Demand** Because more generous UI benefits reduce aggregate search intensity and raise wage claims of UI recipients, it becomes harder for firms to fill job vacancies, especially low-paid positions. This increases hiring costs which can reduce labor demand. Thus it is possible that unemployment will be higher under a generous UI scheme not only because of lower aggregate search effort but also because fewer jobs are created in the economy. Note that a possible decline in labor demand resulting from an improvement in UI generosity can worsen job finding possibilities of all unemployed, including those not eligible for UI benefits. On the other hand, UI may also encourage firms to invest in more productive jobs, which would improve the composition of jobs in the economy. It follows that more generous UI benefits can result in a higher level of total output despite higher unemployment (Acemoglu and Shimer, 1999, 2000).

**Consumption Smoothing over the Business Cycle** When the economy is hit by a negative demand shock, UI benefits mitigate its effect on employment and output by increasing private consumption. When more people lose their jobs and enter unemployment, aggregate wage income falls but the benefit payments automatically increase. The benefits compensate part of the wage losses of the unemployed, helping them maintain their purchasing power and thus increasing spending. Provided that the timing of UI financing is procyclical, an increase in the benefit payments during a recession stimulates the economy at the time when it is most needed.<sup>20</sup> This way the UI system helps to break the spiral where increased unemployment decreases consumption, which leads to a further decline in domestic demand. In other words, the UI system functions as “an automatic stabilizer”. Thus, while a generous UI system is likely to increase the *level* of unemployment, it may decrease the *volatility* of unemployment over the business cycle (for empirical evidence see Di Maggio and Kermani, 2016, and references therein).

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<sup>20</sup>Even if the UI program were funded on a period-by-period basis, this stimulation effect may exist, albeit it would be weaker. This is so because propensity to consume is likely to be higher for unemployed than employed workers as low-income individuals typically consume a higher share of their income.

**UI Financing and Layoffs** A large fraction of UI spells end in a recall, i.e. the worker returns to the previous employer. These spells include temporary layoffs where the worker is laid off without terminating the employment contract as well as the cases where the worker is rehired by the same employer after a dismissal or the termination of a fixed-term contract. The large number of recalls raises the question whether UI induces firms to lay off their workers more easily during periods of slack demand. UI benefits increase the likelihood that a worker on temporary layoff will still be unemployed at the time of recall. Without such benefits the worker would look more actively for another job and hence the firm would face a higher risk of losing the worker during a temporary layoff. This is a serious risk when the worker has some valuable firm-specific human capital. The same logic applies to firms that frequently rehire the same workers for short periods using fixed-term contracts.

Moreover, when employers contribute to financing the UI system by paying flat-rate premiums, firms with high layoff rates are implicitly subsidized by firms with low layoff rates. This is because the former firms pay relatively little to the UI system in comparison to the amount of the benefits received by their employees, whereas the opposite is true for the latter firms. This may induce some firms to use (temporary) layoffs more extensively than they would, had they been fully or partially responsible for the UI costs of their employees (Feldstein, 1976).

It follows that the UI system subsidizes firms operating in sectors that are subject to large economic fluctuations or seasonal variation. In a sense the UI system pools the risk of negative demand shocks across firms by lowering the layoff costs of the firms hit by a negative shock. The cost of this risk sharing, a kind of the moral hazard effect, is the excess use of layoffs. This corresponds to pooling the risk of earnings losses due to unemployment across workers. It is worth emphasizing that the welfare gain of UI for workers arises because they cannot borrow against future income to cover a temporary decline in their income. This reasoning does not apply to firms which have much better access to capital markets than unemployed workers. So there is no market failure that needs to be fixed and thus the argument for insurance is much weaker in the case of employers (Gruber, 2011, p. 411).

A notable exception in UI financing is the U.S. system where the employer's premium rate depends on the amount of layoffs the firm has made in the past years. While the details of the system vary between states, the general outcome is that firms are partially responsible for the costs of UI payments to their employees, creating an incentive to avoid layoffs. Empirical studies such as Anderson and Meyer (2000) and Woodbury et al. (2004) show that a higher degree of experience rating reduces layoffs. However, since the higher layoff costs caused by the experience rating system make also hiring new

workers less attractive, the net impact on unemployment is theoretically ambiguous. Most of the research on the overall effect of experience rating has been theoretical. Some of these studies suggest that the experience rating of UI premiums is likely to reduce unemployment (e.g. Albrecht and Vroman, 1999, and Cahuc and Malherbet, 2004). There is one empirical study by Ratner (2013), which finds that the experience rating system in the U.S. has a net positive but small effect on employment.

In Finland, firms pay flat-rate UI premiums to finance the costs of regular UI benefits, but large firms are subject to experience rating when it comes to the costs of extended UI benefits. That is, large employers pay a given share of the extended benefits paid to their former employees who were old enough at the time of layoff. In the light of the findings of Hakola and Uusitalo (2005) on the effects of the experience rating of unemployment pension costs, this probably lowers the layoff rate of the oldest workers, which nonetheless remains at a high level. We return to this issue in section 4.3.3.

**UI Financing and Unions** In Finland, wage increases are negotiated between employer organizations and labor unions. UI benefits are in large part paid out by union-affiliated unemployment funds but membership fees cover only a modest share of the benefit payments to unemployed union members given that almost all of the funding (94.5% in 2015) comes from general tax revenues and flat-rate UI premiums paid by all firms and all employees. Therefore, when a labor union negotiates a wage hike for its members over the members of other unions, its employed members bear only a small share of the costs of increased benefit payments to its unemployed members which arise because of higher benefits (as the replacement rate is fixed) and longer unemployment spells (due to the disincentive effect of higher benefits and lower labor demand). The result may be higher wage claims. This of course applies to all labor unions but as the unions differ in bargaining power the strongest unions may be able to exploit the cross-subsidization of UI expenditures. See Sinko (2004) for an analysis of the employment effects of various cost-sharing schemes between the government and union-affiliated unemployment funds.

### 3.4 Optimal Design of UI

The literature on the optimal design of UI aims to characterize the benefit scheme that maximizes the worker's expected lifetime utility ("social welfare") taking into account behavioral responses and the budget constraint. The traditional approach is to make a bunch of theoretical assumptions and then compare welfare levels obtained by simulating the theoretical model under various parameter values for benefit generosity (e.g. the replacement rate or maximum benefit duration) or under different benefit structures (e.g. the flat vs. declining benefit path over the unemployment spell). This "structural" approach

is flexible but the models are very complex and the results are sensitive to the underlying assumptions of the theoretical model and chosen parameter values. The predictions of these models are also difficult to validate with empirical data.

Based on the work of Baily (1978), Chetty (2008) derives a relatively simple formula to assess the optimal level of UI benefits using a simple search model. This formula is relatively robust to changes in the underlying theoretical model, and it depends only on a few reduced-form elasticities which serve as “sufficient statistics” for welfare analysis. The formula provides a means to make normative claims about the optimal level of benefit generosity based on the elasticities that are estimable from micro data. The limitation of this approach is that it can only be used to evaluate the welfare effects of small changes in benefit generosity under the current structure of the benefit scheme. More recently, Schmieder et al. (2012) propose a similar formula for the optimal length of the entitlement period, whereas Kolsrud et al. (2015) generalize the sufficient statistics approach for the case of the dynamic benefit profile.

While the traditional approach based on calibrated structural models is inconclusive about the optimal structure of the UI scheme, evidence on the optimal benefit generosity based on the sufficient statistics approach is still very scarce, and the findings from this literature are highly country-specific.<sup>21</sup> Nevertheless we highlight some lessons from these branches of the literature.

**Moral Hazard versus Liquidity Effects** Chetty (2008) points out that UI benefits can affect the job finding rate of liquidity constrained workers for two reasons. The first is that it indirectly subsidizes leisure while unemployed. This is the traditional *moral hazard* effect which arises to the extent that the benefit recipients alter their behavior because employment will increase their income less than it would in the absence of the benefits. Thus the effect captures the distortion in the incentive to work caused by UI. The *liquidity* effect arises if unemployed workers with no savings have to reduce their consumption because they are unable to borrow against their future wage income. The drop in consumption induces unemployed workers to take up jobs they would not have accepted had they been able to smooth their consumption through borrowing. This effect arises only because of the borrowing constraints. The UI benefits enable liquidity constrained workers to maintain their consumption at a reasonable level and thus allow them to make job search choices that are closer to the choices they would choose with perfect credit markets. This way the benefits enhance efficiency.

The distinction between these two effects is crucial from the welfare point of the view: the liquidity effect is a *desirable* effect of UI which increases welfare, whereas the moral

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<sup>21</sup>For an overview of this literature see Chetty and Finkelstein (2013).



hazard effect is an *undesirable* side effect of UI which reduces welfare. It follows that a larger effect of UI benefits on unemployment duration may not necessarily imply that less generous benefits are desirable. If the effect is due to the liquidity (moral hazard) effect, an increase (decrease) in benefit generosity would be welfare improving. Most of the earlier analysis of UI have ignored the liquidity effect and thus the labor supply effects of UI have been traditionally interpreted to reflect only moral hazard. Chetty (2008) argues that a substantial share of the reduced-form effect of UI on unemployment duration may be due to the liquidity effect, suggesting that the disincentive effects of UI may have been traditionally overestimated.

Chetty (2008), Card et al. (2007a) and Basten et al. (2014) provide empirical evidence that the liquidity effect is quantitatively important using data from the U.S., Austria and Norway, respectively. Two sorts of evidence on the importance of the liquidity effects have been presented. One is the finding that those unemployed who are presumably liquidity constrained (such constraints are difficult to measure, so some proxies must be used in practice) are more responsive to changes in UI benefits than other unemployed. The second is that lump-sum severance payments are found to lead to longer unemployment spells among presumably liquidity constrained workers. Unlike the UI benefits, severance pay is not conditional on staying unemployed and thus it does not distort the incentive to work. As such, receipt of severance pay should affect unemployment duration only through the liquidity effect.

Uusitalo and Verho (2010) study how the 2003 removal of severance pay in Finland affected the job finding rate. They find no significant effect for severance pay, suggesting that the liquidity effect is not important in the Finnish labor market. This interpretation should be treated with some caution, however. The group eligible for severance pay was relatively small (1,420 individuals) consisting of workers over age 45 who had worked at least five years for their last employer or eight years for their last two employers. Because these individuals are more likely to have a spouse (because of their age) and some savings or assets (because of their age and long job tenure) than the average UI recipient, they are also less likely to be subject to binding liquidity constraints. It is quite possible that the liquidity effect could have played an important role in some other groups, such as younger unemployed with sporadic employment history.

**The Time Path of the Benefits** An important question is what is the optimal time profile for the benefits, i.e. should a constant level of benefits be paid indefinitely, or should the benefit level vary over the course of the unemployment spell. In the presence of perfect credit markets when unemployed workers could freely save and borrow, the constant benefit would be optimal as the policy makers cannot affect the consumption

pattern over the unemployment spell by altering the benefit path (e.g. Tatsiramos and van Ours, 2014). In the presence of the borrowing constraints, an increasing benefit profile is desirable from the viewpoint of consumption smoothing because the long-term unemployed are more likely to have spent the savings they possibly had at unemployment entry. At the same time such a time profile provides a strong incentive to stay unemployed to collect increasing benefits, enhancing the moral hazard effect. Because of this trade-off, theoretical predictions are quite sensitive with respect to assumptions about the structural parameters of the model.

Provided that the literature on the optimal time profile of the benefit has been almost entirely theoretical, it may not come as a surprise that the results are mixed: declining, increasing, flat and hump-shaped profiles have all been found to be optimal in different studies. Despite this ambiguity, the traditional and still quite popular view is that a gradually decreasing benefit schedule might be desirable (Cahuc and Zylberberg, 2004, and Holmlund, 2015). A close practical cousin to this scheme is the two-tiered system used in many countries, including Finland, in which the earnings-related UI benefits are paid over a limited period of time, after which a lower flat-rate unemployment benefit (i.e. labor market subsidy in Finland) is available without a time limit. One potential problem of the declining benefit profile compared to a constant or increasing level of benefits is that the relatively high benefits for the short-term unemployed can encourage temporary layoffs which last only for a short time.<sup>22</sup> A waiting period before the benefits are paid and the experience rating of UI premiums can be used to mitigate this problem (e.g. Fredriksson and Holmlund, 2006).

There is one recent empirical study by Kolsrud et al. (2015) where the authors apply a dynamic version of the sufficient statistics approach to rich Swedish data that combine register data on unemployment spells and wealth with survey data on consumption. They find that the consumption smoothing benefit of UI increases while the moral hazard cost declines with the elapsed duration of unemployment, suggesting that an increasing benefit profile might be desirable.

**Benefit Generosity Over the Business Cycle** As pointed out earlier, the UI system functions as an automatic stabilizer, increasing private consumption during economic downturns, without direct government intervention. In some countries (U.S., Canada and Poland) the cyclical response of UI is further enhanced by extending benefit entitlement

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<sup>22</sup>As pointed out by Cahuc and Lehmann (2000), the declining profile may also increase wage pressure and hence unemployment when the labor unions and employers bargain over the wages. This is because the higher benefits for the short-term unemployed improve the fallback option of “insiders” – employed union members – if they are eligible for UI benefits during a strike when the negotiations fail. In Finland, however, the workers are not eligible for UI benefits during strikes and lockouts.

periods during recessions.<sup>23</sup> For example, in some U.S. states the maximum benefit period was extended from 26 to 99 weeks during the Great Recession that started in 2008. The timing of these benefit extensions leads to an additional boost through private spending to the economy when the aggregate demand is low. This is one but not the only reason why many economists believe that more generous benefits should be provided during recessions than booms (e.g. Andersen and Svarer, 2010, Andersen, 2014, and Marinescu, 2016).

In a recession a larger share of unemployed households may be liquidity constrained because unemployment spells are longer and because it is more likely that both spouses are out of work at the same time. This implies that the consumption smoothing benefit of UI is probably higher during recessions than booms, which is another argument for the counter-cyclical UI scheme.

When there are many unemployed job seekers for each vacant job, an increase in the search intensity of a given worker improves his or her chances of finding a new job but at the cost of reducing the job-finding prospects of all other job seekers, i.e. having a negative search externality. Under such conditions more generous benefits reduce excess competition over the same vacancies by discouraging job search of UI recipients (the search externality effect) and, therefore, possibly have only a moderate effect on aggregate unemployment. A counter argument is that providing more generous benefits during a recession may reduce job creation exactly at the time when new jobs are most needed (the labor demand effect), and thereby increase already high unemployment. Which of these two effects dominates is an empirical question.

Marinescu (2016) finds that the benefit extensions in the U.S. during the Great Recession reduced the search effort of unemployed (as measured by the number of job applications sent) but did not decrease the number of job vacancies posted by firms. Her findings thus imply that UI raises labor market tightness, defined as the ratio of job vacancies to aggregate search effort in the economy. Provided that labor market tightness is inefficiently low (high) during recessions (booms), this result also supports the idea that counter-cyclical UI benefits are optimal. Landais et al. (2016a, 2016b) provide further evidence for this conclusion.

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<sup>23</sup>In the U.S., the entitlement period is automatically extended in states where the unemployment rate is above 5% and at least 20% higher than in the previous two years (Stone and Chen, 2014). The length of the extension is 13 weeks while the normal maximum benefit duration is 26 weeks. Individual states can also optionally choose to extend the maximum benefit duration by up to 20 weeks if the unemployment rate exceeds certain threshold values. Additionally, during the years 2008–2013 as an emergency response to the Great Recession, the maximum benefit duration was extended by 34 weeks on a federal level and by 53 weeks in states with very high unemployment rates. All extensions combined, the maximum benefit duration at the time was 99 weeks in some states, which is very close to the maximum duration of 100 weeks that was in use in Finland until 2016.

### 3.5 Main Lessons

We conclude this section by highlighting a few lessons from the above discussions:

- In the presence of borrowing constraints, some degree of UI increases societal welfare, even though it will lead to a higher level of unemployment. The benefit of UI is the amount of consumption smoothing it provides by partially fixing the credit market failure. The cost of UI is the moral hazard it induces by distorting the incentive to work (and possibly layoff decisions by firms depending on how UI is financed). Unfortunately, there is no evidence on the effect of UI benefits on consumption smoothing in Finland. Nor are we able to present such evidence. Our empirical analysis in the next section sheds some light on the reduced-form effects of UI benefits on unemployment spells but we are unable to differentiate between the liquidity and moral hazard effects.
- More generous benefits in terms of either higher benefit levels or longer entitlement periods are likely to lead to longer spells of unemployment among UI recipients. However, an improvement in benefit generosity may also reduce unemployment duration of non-recipients, mitigating the overall effect on unemployment. Our empirical analysis focuses on the former effect, but one should keep the latter effect in mind.
- UI benefits can subsidize both unproductive leisure time and productive job search, which have opposite policy implications. Longer unemployment spells caused by more generous benefits are not necessarily undesirable if they lead to better employer-employee matches and when they reflect fewer transitions out of the labor force. This highlights the need to consider also the effect of UI on the quality of subsequent jobs, as we do in the next section.
- Based on the theoretical literature it is difficult to give policy recommendations about the desired level, duration or time path of benefits which would be optimal from the welfare viewpoint. But it is obvious that a more generous UI scheme is viable when the moral hazard problem is alleviated also by other means than monetary incentives, such as monitoring of job search behavior and mandatory participation in the labor market programs. There is also a rather strong case for a business cycle-dependent UI scheme that provides more generous benefits during recessions than booms.
- Some degree of experience rating of UI premiums might be useful in reducing the excess use of temporary layoffs within industries as well as in increasing resource allocation across industries.

## 4 Evidence on Behavioral Effects

### 4.1 Employment Condition and Unemployment Inflow

The eligibility conditions have received much less attention in the economic literature than other aspects of UI schemes. While the eligibility conditions have been stressed by many authors (e.g. Atkinson and Micklewright, 1991, and Tatsiramos and van Ours, 2014) and incorporated into some theoretical models of job search and UI (e.g. Mortensen, 1977, Hopenhayn and Nicolini, 2009, and Andersen et al., 2015), empirical research on their effects is scarce. As pointed out in the theory section, the eligibility conditions in terms of past employment can affect the unemployment inflow rate by inducing layoffs or encouraging quits. The empirical analysis has focused on estimating this effect.

Christofides and McKenna (1996) find that once employees fulfill the employment condition, the exit rate from work to compensated unemployment increases markedly. According to Green and Sargent (1998), the spike in the exit rate is associated only with seasonal jobs. Green and Riddell (1997) and Baker and Rea (1998) find that while the quit hazard remains constant the layoff hazard increases at the time when the employee satisfies the eligibility condition. All these empirical studies are rather old and consider a single country, Canada. More recently, Jurajda (2002) using U.S. data and Rebollo-Sanz (2012) using Spanish data also find that eligibility for UI significantly raises the probability of a layoff but the probability of a quit is not affected. Hägglund (2009) provides evidence that in Sweden job exits cluster at the time of UI qualification and that an increase in the employment condition led to longer employment durations. These studies suggest that layoff decisions are at least to some extent affected by the employee's UI eligibility.

To provide evidence for Finland we analyze the 2003 reform which changed the eligibility requirement from 43 to 34 contribution weeks. We use data on compensated unemployment spells that started between 2001 and 2004 after a job loss (see the appendix for details). The reform was proposed by the government on September 13, 2002, and the law came into effect on January 1, 2003. We drop spells started between these days as they may have been subject to anticipatory behavior. Furthermore, we require that the duration of the last job was no less than four weeks and that the job ended within four weeks prior to the benefit claim (note this eliminates voluntary quits). We further limit our analysis to individuals between the ages of 25 and 54 who have been a member of an unemployment fund at least for the past two years, who have received UI benefits after 1996 and who have been in the labor force for at least 90% of the time during the past two years without being self-employed or hired with a wage subsidy. The age restriction eliminates older workers entitled to extended benefits and younger ones who were affected by another change. The UI history condition guarantees that the workers with 34–42 con-

tribution weeks were affected by the law. Other restrictions are imposed to improve the accuracy of our measure of the number of the contribution weeks. This variable is difficult to measure because we do not observe working hours and because the review period may be extended for various reasons, and due to the complexity of the rules regarding how self-employment and subsidized jobs are treated. Despite these sample restrictions, the estimated number of contribution weeks remains subject to some measurement error (we return to this issue later on).

All workers included in the analysis are entitled either to UI benefits or labor market subsidy at the beginning of the spell. The final sample contains 115,220 unemployment spells, of which as many as 96% start with receipt of UI benefits. Unlike in the previous studies listed above, we do not consider the exit rate from work to unemployment or the duration of employment spells but instead compare the distributions of the contribution weeks between those entering unemployment before and after the reform. If employed workers time their unemployment entry according to the employment condition rules, we should see a mass point on the right-hand side of the threshold value of 43 weeks in the pre-reform distribution, and this mass point should have moved towards the new threshold value of 34 weeks after the reform. No such evidence is seen in figure 11. The pre- and post-reform distributions are very similar, suggesting that employed workers or their employers did not change their behavior in response to the law change.

In addition to a spike at 43 contribution weeks, there is bunching of observations on the “wrong” side of the old threshold value. Given that the mass of the observations between 41 and 43 weeks did not vanish in the post-reform period, it is likely to be unrelated to the employment condition. Nor can it be explained by measurement error because the vast majority of individuals with 41 or 42 contribution weeks in the pre-reform period did not satisfy the employment condition according to the UI records (this is illustrated in figure 20 below) which should be more reliable than our measure of the contribution weeks. It turns out that the mass point can be attributed to individuals who entered unemployment in June. The mass point disappears altogether when we drop the individuals who became unemployed in June, as shown in figure 12. Most of the unemployment entrants in June with 41 or 42 weeks are female health care or social workers from the public sector. These workers also quite often return to their previous employer, even though temporarily laid off workers with a valid employment contract have been excluded from the sample.

We have also compared the contribution week distributions separately for workers who were laid off, who quit and those whose fixed-term contract ended. As a further robustness check, we have examined the distributions of the duration of the previous job for all unemployed workers as well as for subgroups who became unemployed for different reasons. None of these analyses indicates that the timing of the unemployment

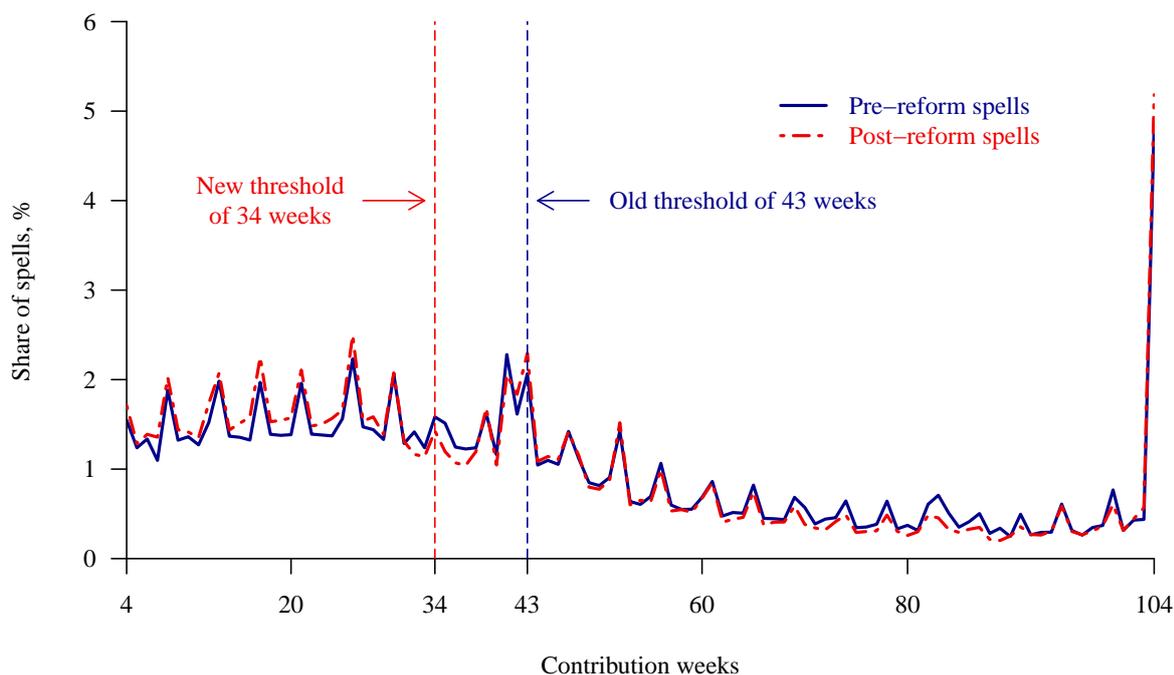


Figure 11: Distribution of contribution weeks by period of unemployment entry. Pre-reform spells started between January 1, 2001 and September 12, 2002, and post-reform spells between January 1, 2003 and December 31, 2004.

entry from employment would have changed in response to the 2003 reform. As such it seems evident that workers do not leave employment for unemployment at a higher rate once their contribution weeks exceed the threshold value of the employment condition. Nor do the employers target dismissals at those employees who would be entitled to the maximum duration of UI benefits.<sup>24</sup> Our findings are thus at odds with the evidence for other countries discussed above.

Even though the unemployment inflow did not respond to the 2003 change in the employment condition, the reform had an effect on the average duration of unemployment spells. After the reform a higher fraction of unemployment entrants was awarded a new period of 500 UI days (100 weeks). Provided that potential benefit duration has a positive effect on expected unemployment duration, unemployment spells should have become longer on average within a subgroup of workers who renewed their benefit period due to the new rules. In section 4.3, we estimate that one additional week of UI benefits increases expected unemployment duration by some 0.15 weeks. If we ignore measurement error in the contribution weeks, a simple difference-in-differences estimate based on a comparison

<sup>24</sup>This conclusion does not apply to older groups who can qualify for extended UI benefits until retirement, which are excluded from the analysis. Older groups are analyzed in section 4.3.3.

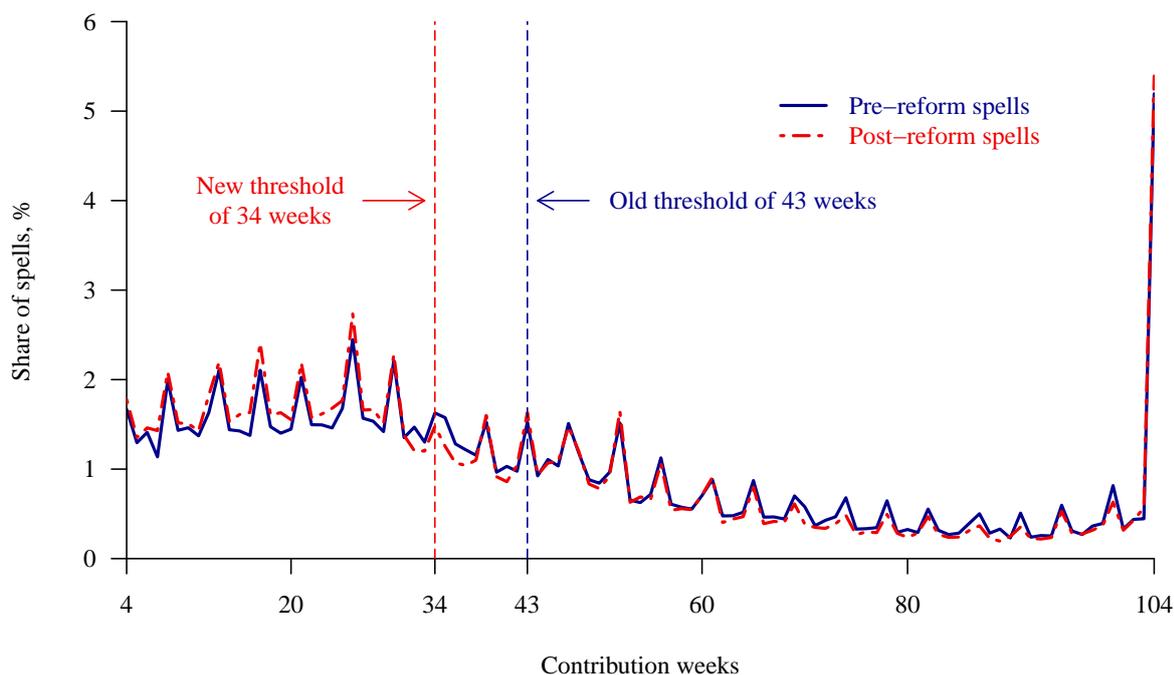


Figure 12: Distribution of contribution weeks by period of unemployment entry without spells starting in June. Pre-reform spells started between January 1, 2001 and September 12, 2002, and post-reform spells between January 1, 2003 and December 31, 2004.

of workers with 34–42 contribution weeks (treatment group) to those with 43–60 weeks (control group) suggests that the reform prolonged unemployment spells by 3.7 weeks or 22% among those affected. The affected group is relatively small, accounting only for 13% of the unemployment inflow in our sample. As a consequence, the average duration in the whole sample increased only by 0.5 week or 2%.

Kauhanen et al. (2008) conduct a somewhat similar exercise. They study a reform in 1997 where the employment condition was increased from 26 to 43 weeks in Finland. They do not consider the effect on the unemployment inflow but focus on the change in the exit rate from unemployment to employment. They compare the job finding rate before and after the reform among unemployed workers who had worked enough to fulfill the earlier condition but not enough for the new one (i.e. those who lost their eligibility for a new UI period), using workers whose eligibility status did not change due to the reform as a control group. They find that the reform increased the exit rate of young and high-skilled workers without affecting the exit rate of other workers within the treatment group.

Note that the eligibility rules may also affect how the job finding rate depends on the current eligibility status (eligible or not, the number of remaining UI days if eligible). The



incentive to accept a job offer depends on how that job will affect benefit eligibility in case of future unemployment. For an unemployed person who is not currently entitled to UI benefits or who is close to benefit exhaustion, a more lenient employment condition may encourage re-employment as it increases the value of each job offer. On the other hand, by making re-qualifying for benefits in the future easier, it may discourage those workers who are still entitled to many days of benefits. To our knowledge, there is no empirical evidence on the effect of the eligibility rules on unemployment exits, even though such an effect is predicted by job search theory.

## 4.2 The Effects of Benefit Level

### 4.2.1 Full-Time Benefits

Consistent with the theoretical framework presented in section 3.2, numerous empirical analyses of the UI benefit level in various countries indicate that a higher UI benefit level prolongs unemployment duration (see Tatsiramos and van Ours, 2014, for a survey). The elasticity of the unemployment duration with respect to the benefit level is between 0.4 and 1 in most cases, i.e. a 1% increase in the UI benefit level would lead to a 0.4% to 1% increase in the unemployment duration. Higher elasticities have been found for Sweden (Carling et al., 2001, estimate an elasticity of nonemployment duration of 1.6) and in recent work on Austrian data (Card et al., 2015, find elasticity estimates of 1 to 2 depending on which part of the wage distribution they examine).

Using Finnish data Uusitalo and Verho (2010) analyze the 2003 reform described in section 2.3 which removed the severance pay and increased the benefit level of unemployed workers with long work histories for the first 150 days of benefit receipt (30 weeks). They find that the elasticity of nonemployment duration with respect to the benefit level is 0.8 for this group of job seekers. Uusitalo and Verho (2010) note that different groups of unemployed workers were affected in different ways by the reform, with some groups eligible for both severance pay before the reform and increased benefits afterward, while others were only entitled to one of these. The setup thus enables an analysis of liquidity and moral hazard effects of UI benefits as severance pay should influence unemployment duration only through the liquidity effect, whereas the increased daily benefits can distort the incentives to search for a job. For the majority of unemployed the reform replaced severance pay by higher daily benefits, with the expected value of the benefit increase roughly equal to the severance pay. The elasticity estimate above was for this group of workers and should, therefore, be interpreted as evidence on the distortions of search incentives created by UI benefits. The authors find that the removal of severance pay alone had little effect on re-employment rates, whereas the increase in the UI benefit

level substantially decreased re-employment rates for those who had not previously been eligible for severance pay. These results would imply that the distortionary effects are more important than liquidity effects. However, the authors point out that the number of observations in these separate groups is quite low and the results should, therefore, be treated with caution.

Uusitalo and Moisala (2003) also use Finnish data to examine the effect of a reform in 1989 that removed a decrease in the benefit level after 200 benefit days and resulted in a constant benefit schedule for 500 days of UI benefits. They find no effect of the change in the benefit schedule on unemployment duration, but acknowledge that there are confounding factors in the analysis which can influence the results. More recently, Kyyrä and Pesola (2016) study the effects of the UI benefit level in Finland by exploiting the kink in the benefit schedule shown in figure 2. The results indicate that higher UI benefits prolong nonemployment duration with an elasticity of 1.5 to 2. As in Card et al. (2015) who use a similar research design, these estimates are higher than in most other studies on the effects of the UI benefit level. It should be noted that differences between the results in Uusitalo and Verho (2010) and Kyyrä and Pesola (2016) can arise e.g. from the fact that the former study exploits a reform that affected only those with long work histories and the simultaneous removal of severance pay implies that the effect is exclusive of potential liquidity effects. The results of the latter study will be discussed in more detail below.

As discussed in section 3.2, the effect of the UI benefit level can vary during the unemployment spell with the effect on the exit rate likely to be stronger early in the unemployment spell. Empirical studies have found that this is indeed the case, e.g. Lalive et al. (2006) examine a policy change in Austria and find that an increase in the replacement rate has most of its effect on the exit rate at the beginning of the unemployment spell. In the Finnish case Uusitalo and Verho (2010) also examine the effect of the increase in UI benefits on the job finding hazard along the unemployment duration and find that the negative effect is largest during the first months after entry into unemployment. An earlier Finnish study by Kettunen (1993) finds that unemployment benefits are negatively associated with the probability of becoming employed at the beginning of the unemployment spell but that this association disappears after three months. This study is limited by the use of cross-section data.

In the search model in section 3.2, UI benefits affect unemployment duration through both the search effort and reservation wage. These two may have different implications in the cost-benefit analysis of benefit generosity. If higher benefits do not reduce search intensity much but enable unemployed to search longer for a job that matches their skills,

the benefit recipients should find better jobs than they would with lower benefits.<sup>25</sup> In that case longer unemployment spells caused by higher benefits are less of a problem than when the longer spells are due to reduced search effort with no improvement in employee-employer matches. For this reason it is important to also consider the effects of the benefit level on subsequent labor market outcomes. Empirical evidence on these effects is quite scarce and the results are mixed.

Addison and Blackburn (2000) find that higher UI benefits have hardly any effect on subsequent wages in the U.S. labor market, but Centeno (2004) shows that higher benefits increase the duration of the subsequent employment spell. Ek (2013) finds evidence that higher UI benefits decrease annual earnings and monthly wages in Sweden, while the probability of re-employment and employment durations do not appear to be affected. The negative effect of UI benefits on match quality may imply that human capital depreciates during unemployment or that employers discriminate against long-term unemployed.<sup>26</sup> Rebollo-Sanz and Rodriguez-Planas (2016) study a decrease in the replacement rate in Spain and find no effect on post-unemployment wages and no decrease in other measures of job-match quality.

In Kyyrä and Pesola (2016) we study the effect of the UI benefit level on various labor market outcomes using data covering the entire population of unemployed workers in Finland for years 2003 to 2009. In the analysis we exploit the kink in the relationship between the previous wage and UI benefits in Finland. This piecewise linear benefit rule allows us to use a regression kink design to identify the causal effects of the benefit level on various outcomes (see Card et al., 2015, and references therein). We consider the effect of UI benefits on the duration of benefit receipt, re-employment probability, the time to the next job and prevalence of part-time unemployment (the time spent in marginal employment while collecting partial UI benefits). We also analyze various post-unemployment outcomes, such as the duration and wage of the next job, and working days and earnings within a two-year period.

As in other RKD studies, the results in Kyyrä and Pesola (2016) are quite sensitive to the choices of bandwidth and polynomial order. Since no single optimal procedure to make such choices exists, we consider a range of nonparametric estimates based on local linear and quadratic specifications using various bandwidth selectors, as well as covariate-adjusted estimates obtained from larger samples. Tables 2 and 3 present covariate-adjusted elasticity estimates for a range of bandwidths from Kyyrä and Pesola (2016). We consider polynomial models of orders 1 to 3 and report elasticity estimates

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<sup>25</sup>Using time use survey data Krueger and Mueller (2010) find that UI recipients search less actively in U.S. states with more generous benefits.

<sup>26</sup>Kroft et al. (2013) present experimental evidence that the employers do discriminate against job applicants who have been longer unemployed when selecting applicants who are invited to a job interview.

Table 2: Elasticity estimates for unemployment outcomes at varying bandwidths

BW	N	UI duration		Time to next job			Fraction of partial unemployment		Re-employment probability	
		P	Elasticity (SE)	P	Elasticity (SE)	P	Elasticity (SE)	P	Elasticity (SE)	
10	31,359	2	8.27** (3.92)	1	1.31 (1.12)	1	-3.12 (4.03)	1	-0.12 (0.43)	
15	48,689	2	2.66 (2.14)	2	1.79 (2.44)	1	-5.16** (2.28)	1	-0.54** (0.24)	
20	67,621	2	1.67 (1.42)	1	0.40 (0.41)	1	-4.23** (1.52)	1	-0.16 (0.16)	
25	88,756	3	4.97* (2.52)	1	0.46 (0.30)	1	-3.03** (1.10)	1	-0.15 (0.11)	
30	111,352	2	0.90 (0.79)	1	0.08 (0.24)	1	-2.64*** (0.86)	1	-0.10 (0.09)	
35	134,169	2	0.63 (0.65)	3	2.17 (1.77)	2	-7.28** (2.67)	1	-0.06 (0.07)	
40	155,990	3	1.01 (1.30)	3	1.65 (1.47)	2	-6.22** (2.23)	2	-0.50** (0.23)	
45	174,392	3	1.01 (1.11)	3	1.35 (1.26)	2	-5.56*** (1.92)	2	-0.51** (0.20)	
50	188,836	2	0.61 (0.41)	3	1.96* (1.10)	2	-4.47** (1.68)	2	-0.52*** (0.18)	
55	199,011	2	0.40 (0.37)	2	1.73*** (0.41)	2	-4.61*** (1.50)	2	-0.64*** (0.16)	

*Notes:* BW = bandwidth. N = Number of observations. P = Order of the polynomial function chosen on the basis of the Akaike information criterion. Models include controls for the year and month of unemployment entry, gender, the number of children, interactions between the number of children and gender, education, occupation, age, Helsinki metropolitan region and a dummy for dismissed workers. The standard errors in parenthesis. Significance levels: \*\*\* 1%, \*\* 5% and \* 10%.

for the specification with the lowest value of the Akaike information criterion.<sup>27</sup> The specification includes controls for the year and month of unemployment entry, gender, the number of children, interactions between the number of children and gender, education, occupation, age, Helsinki metropolitan region and a dummy for dismissed workers.

Our findings in table 2 indicate that higher UI benefits prolong nonemployment duration (i.e. time to the next job) with an elasticity around 1.5 to 2. These estimates are, however, quite sensitive to the specification and precision is achieved at wider bandwidths. The elasticity estimates would imply a 3 to 4 day increase in the nonemployment duration if unemployment benefits increased by 1%. These elasticity estimates are in line with those of Carling et al. (2001) for Sweden and the estimates in Card et al. (2015) for the upper part of the Austrian wage distribution. In Finland the kink in the benefit schedule is quite high in the distribution of the pre-unemployment wages, at 2300 Euros a month (in 2009 Euros) during our observation period, which is above the 80th percentile in our estimation sample. We also examine the effect of the UI benefit level on the duration of UI benefit receipt, but the results are not conclusive.

We find that higher UI benefits lead to a decrease in the share of days spent on partial unemployment benefits, i.e. in subsidized part-time or temporary jobs. The elasticity of the share of part-time unemployment days in the UI spell with respect to the benefit level varies somewhat depending on the specification but is consistently negative and quite large. The estimates in table 2 indicate that a 1% increase in the UI benefit level would

<sup>27</sup>For most outcomes the estimates from the linear models are sensitive with respect to the bandwidth, whereas the estimates from quadratic and cubic models remain quite stable after a certain value of the bandwidth (typically around 30 Euros).

Table 3: Elasticity estimates for post-unemployment outcomes at varying bandwidths

BW	N	Duration of next job		Wage of next job		Working days within the next 2 years		Earnings within the next 2 years	
		P	Elasticity (SE)	P	Elasticity (SE)	P	Elasticity (SE)	P	Elasticity (SE)
10	31,359	1	1.37 (1.49)	1	-0.53 (0.49)	1	-0.48 (0.60)	1	-1.16 (0.81)
15	48,689	1	1.34 (0.82)	1	-0.64** (0.27)	2	-1.36 (1.30)	2	-1.19 (1.76)
20	67,621	1	1.51** (0.55)	2	-1.57** (0.70)	3	-0.81 (2.12)	2	-2.63** (1.24)
25	88,756	1	1.09** (0.40)	1	-0.22 (0.14)	1	-0.19 (0.16)	1	-0.73*** (0.26)
30	111,352	1	0.93*** (0.31)	2	-0.77* (0.40)	1	-0.03 (0.13)	2	-1.43** (0.70)
35	134,169	1	1.14*** (0.25)	3	-1.27 (0.79)	3	-1.85* (0.95)	2	-1.53** (0.55)
40	155,990	1	1.07*** (0.22)	2	-0.95*** (0.28)	3	-1.19 (0.79)	3	-2.47** (1.18)
45	174,392	3	3.12* (1.66)	2	-0.94*** (0.24)	3	-1.12 (0.67)	2	-1.01** (0.43)
50	188,836	3	1.71 (1.46)	2	-0.86*** (0.21)	2	-0.60** (0.25)	2	-0.96** (0.38)
55	199,011	2	0.29 (0.54)	3	-1.64*** (0.45)	2	-0.75*** (0.22)	3	-1.81** (0.80)

*Notes:* BW = bandwidth. N = Number of observations. P = Order of the polynomial function chosen on the basis of the Akaike information criterion. Models include controls for the year and month of unemployment entry, gender, the number of children, interactions between the number of children and gender, education, occupation, age, Helsinki metropolitan region and a dummy for dismissed workers. The standard errors in parenthesis. Significance levels: \*\*\* 1%, \*\* 5% and \* 10%.

decrease the share of part-time unemployment days in the UI spell by approximately 5%, i.e. from an average of 4% to 3.8%. It should be noted that this is a combination of fewer unemployed workers taking up subsidized part-time or temporary jobs and those on partial benefits receiving partial benefits for a smaller share of their total time on UI benefits. On average 10% of UI spells in the estimation sample include time on partial benefits, and conditional on receipt of partial benefits, the share of part-time unemployment days is approximately 40%. According to the results the probability that the UI spell ends in employment also decreases with a higher benefit level, with an elasticity around  $-0.5$ , but the estimates are statistically significant only at large bandwidths.

As seen in table 3, earnings both immediately after the unemployment spell and in subsequent years are negatively affected by higher UI benefits. These results are also robust across the other specifications reported in Kyyrä and Pesola (2016). The elasticity of the wage in the first job after unemployment is around  $-0.5$  to  $-1.5$ , which could indicate employer discrimination or human capital depreciation due to prolonged unemployment. Earnings in the two years following the beginning of the unemployment spell also decrease with higher UI benefits with an elasticity of  $-1$  to  $-2$ . This earnings effect is influenced by decreasing working days as we find that the elasticity of the number of working days in the following two years with respect to the UI benefit level is  $-0.5$  to  $-1.8$ . However, these estimates are not very robust to changes in the specification and precision requires large bandwidths. The finding that higher UI benefits decrease subsequent working days is obviously at least in part driven by potentially longer nonemployment spells and is consistent with our observation that higher benefits lead to less part-time and temporary

employment. As a further measure of match quality we also analyze the duration of the first job after unemployment. The estimated elasticity of the job duration with respect to the benefit level is in general positive, which is somewhat surprising considering our results on post-unemployment earnings. However, this result is not found in the other specifications reported in Kyyrä and Pesola (2016).

#### 4.2.2 Partial Benefits and Earnings Disregard

Since 2014 the unemployed have been able to earn up to 300 Euros a month with no reduction in their UI benefits. With higher monthly earnings the unemployed may still qualify for partial benefits. The aim of the partial benefits and earnings disregard is to encourage job seekers to also consider part-time jobs or full-time jobs with very short duration when no regular full-time jobs are available. If this kind of marginal employment helps the unemployed to accumulate new skills, provides contacts with employers or reduces the stigma of being unemployed, working on partial benefits can provide a “stepping stone” out of benefits to more stable full-time employment. However, a large body of empirical evidence on how *unsubsidized* temporary and part-time jobs affect future labor market prospects is inconclusive, some studies finding positive effects while others arguing that such jobs are mainly dead-ends. Moreover, by subsidizing part-time jobs, the partial benefits and earnings disregard can also encourage unemployed workers to search for part-time work at the expense of full-time work. In that case, the mere existence of these instruments can lower the exit rate to self-supporting employment from the first day of unemployment among all job seekers, including those who will not eventually receive partial benefits during their unemployment spell. This is an *ex ante* effect of having a UI system with partial benefits and earnings disregard compared to the counterfactual system without such features. It is also difficult to distinguish involuntary part-time workers from those who work part-time by choice (Ek, 2015). The latter group should not be eligible for UI benefits but have an obvious incentive to claim the benefits when these can be received on top of part-time earnings.

The 300-Euro earnings disregard was introduced so recently in Finland that its effects have not been studied yet. Similar earnings disregards for the unemployed exist at least in the U.S., Canada, U.K., Germany and Austria. In the U.S. labor market, unemployed workers can earn up to a given amount over a week with no reduction in their UI benefits, after which the benefits are reduced on a dollar-for-dollar basis. This differs from the Finnish scheme where earnings that exceed the threshold reduce the UI benefits only by 50%, not by 100%. In both countries the reduced benefits are not necessarily lost as they can be collected later provided the worker remains unemployed for the maximum duration of full-time benefits (that is, the same amount of the benefits can be collected

over a longer period of time).

Munts (1970), Holen and Horowitz (1974) and Le Barbanchon (2016a) provide evidence that workers in the U.S. labor market adjust their part-time working to gain from combined earnings and benefits. McCall (1996) shows that a higher disregard encourages full-time unemployed workers to take up part-time jobs during the first three months of the unemployment spell. These U.S. studies suggest that partial benefits encourage part-time working and induce many workers to choose their working hours in such a way that their earnings do not exceed the disregard. What these papers do not tell us is whether or not taking up a part-time job while still collecting UI benefits improves the chances of finding a full-time job in the future. A handful of European studies have addressed this issue quite recently. All these studies follow a timing-of-event approach to deal with the self-selection of unemployed workers into partial benefits, and estimate multivariate hazard models to quantify the effect of receipt of partial benefits on the exit rate out of benefits.

The first study by Kyyrä (2010) analyzes the Finnish scheme prior to the earnings disregard using data on UI recipients who became unemployed in 1999 or 2000. At that time the partial benefits were payable to the unemployed who took up a part-time job or a temporary full-time job of no longer than one month (currently two weeks). The results imply that working full time and receiving partial benefits for a short period shortens the expected time until leaving benefits for self-supporting employment for both women and men. The effect of part-time working on partial benefits appears to be less clear: such a period has no effect for women but it may help men to find a regular full-time job, albeit the latter result is sensitive with respect to the model specification. The sample used in the analysis was relatively small, containing less than 2000 recipients of partial benefits, which may explain the inconclusive results for the part-time unemployed. For the same reason also attempts to detect heterogeneity in the effect of the receipt of partial benefits across worker group and over the course of the unemployment spell led to the point estimates that are too imprecise to be informative.

Kyyrä et al. (2013) use a much larger data set to study the effects of partial benefits in Denmark, where such benefits can be received when working hours over a week are below a given threshold level. Unlike the Finnish study, this study finds evidence of a significant lock-in effect: being on partial benefits reduces the unemployment exit rate. However, after returning to full-time unemployment from partial benefits the exit rate is larger compared to the counterfactual case of having been full-time unemployed for the whole time. As such, there is a trade-off between a negative lock-in effect and a positive stepping-stone effect afterward. Kyyrä et al. (2013) show that the net effect of these two opposite effects implies longer unemployment spells for some groups, such as married

women, white-collar workers and long-term unemployed, but shorter spells for others, such as young individuals and immigrants. Furthermore, longer spells of partial benefits tend to lead to longer unemployment spells due to the cumulative lock-in effect, even though the stepping-stone effect also increases with the time spent in partial benefits. It follows that for immigrants and young unemployed relatively short periods of part-time unemployment are helpful in reducing their overall unemployment duration.

Fremigacci and Terracol (2013) find that partial benefits are associated with lock-in effects also in France. On the contrary, Cockx et al. (2013) find no lock-in effects for long-term unemployed young women in Belgium while Godøy and Røed (2016) find no such effects in Norway. All the three studies find that the exit rate to full-time employment increases after a period of partial benefits. As a result, receipt of partial benefits unambiguously reduces the expected time until a full-time job in Belgium and Norway, and does so in most cases also in France.

As in the U.S., in Germany unemployed workers can earn up to a given limit without benefit reductions, after which the UI benefits are reduced on a euro-for-euro basis. In addition, workers who hold a job that pays less than a certain threshold amount (known as “mini-jobs”) are exempt from social security contributions. This provides an additional incentive for the unemployed to combine UI benefits and earnings from mini-jobs. Ca-liendo et al. (2016) find heterogeneity in the effect of taking up a mini-job on the exit rate from unemployment benefits to self-supporting employment. The mini-jobs appear to be helpful for the long-term unemployed and for those who live in regions with a high unemployment rate, whereas job seekers who take up a mini-job during the first six months of unemployment tend to collect unemployment benefits for a longer time.

In summary, these studies give a rather positive picture for the role of partial benefits. A common finding is that working on partial benefits reduces the expected time until self-supporting employment in many cases. In addition to shorter benefit spells, less UI benefits are paid out during these spells as workers receive lower benefits when part-time unemployed than when full-time unemployed, which further reduces the benefit expenditures. The findings of lock-in effects and impact heterogeneity however suggest that part-time unemployment can also prolong unemployment spells in some cases. This may be a relevant concern also in Finland, especially after the introduction of the earnings disregard in 2014.

One should note that the studies discussed above consider only the effects of actual receipt of partial benefits so that some adverse effects that are difficult to quantify may have been ignored. Namely, these studies are not informative about the possible *ex ante* effect of having a UI system with partial benefits on the re-employment rate prior to receipt of the partial benefits, nor the possible effect on the unemployment inflow if some



workers who are only interested in finding a part-time job (and hence should not be eligible for UI benefits) claim UI benefits in order to gain from the partial benefits.

For these reasons the partial benefits should not be too generous. To minimize the risk of moral hazard behavior, these benefits should be paid only for a limited time period and/or exhibit a declining time profile, and search efforts of part-time unemployed workers may require some monitoring.

### 4.3 The Effects of Benefit Duration

Numerous studies analyze how the length of the benefit period affects unemployment duration and post-unemployment outcomes (see a survey by Tatsiramos and van Ours, 2014). One common finding in this literature has been a notable spike in the number of people leaving unemployment just when the benefits are about to expire (Moffitt, 1985, Katz and Meyer, 1990, Katz and Meyer, 1990, and Card et al., 2007b). The size of the spike varies across studies, reflecting institutional differences (e.g. the maximum benefit duration and availability of other benefits after UI benefits have expired) and differences in the used data (survey or register-based data) and how the unemployment spell is defined (the duration of benefit receipt, the duration of registered unemployment or the time until next job).

The spike in the exit rate from UI benefits or registered unemployment around benefit exhaustion is typically more pronounced than the spike in the job finding rate (Card et al., 2007b). The latter spike can be viewed as evidence of the distortionary effects of UI, since it suggests that some unemployed wait until their benefits exhaust before they return to work. Direct evidence on this type of behavior is provided by Krueger and Mueller (2010) who analyze time use survey data from the U.S. and find that the time spent in job search increases prior to benefit exhaustion among UI recipients and declines after benefits are exhausted.

Another robust finding is that longer benefit periods lead to longer spells of unemployment. A consensus estimate of Tatsiramos and van Ours (2014) is that a change in the maximum benefit duration leads to average unemployment duration changing by approximately 20% of that amount. The estimates of course vary around this value across countries. One extra week of entitlement to UI benefits is estimated to increase the expected unemployment duration by 0.08 weeks in the U.S. (Card and Levine, 2000), 0.04 to 0.42 weeks in Austria (Lalive et al., 2006, Card et al., 2007a, and Lalive, 2008), 0.1 to 0.13 weeks in Germany (Schmieder et al., 2012) and 0.18 to 0.58 weeks in Slovenia (van Ours and Vodopivec, 2006). Some of these studies also report higher effects for women than men.

Evidence on the effect of potential benefit duration on the post-unemployment job

quality is mixed, with some studies finding a positive effect on subsequent jobs in terms of either higher wages or job stability (e.g. Tatsiramos, 2009, Centeno and Novo, 2009, Gaure et al., 2008, and Nekoei and Weber, 2015). Other studies find negative or no effects of longer benefit durations on match quality (e.g. Degen and Lalive, 2013, Lalive, 2007, Caliendo et al., 2013, Card et al., 2007a, van Ours and Vodopivec, 2006, Le Barbanchon, 2016b, and Schmieder et al., 2016).

Many of the studies above exploit a policy change that extended or reduced the benefit period for some group of the unemployed but did not affect other groups. Other studies exploit discontinuities in the rule that determines the length of the benefit period as a function of age and/or work history. Both of these approaches can be applied to study the effect of extended benefits (i.e. benefit entitlement until retirement) for older workers in Finland, but the analysis of the effects of the potential duration of regular benefits for younger groups is trickier. Next we discuss the existing evidence and present some new results on the effects of benefit exhaustion and potential benefit duration for younger groups and the effects of extended benefits for older groups in Finland.

#### **4.3.1 The Spike at Benefit Exhaustion**

To provide some evidence on the effects of benefit exhaustion for Finland we rely on the same data we used in assessing the effects of the employment condition in section 4.1. This time we exclude the spells that started with receipt of labor market subsidy but we do not drop spells starting on September 13 and later in 2002. The resulting sample covers 25 to 54 year old UI benefit recipients with a strong labor market attachment who became unemployed between 2001 and 2004 due to job loss.

Figure 13 depicts the weekly exit rate from UI benefits for a subsample of those who met the employment condition and were thus eligible for the maximum benefit duration of 100 weeks (i.e. 500 UI days). The peaks in the exit rate around 8 and 26 weeks are driven by recalls, i.e. exits to the same employer for which the individual worked before becoming unemployed (as before we have dropped temporarily laid off workers with a valid employment contract from the sample). More importantly, the exit rate doubles at the 99th week. This spike however underestimates the true spike for two reasons. First, the 99th week of unemployment corresponds to the last week of UI entitlement only for those individuals who did not participate in labor market training and did not collect partial UI benefits by that time. For past training program participants the benefits do not expire after 100 weeks of unemployment but at a later point due to receipt of a training subsidy (which was abolished in 2010), smoothing the spike observed in the data. Working part time on partial UI benefits postpones the exhaustion day in the same way. Second, as seen in figure 14, only a small fraction of UI recipients stay continuously unemployed for

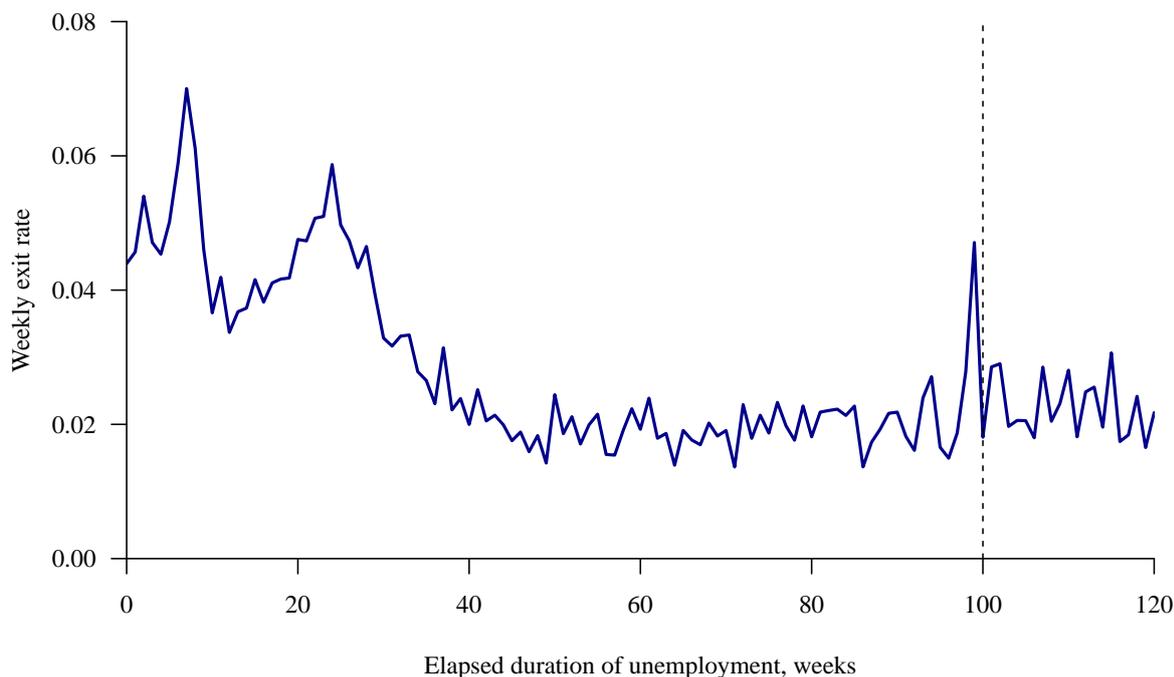


Figure 13: Unemployment exit rate as a function of time spent in unemployment (1 week = 7 calendar days). Sample includes 25 to 54 years old individuals entitled to 100 weeks of UI benefits at the beginning of the unemployment spell that started in 2001–2004.

almost two years. More than 95% of individuals have already left unemployment before the spike.<sup>28</sup> It is common that unemployed workers take up short jobs and then return to unemployment. If such a job is too short to lead to renewal of the benefit eligibility, the worker will be entitled to unused UI benefits from the first spell at the start of the second unemployment spell. If we follow the common practice and only include new UI spells in the analysis, most of the observations around the benefit exhaustion will be discarded.

Figure 15 shows the unemployment exit rate for all spells that started with receipt of UI benefits, that is, we also include the spells in which the entitlement period at the start is less than 100 weeks (500 UI days). In this sample the elapsed duration of the current unemployment spell and remaining benefit entitlement do not move in parallel so strongly. The horizontal axis in the graph does not represent the unemployment duration but the time until benefit exhaustion. The negative values indicate the weeks spent on labor market subsidy after benefit exhaustion. In this case, the exit rate is almost flat except for a sharp spike at the last week of the benefit period. The exit rate is about 0.16 for the last week on UI benefits, while its average level around that spike is around 0.04.

<sup>28</sup>This fraction of course depends on the sample restrictions and the time period under investigation but it is very small anyway.

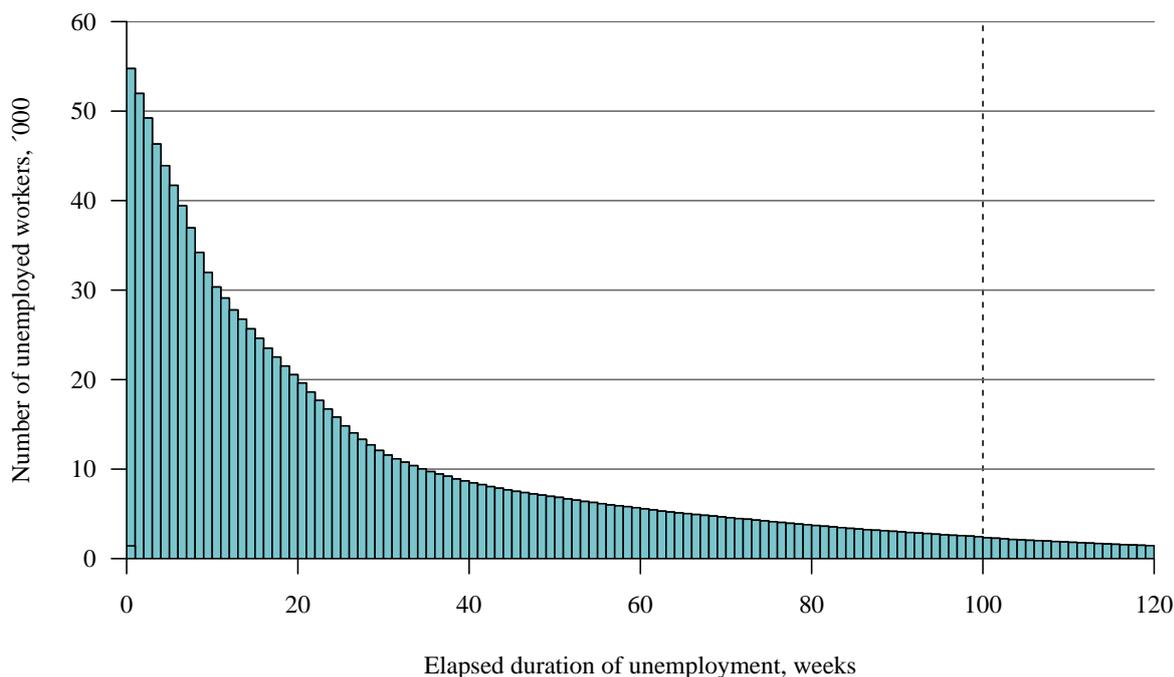


Figure 14: Number of workers still unemployed by elapsed duration of unemployment (1 week = 7 calendar days). Sample includes 25 to 54 years old individuals entitled to 100 weeks of UI benefits at the beginning of the unemployment spell that started in 2001–2004.

In figure 16 the overall unemployment exit rate is decomposed into exit rates to different destinations. We see that most of the spike in figure 15 is driven by exits to employment, mainly to new jobs. The exit rate to nonparticipation jumps from a very low level to 0.04, explaining almost an equally large share of the spike.

Figure 17 shows the number of workers who are still unemployed by remaining benefit entitlement.<sup>29</sup> Compared to the number of people who stayed unemployed for at least 99 calendar weeks in figure 14, the number of unemployed with only one benefit week is 2.4 times larger but their population share is almost the same, being about 5%. A consequence of such a small share is that the spike in the job finding rate at the benefit exhaustion cannot have a large effect on the average unemployment duration despite its large size. Only 2% of spells ended with a new job during the last 10 weeks of UI entitlement, and 0.3% of the spells during the last benefit week.

Some studies find that jobs accepted close to or after the benefit exhaustion are lower paid and shorter than those accepted earlier in the unemployment spell (e.g. Caliendo et al. 2013). We do not see such evidence in figures 18 and 19 which show the average

<sup>29</sup>The first category with 100 benefit weeks in figure 17 is slightly larger than the first category in figure 14 as the former includes also those who were entitled to 495–499 days of UI benefits at the beginning of their unemployment spell.

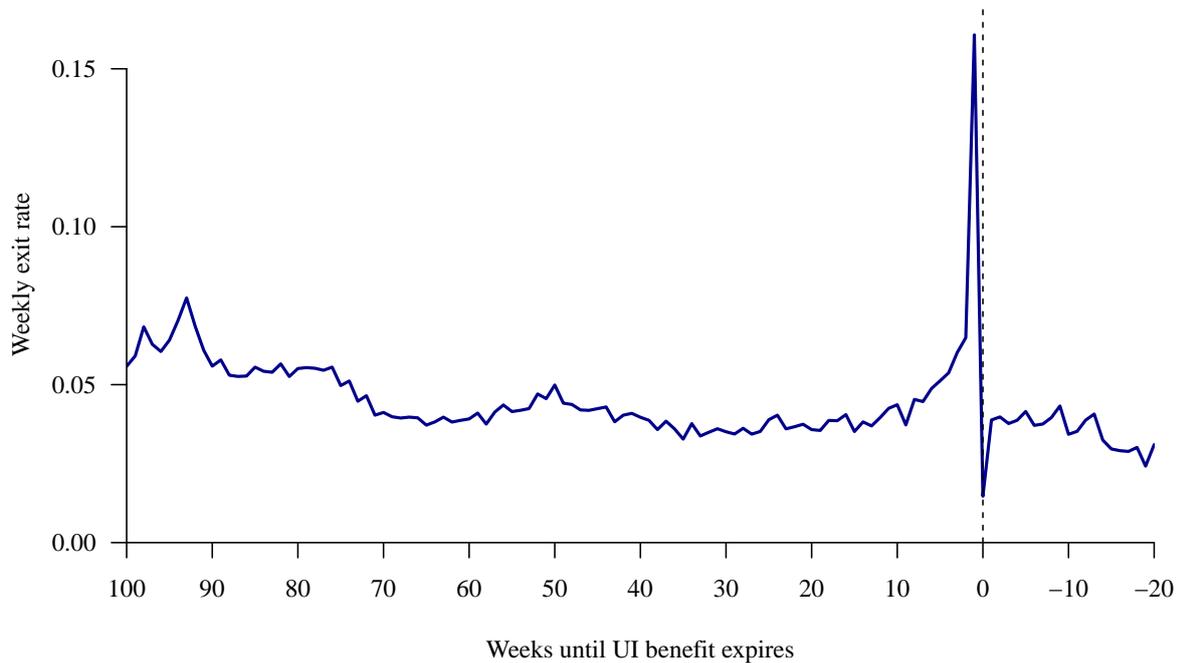


Figure 15: Unemployment exit rate as a function of time until benefit exhaustion (1 week = 5 payment days). Sample includes 25 to 54 years old individuals entitled to UI benefits at the beginning of the unemployment spell that started in 2001–2004.

wage and duration of next job by remaining benefit entitlement for those who found a new job (i.e. recalls excluded). While the re-employment wage exhibits a modest declining pattern the duration of the next job is very stable until the benefit exhaustion. There are no notable drops during the last weeks of the benefit entitlement period, but the average duration of the next job is clearly shorter for those whose UI benefits expired 10 to 20 weeks ago. It is worth emphasizing that the number of exits to employment is much lower after the benefit exhaustion: on average 33 per week compared to 158 per week during the last 50 weeks of UI entitlement. The average duration of the next job is remarkably high, being above one year for most of the time, because many workers found a stable job. The median duration of the next job is much lower, around 20 weeks, and it remains quite stable even after the benefit exhaustion.

#### 4.3.2 The Effect of Potential Benefit Duration

Except for a special case of the oldest unemployed entitled to extended benefits, which is discussed in the next section, there is no empirical evidence on the effects of benefit duration for Finland. This is not surprising as the maximum duration of regular UI benefits remained the same for the decades, and for the 2014 change we do not have data yet. In

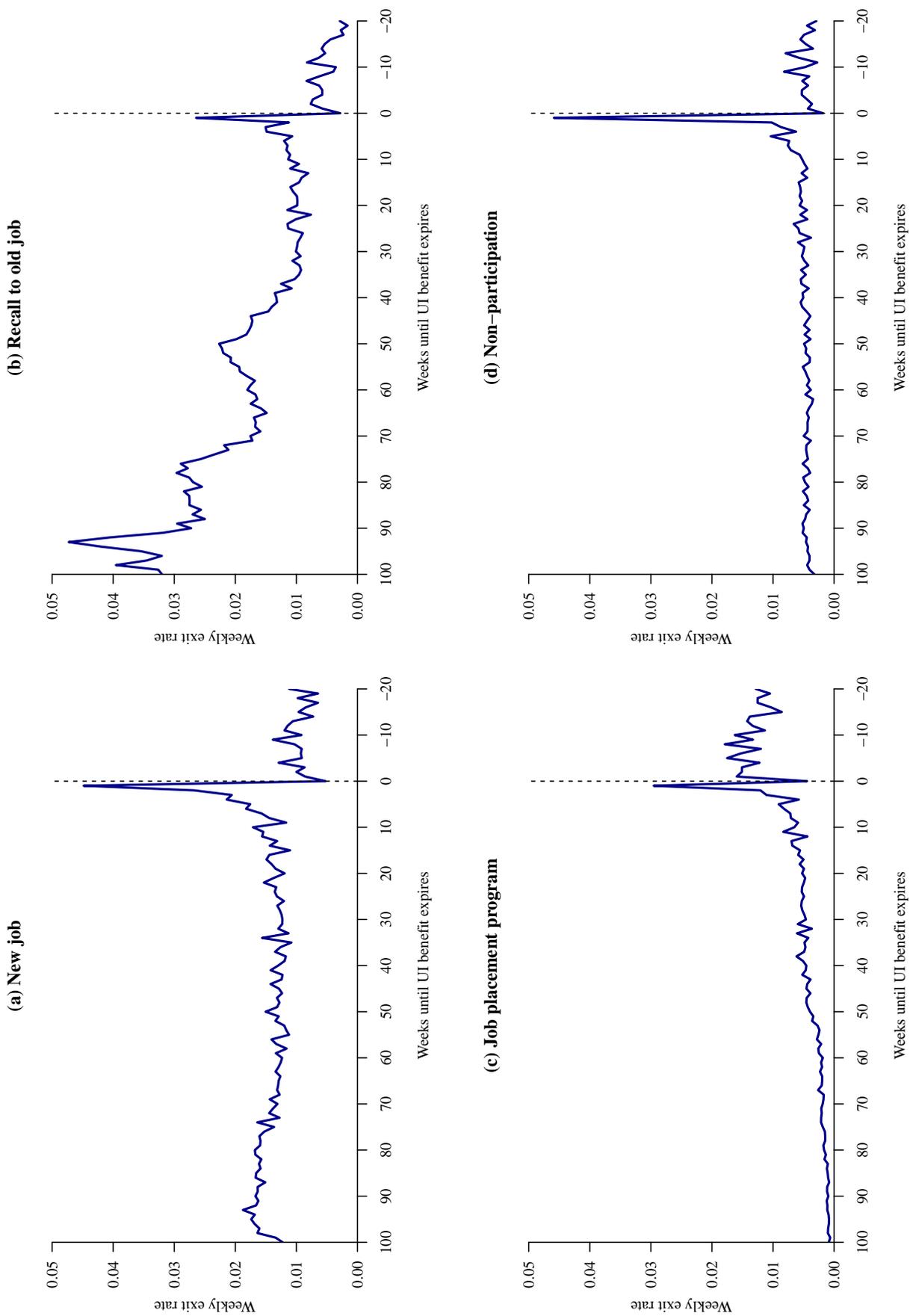


Figure 16: Unemployment exit rates as a function of time until benefit exhaustion by exit destination (1 week = 5 payment days). Sample includes 25 to 54 years old individuals entitled to UI benefits at the beginning of the unemployment spell that started in 2001–2004.

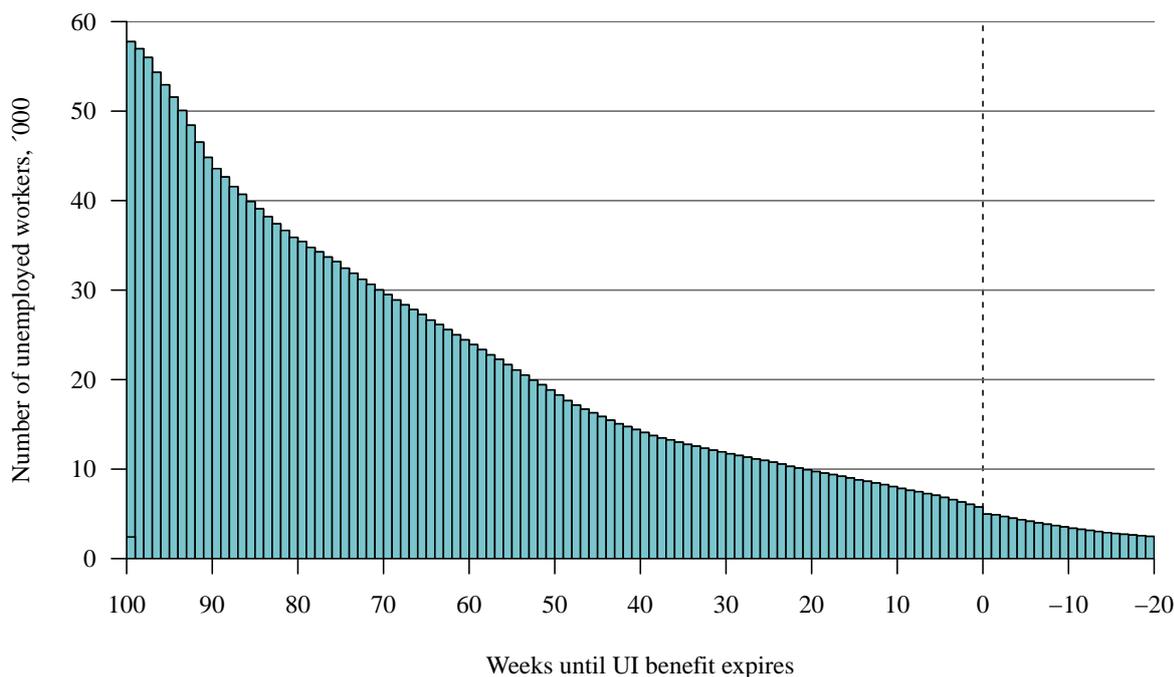


Figure 17: Number of workers unemployed by length of remaining benefit entitlement (1 week = 5 payment days). Sample includes 25 to 54 years old individuals entitled to UI benefits at the beginning of the unemployment spell that started in 2001–2004.

other words, there has been no variation in *maximum* benefit duration that one could have possibly exploited for identification in the analysis. However, what we can do is exploit variation in *remaining* benefit duration at the beginning of subsequent unemployment spells. Recall that workers who enter unemployment without satisfying the employment condition may be entitled to unused UI benefits from the previous unemployment spell. Within this group the remaining benefit duration can be anything between 0 and 499 days, being 0 for those who exhausted their UI benefits in the past and for those who have not received UI benefits before. To identify causal effects we can take advantage of the 2003 change in the employment condition and exploit only the benefit duration variation caused by the reform.

In 2003 the minimum number of the contribution weeks required for the renewal of the UI entitlement period was reduced by 21% from 43 to 34. Consequently workers with 34–42 contribution weeks have been entitled to UI benefits for different numbers of weeks depending on their unemployment entry period. In particular, those who became unemployed after the reform qualified for 100 weeks of benefits, whereas those entering unemployment before 2003 were entitled either to unused UI benefits from the previous spell or to the labor market subsidy. In section 4.1, we provided evidence that the 2003

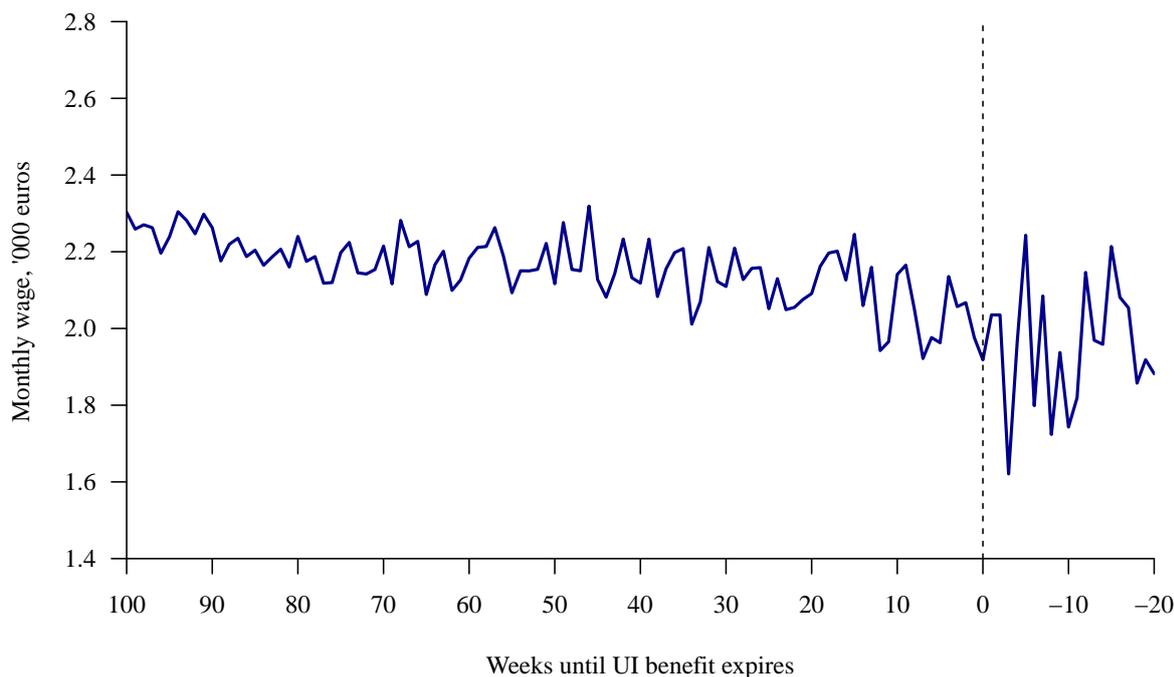


Figure 18: Average wage in next job by remaining benefit entitlement at the time of unemployment exit (1 week = 5 payment days). Sample includes 25 to 54 years old individuals who were entitled to UI benefits at the beginning of the unemployment spell that started in 2001–2004 and who found a new job.

reform did not affect the unemployment inflow, which implies that workers with 34–42 contribution weeks before and after the reform are likely to be similar. It follows that we can compare unemployment outcomes within this “treatment” group, using another group whose eligibility status was not affected by the reform as a “control” group. The most natural candidate for the latter group are workers who are similar to our treatment group members. We choose two such groups: workers with 20–33 contribution weeks and those with 43–60 weeks. Once again we use a sample of workers entering unemployment in the years 2001–2004 but now including only those with 20–60 contribution weeks.

**Descriptive Evidence** We do not directly observe the contribution weeks in our data but calculate them using information on job spells. Despite the sample restrictions discussed earlier, some inconsistencies in the information obtained from the different registers remains. In particular, the number of contribution weeks from the job spell data do not always match the UI records which are supposed to be highly reliable. To illustrate this we depict the fraction of unemployment entrants who qualified for 100 weeks of benefits (500 UI days) according to the benefit records as a function of contribution weeks computed from the employment records for the spells starting before and after the 2003



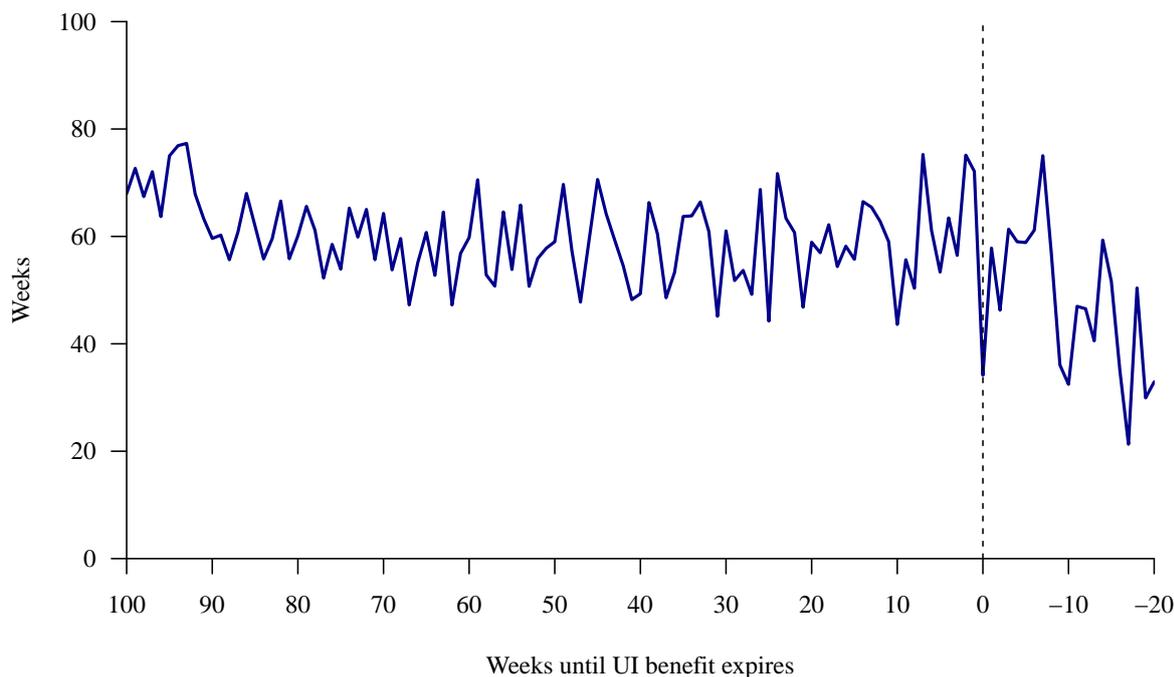


Figure 19: Average duration of next job by remaining benefit entitlement at the time of unemployment exit (1 week = 5 payment days). Sample includes 25 to 54 years old individuals who were entitled to UI benefits at the beginning of the unemployment spell that started in 2001–2004 and who found a new job.

reform in figure 20a. In the absence of measurement errors, the share of the unemployed with the maximum benefit entitlement should be 0% until the threshold of 34 or 43 weeks depending on the entry period, and 100% thereafter. As seen in figure 20a, this is not the case and the degree of classification errors is about 15% for the individuals with 34–42 weeks.

Figure 20b shows the renewal rate by the month of unemployment entry for three contribution week groups. The fraction of those entitled to 100 weeks of UI benefits in our treatment group with 34–42 weeks increases sharply in the post-reform period, ending up close to the level of workers with 43–60 weeks. The renewal rate for workers with 20–33 weeks also increases over time but to a much lesser extent. When measured by the number of UI weeks the individual is entitled to at the start of the unemployment spell, the differences between groups are less drastic, especially around the threshold values of the employment condition (figures 20c and d). Obviously the sample members have quite many unused UI weeks from the previous unemployment spell, which suggests they experienced short UI spells in the past. The key insight from figure 20 is that despite the measurement error in the contribution week variable, the benefit eligibility in the

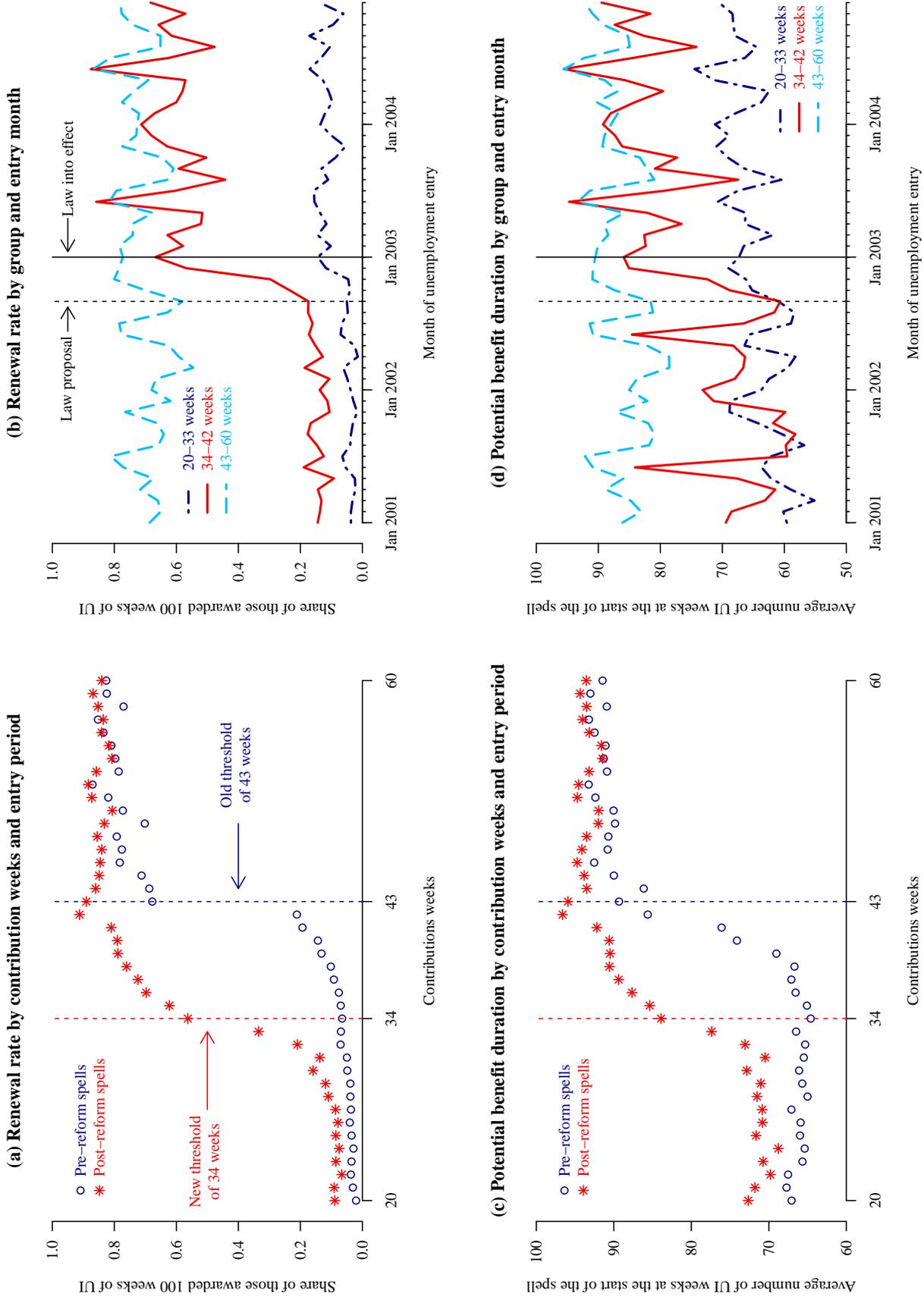


Figure 20: UI entitlement by contribution weeks and time of unemployment entry. Pre-reform spells in panels a and c only include those that begun before September 13, 2002.

treatment group changes markedly at the time of the reform compared to the two other groups. This is the variation we exploit for identification.

As discussed in section 4.1, our data includes a specific subgroup of individuals who typically entered unemployment in June, stayed unemployed for the summer period and then returned to employment in August. These workers have 41 or 42 contribution weeks and large numbers of unused UI days due to their short unemployment episode covering only the summer weeks. The presence of this group explains the large value of UI weeks at 42 contribution weeks in the pre-reform period in figure 20c, as well as the spikes in Junes for the treatment group in figure 20d.

In figure 21 we plot the average outcomes by group and month of unemployment entry.<sup>30</sup> As seen in figure 21a, unemployment spells were shortest for the treatment group until August 2002. After September 2002, the average benefit duration increased in the treatment group compared to the other groups (figures 20b and 20d), which may indicate that the increasing average unemployment duration of the treatment group after the reform was caused by longer benefit entitlements. The lack of differences in the unemployment duration already in August and September 2002 does not fit the story, but it may also be driven by differential seasonal patterns as there were no differences in the same months in 2001 either.

The average unemployment duration of workers with 20–33 weeks increases over time compared to the group with 43–60 weeks. This is somewhat worrisome regarding the parallel trend assumption we need in our analysis. Yet it may also reflect the differential trends in the average potential benefit duration in figure 20d: the average entitlement period of workers with 20–33 weeks increases over time in comparison to workers with 43–60 weeks, and that should shrink the difference in the average unemployment duration between the groups provided the longer benefit duration leads to longer unemployment spells. Because the macroeconomic conditions improved over the years in question, the average unemployment entrant in the later years had experienced shorter UI spells in the past, and would thereby have more unused UI days at the beginning of the current spell. This is likely to explain the increasing trends of the benefit entitlement for those with 20–33 contribution weeks over all years and for those with 34–42 contribution weeks in the pre-reform period. The macroeconomic conditions probably had less impact on the benefit entitlement of workers with 43–60 weeks. These are supposed to be entitled to 100 benefit weeks in all years so that all the variation within this group is due to erroneously classifying workers who actually have less than 43 contribution weeks into the group.

Another measure of successful job search is the probability that the unemployment

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<sup>30</sup>To eliminate a few outliers we censor the unemployment spells at 120 weeks (2% of observations) and the post-unemployment wages at the 99th percentile by replacing the higher values with these cutoff values.

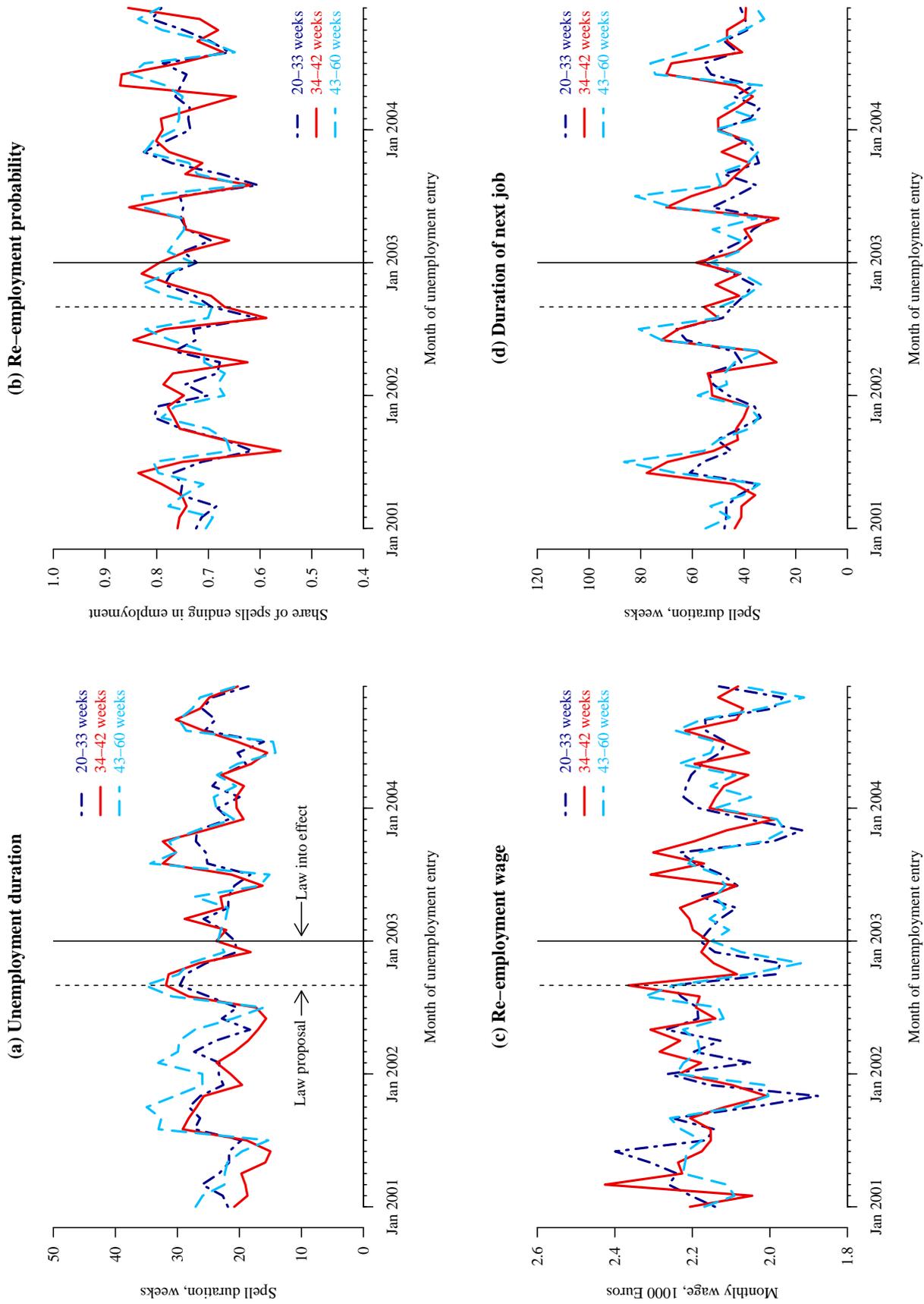


Figure 21: Average outcomes by contribution weeks and month of unemployment entry

spell will eventually end with a new job. In figure 21b, we do not see much difference in the fraction of spells ending in employment between the groups, nor any changes after the reform. We also consider two measures of match quality: the wage and duration of the first post-unemployment job for those who found a job of no shorter than four weeks. These measures are very similar for all groups and in all periods in figures 21c and 21d.

To sum up, the pre-reform trends in figure 21 are highly similar for different groups, and the changes in the average unemployment duration between the groups over time are consistent with the hypothesis that longer benefit periods lead to longer spells of unemployment. On the other hand, there is no visual evidence implying that the benefit duration would affect other outcomes than the unemployment duration.

**Instrumental Variables Estimates** Above we ignored heterogeneity in the size of the “treatment effect” arising from different UI histories. Note that in the treatment group a worker with 90 weeks of UI benefits left from the previous unemployment spell can qualify for 10 extra weeks of benefits due to the reform while a worker who exhausted his or her benefits in the past may qualify for 100 extra weeks. By taking into account the counterfactual benefit eligibility we can increase the statistical power of our analysis. Thus, in addition to the contribution weeks, we group the data also according to the number of unused UI days from the previous spell. One category contains workers with no UI benefits left from the previous spell, i.e. those who exhausted their benefits in the past. Workers with at least some unused UI days are split into 20 roughly equal-sized categories. Based on three categories for contribution weeks and 21 categories for unused UI days we obtain 63 distinct groups. For each of these groups we then calculate the average potential benefit duration and average outcomes of the unemployment spell before and after the reform. The idea is to compare the changes in the outcomes to the changes in the potential benefit durations across groups.

In figure 22 we plot within-group changes in the outcome variables against the changes in the potential benefit durations. For the majority of the groups, including the groups of workers with 34–42 contribution weeks who have close to 100 weeks of unused UI benefits, the change in the potential benefit duration is small. These groups are packed around a change of about five weeks in the potential benefit duration. Despite the small increase in the average benefit duration within these groups, the unemployment spells are slightly shorter on average and larger shares of workers found a new job in the post-reform period due to better economic conditions in the later years. At the same time the average duration and wage of the next job both declined pointing to declining match quality.

Obviously the changes in the potential benefit duration are by far largest for the groups of workers with 34–42 contribution weeks who have none or only few unused UI weeks.

These groups are located on the right-hand side of the graphs. Unlike in the other groups, the unemployment spells became clearly longer in these groups. The change in the re-employment rate does not differ notably from other groups, but the post-unemployment outcomes may have evolved slightly better than in other groups, albeit the differences are rather small.

In the graphs we also show regression lines obtained by weighted least squares (WLS) using the group sizes as weights. This regression line is not only provided for illustration purposes but its slope can be interpreted as an instrumental variable (IV) estimate for the effect of potential benefit duration. To see this note that instead of applying WLS to grouped data one can obtain numerically *identical* results from individual-level data as follows: first regress by ordinary least squares (OLS) potential benefit durations on the group dummies interacted with the post-reform dummy, and then regress the outcomes on the predicted values of the potential benefit duration from the first stage along with the post-reform and group dummies (see e.g. Blundell et al., 1998). The key identifying assumption is that differences in average outcomes across groups conditional on the potential benefit duration do not change over time. This is the common trend assumption used in the difference-in-differences analysis. Under the assumption the group/post-reform interactions have no direct effect on the outcome and thus we can use them as instruments for the potential benefit duration. The IV estimator also deals with the misclassification problem due to the measurement error in the contribution week variable.

The slope of the regression line in figure 22a suggests that one additional week of UI benefits increases the expected duration of unemployment by 0.17 weeks, which corresponds to an elasticity of 0.61.<sup>31</sup> The effect on the re-employment probability is very small and only marginally significant. The implied elasticity is 0.04 (which is approximately the same as the regression slope). There is some evidence of positive impacts on the quality of the next job: one extra week of benefits is estimated to lead to an increase of 2.9 Euros in the expected post-unemployment wage and to an increase of 0.15 weeks in the expected duration of the next job.<sup>32</sup> Both of these effects are statistically significant but much smaller than the effect on the expected unemployment duration. The elasticity of the post-unemployment wage is only 0.09 and that of the job duration is 0.19.

Table 4 reports additional results from individual-level regressions. For comparison

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<sup>31</sup>The elasticity is approximated as  $0.17 \times 68/19$  where 0.17 is the slope of the regression line, and 68 is the average potential benefit duration and 19 is the average unemployment duration in the pre-reform period for workers with 34–42 contribution weeks who did not meet the employment condition (i.e. we drop misclassified workers who qualified for 100 weeks of UI benefits according to the UI records). Other elasticities in the text are computed in the same way.

<sup>32</sup>When analyzing the effects on the post-unemployment outcomes, we use only observations on re-employed workers who could be a selective group. However, this does not seem a significant problem as the effect on the re-employment probability is typically very close to zero.

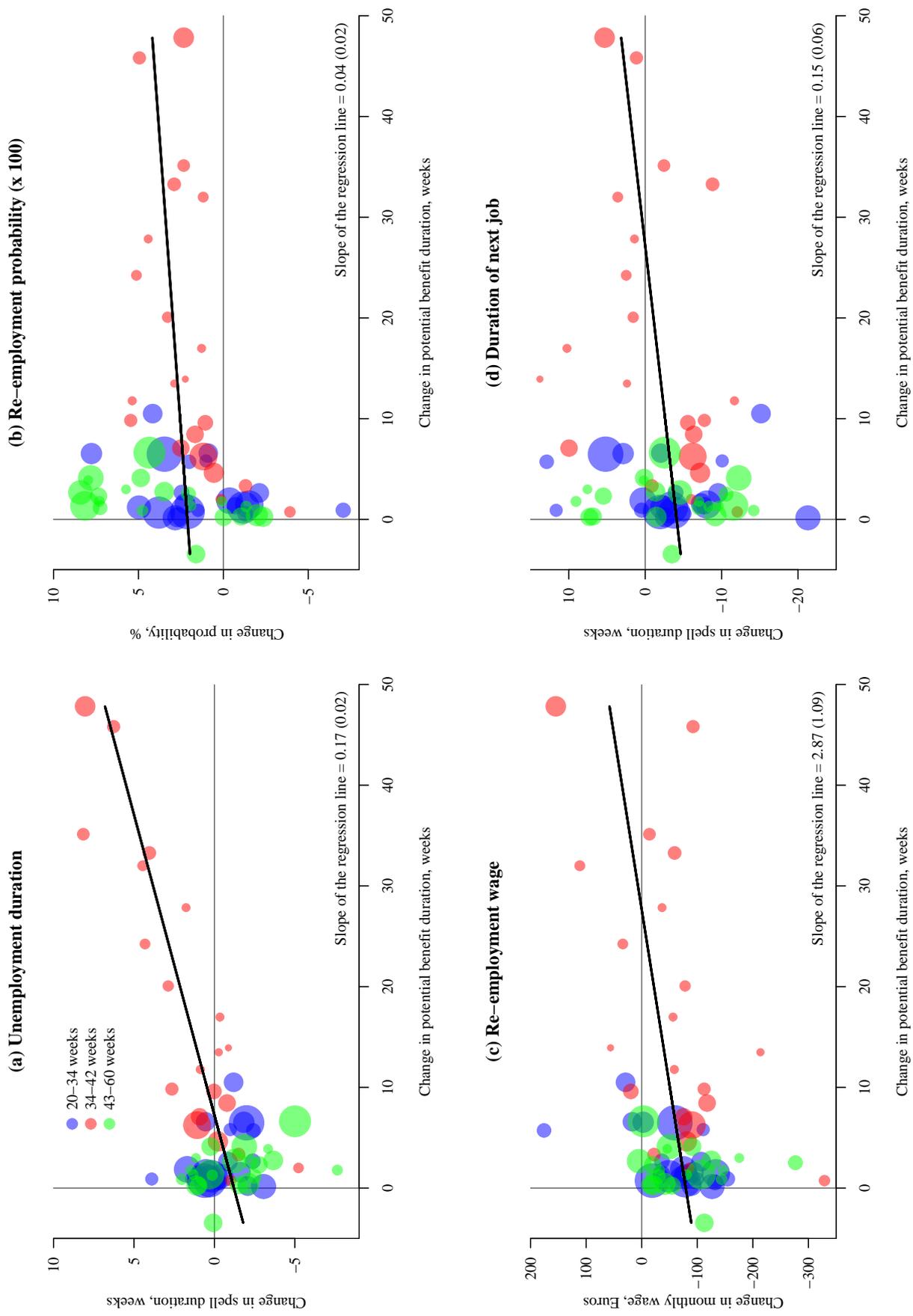


Figure 22: Within-group changes in outcome and benefit entitlement from pre- to post-reform period. Spells started on September 13 or later in 2002 are not included. Size of the balls is proportional to group size. The regression line is obtained by regressing the average outcome on the average benefit entitlement, group dummies and the post-reform dummy using the group sizes as weights.

Table 4: Estimates for the effect of potential UI benefit duration

	N	Mean	OLS estimates		IV estimates	
			Without controls (1)	With controls (2)	Without controls (3)	With controls (4)
Unemployment duration	60,295	19.0	-0.047**	0.069***	0.167***	0.155***
	60,295	19.0	(0.019)	(0.015)	(0.018)	(0.020)
Re-employment probability	60,295	76.3	0.156***	0.010	0.043*	0.050**
	60,295	76.3	(0.016)	(0.010)	(0.025)	(0.022)
Re-employment wage	45,532	2177	1.729***	0.966***	2.922***	1.958**
	45,532	2177	(0.274)	(0.295)	(0.972)	(0.936)
Duration of next job	45,532	55.1	0.193***	-0.037*	0.148***	0.143**
	45,532	55.1	(0.040)	(0.019)	(0.056)	(0.059)

*Notes:* Mean is for workers with 34–42 contribution weeks in the pre-reform period. Table reports the coefficient on the number of the UI weeks the worker is entitled to at the beginning of the unemployment spell. Interactions between group dummies and post-reform dummy are used as instruments in models 3 and 4. All models include year dummies. Models 2 to 4 also include group dummies. The set of additional controls include gender, age, education, occupation, the calendar month of unemployment entry, the duration and wage of the previous job, the sector of the previous employer, the reason for termination of the previous job, the fraction of time spent in employment within the past 12 months and 12–24 months, and the fraction of time spent on UI benefits within the past 12 months and 12–24 months. The standard errors clustered at the group level are in parentheses. Significance levels: \*\*\* 1%, \*\* 5% and \* 10%.

purposes we also report two sets of the OLS estimates. In model 1 we simply regress the outcome on the number of UI weeks and year dummies, ignoring the endogeneity problem. The results from this model suggest a very attractive policy option: by providing UI benefits for a longer period, the policy makers could reduce the average time spent in unemployment, increase the share of the re-employed and even help the unemployed to find better jobs in terms of both wage and job duration. Unfortunately these estimates are severely biased. Because workers who are entitled to longer periods of benefits worked more and collected UI benefits for fewer weeks in the past, they are generally more employable than others and therefore more likely to find a good job quickly *despite* their longer remaining benefit entitlements.

In model 2 we add a large array of control variables, including the group dummies that control for the effects of contribution weeks and unused UI weeks from the previous spell. Their inclusion mitigates the endogeneity problem. If both the contribution weeks and unused UI weeks were observed without error, we could overcome the endogeneity problem by controlling for their direct effects (as all the remaining variation in the benefit duration would then be driven by the 2003 reform). As we only observe a noisy measure of the contribution weeks, this approach is not feasible, even though the inclusion of



the group dummies provides a partial solution. The results in this case imply that one additional week of UI benefits increases the expected unemployment duration by 0.07 week. The results for post-unemployment match quality are somewhat mixed: a longer benefit duration seems to increase the next wage but reduce the job duration, though the size of the former effect is very small and the latter effect is only marginally significant. Except for the effect on the job duration, the OLS estimates are similar to those in figure 22 but smaller in absolute value.

Our preferred specifications are models 3 and 4 where the group/post-reform interactions are used as instruments for the potential benefit duration. Apart from including year dummies (and a different way of obtaining standard errors), model 3 corresponds to the grouped data regression shown in figure 22 and therefore the results are almost identical. As seen from model 4, adding a large number of control variables makes little difference. The effect on the post-unemployment wage drops by one-third but that was very small to start with.

Table 5 shows several robustness checks for the IV estimates. The baseline results from model 4 with control variables are reproduced in column 1. Excluding a somewhat specific group of workers who became unemployed in June has very little effect (model 2 vs. model 1). Likewise, if we drop those workers entering unemployment in 2002, as some of them may have changed their behavior if still unemployed at the time when the reform became public knowledge, the results remain stable (model 3 vs. model 1). Dropping the spells that started with receipt of labor market subsidy kills the effects on the post-unemployment outcomes by cutting their magnitude by half but hardly affect the impact on the unemployment duration and re-employment probability. It is worth emphasizing that excluding these spells leads to a somewhat selective sample in the sense that a slightly higher share of the pre-reform spells are excluded as it was easier to qualify for UI benefits in the post-reform period.

In models 5 to 8 we relax the common trend assumption by allowing a distinct linear trend for each of the 63 groups. These estimates are noisier but it is reassuring to find that the point estimates do not change much from the baseline results. The effect on the unemployment duration reduces marginally whereas the effects on the post-unemployment outcomes remain similar but lose their statistical significance due to higher standard errors. The only exception is the effect on the re-employment probability which increases to fourfold (model 5 vs. model 1). The point estimate of 0.217 in this case implies an elasticity of 0.19 for the re-employment probability. This estimate is also robust with respect to the sample restrictions (models 6 to 8).

In summary, our findings indicate that one additional week of UI benefits increases the expected unemployment duration by some 0.15 weeks, corresponding to an elasticity

Table 5: Robustness of the IV estimates for the effect of potential UI benefit duration

	Baseline specification				Group-specific linear trends			
	All spells (1)	Without June spells (2)	Without 2002 spells (3)	Only UI spells (4)	All spells (5)	Without June spells (6)	Without 2002 spells (7)	Only UI spells (8)
Unemployment duration	0.155*** (0.020)	0.146*** (0.022)	0.159*** (0.019)	0.149*** (0.023)	0.129*** (0.048)	0.142*** (0.048)	0.148*** (0.048)	0.104* (0.057)
Re-employment probability	0.050** (0.022)	0.048** (0.023)	0.037 (0.028)	0.059** (0.024)	0.217*** (0.072)	0.250*** (0.063)	0.215** (0.102)	0.224** (0.107)
Re-employment wage	1.958** (0.936)	1.807** (0.873)	1.846** (0.923)	0.890 (0.964)	2.005 (1.933)	2.839 (2.043)	3.006* (1.774)	-0.319 (2.024)
Duration of next job	0.143** (0.059)	0.176*** (0.058)	0.176** (0.081)	0.100 (0.073)	0.174 (0.155)	0.223 (0.172)	0.399** (0.192)	0.119 (0.235)

*Notes:* Table reports IV estimates for the effect of the number of the UI weeks the worker is entitled to at the beginning of the unemployment spell. Interactions between group dummies and post-reform dummy are used as instruments. All models include year and group dummies as well as controls for gender, age, education, occupation, the calendar month of unemployment entry, the duration and wage of the previous job, the sector of the previous employer, the reason for termination of the previous job, the fraction of time spent in employment within the past 12 months and 12–24 months, and the fraction of time spent on UI benefits within the past 12 months and 12–24 months. Models 5 to 8 allow for group-specific linear trends. Models 4 and 8 are estimated without spells started with receipt of labor market subsidy. The standard errors clustered at the group level are in parentheses. Significance levels: \*\*\* 1%, \*\* 5% and \* 10%.

of 0.5. Although our approach differs from other studies that exploit exogenous variation in the maximum benefit duration, our estimate is of the same magnitude. Our results also imply a positive effect on the re-employment probability. Our baseline estimate is rather small with an implied elasticity of 0.05, but the size of the effect appears to be sensitive with respect to the common trend assumption. The longer benefit period may thus improve labor market attachment: an unemployed worker entitled to benefits for a long time may be less likely to move outside the labor force and hence more likely to find a job. However, part of this effect on the re-employment probability can be mechanical as we analyze the compensated spells of unemployment. Those individuals who exhaust their UI benefits but do not qualify for means-tested labor market support drop out of the sample regardless of whether or not they continue job search. For these individuals a longer benefit period lengthens the follow-up period by postponing the day of benefit exhaustion.

Finally, our results indicate that one additional week of UI benefits increases the expected wage and duration of the next job by some 2 Euros per month and 0.15 weeks respectively. The former effect is very small, corresponding to an elasticity of 0.06, whereas the latter effect is economically significant with an elasticity of 0.19. These effects should be interpreted with some caution as the potential selectivity of the re-employed group is ignored. If we include also those who did not find a new job in the analysis with setting their wage and job duration to zero, the results remain similar. Compared to the evidence from other countries that point to small positive or nonexistent effects on the job quality, our findings are broadly similar yet more positive. However, these findings are at odds with our results for the effects of the UI benefit level discussed in section 4.2.

### 4.3.3 Extended Benefits for Older Unemployed

Unemployment has been particularly high in the oldest groups.<sup>33</sup> The unemployment tunnel (UT) scheme described in section 2.4 contributes to this phenomenon in two ways. First, employers often target dismissals at those employees who can qualify for the extended benefits after exhausting their regular benefits first. Rantala (2002) and Kyyrä and Wilke (2007) show that the unemployment risk of private-sector employees at least doubles at the age limit of the UT scheme. Large employers in particular are found to exploit the scheme when downsizing. Second, among unemployed workers eligibility for extended benefits notably decreases the probability of becoming employed again before

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<sup>33</sup>Yet there are two distinct realities: the unemployment rate for 55–64 years old workers is not particularly high according to the official statistics based on the Labor Force Survey, even though a disproportionately large share of them are collecting unemployment benefits according to the register data. The gap between these figures is due to the fact that many older unemployed do not actively search for a new job and hence are classified as being outside the labor force in the survey data.

retirement.<sup>34</sup> In an extreme case an unemployed worker entitled to UI benefits until retirement may choose to withdraw from job search entirely, in which case the employment hazard equals zero. Kyyrä and Ollikainen (2008) take this possibility into account in their analysis using a split population duration model. They estimate that approximately half of the unemployed eligible for the benefit extension effectively drop out of the labor market. Moreover, of those who remain active, only a small fraction eventually return to employment due to demand constraints and poor economic incentives. These studies examine a change in the age limit from 53 to 55 in 1997 and hence use rather old data. A recent study by Uusitalo and Nivalainen (2013) reports similar findings by analyzing the 2005 increase in the age limit. They find that the UT eligibility increases transitions from employment to unemployment and decreases transitions from unemployment to employment.

The UT scheme evidently acts as an early retirement scheme for many unemployed. One concern is that the scheme is a close substitute for other early retirement options, mainly for disability benefits that are payable to all working age individuals with a diagnosed disability. If this is the case, restrictions in the access to the UT scheme can increase the disability inflow, mitigating the employment effect of such changes. Uusitalo and Nivalainen (2013) and Kyyrä (2015) do not find evidence that the past increases in the age limit would have had notable spillover effects on the inflow to disability benefits. Therefore the past reforms did not only reduce the unemployment of older groups but also increased their employment levels.

The Finnish scheme is not an anomaly but extended benefits are paid to the older unemployed in many European countries. Several studies present evidence that extended benefit periods lower re-employment rates and are often used to bridge the time until retirement (see Hunt, 1995, for Germany, Lalive and Zweimüller, 2004, and Lalive, 2008, for Austria, and Tatsiramos, 2010, for a comparison of Germany, Italy, Spain, and the UK). There is less evidence on the effects of the extended benefits on transitions out of employment for other countries. One exception is Winter-Ebmer (2003) who examines the extension of maximum unemployment benefit duration from 52 to 209 weeks for workers above age 50 in Austria. According to the results, the reform led to an increase of 4 to 11 percentage points in the annual unemployment inflow rate.

**Inflow Effects** To illustrate how the UT scheme affects the unemployment inflow we plot the age distributions of new UI benefit claimants over two periods in figure 23.

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<sup>34</sup>On the other hand, the UT scheme increases the value of becoming employed, and hence probably the employment hazard, for those who are above the age threshold but are not currently eligible for UI benefits as well as for all unemployed who are slightly below the age limit. This is so because by finding a job the worker qualifies for UI benefits until retirement at the start of the next unemployment spell.

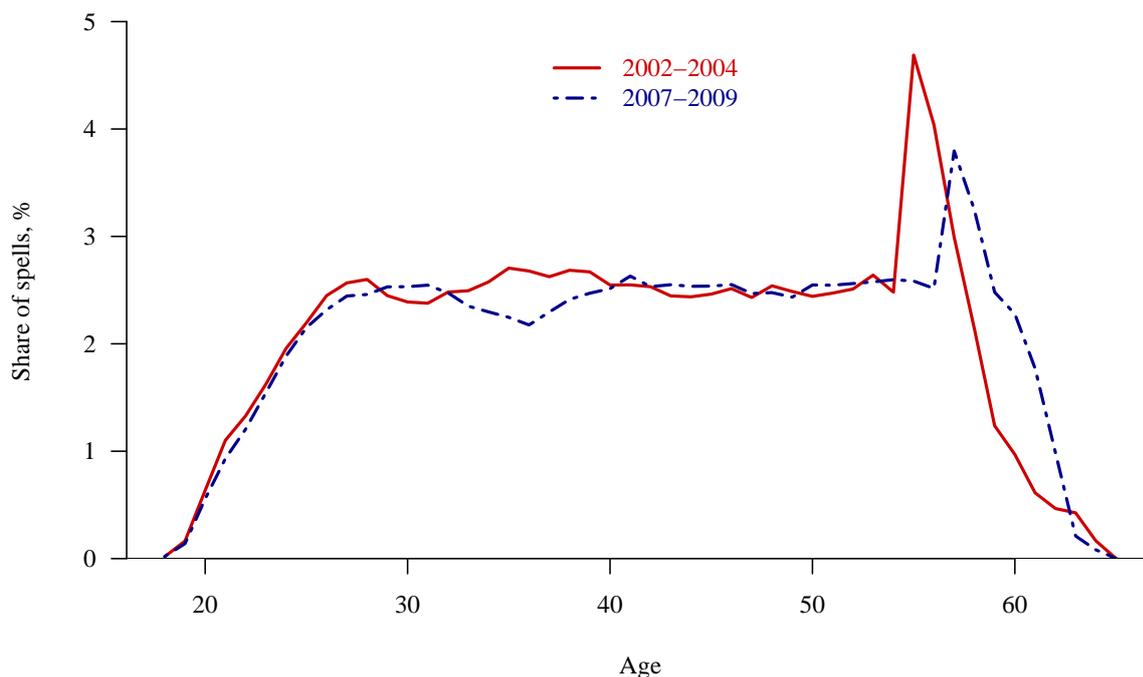


Figure 23: The age distribution of new UI claimants (i.e. those who qualified for 500 days of benefits) in the years 2002–2004 and 2007–2009

During the period 2002–2004 workers aged 55 or older at the time of unemployment entry qualified for extended benefits after exhausting their regular benefits. In 2007–2009 the age limit of the UT scheme was 57. In the earlier period almost 5% of all new UI spells started at age 55 and 4% at age 56 compared to a steady share of about 2.5% for age groups from 26 to 54. In the later period the difference between 55 and 56 years old and slightly younger groups disappears but a spike shows up at the new threshold at age 57. While the spike at the new age limit is smaller, clearly higher shares of new UI spells started between the ages of 58 and 62 in 2007–2009 than in the earlier period. It follows that a slightly larger share of all new UI spells started between the ages of 55 and 65 in the years 2007–2009 (20%) than 2002–2004 (18%) despite the higher age limit in the later years. Yet this should not be interpreted as evidence that the 2005 increase in the age limit simply postponed unemployment entry among the oldest workers. It is likely that in the later years more people were working and consequently at risk of being laid off in their 60s also for other reasons than the change in the UT scheme. In particular, a large pension reform in 2005 has reduced retirement before age 63 (Uusitalo and Nivalainen, 2013).<sup>35</sup>

To what extent layoffs are concentrated in the age groups eligible for extended benefits

<sup>35</sup>The change in the UT scheme in 2005 was part of this larger reform.

varies across industries and occupations. This is illustrated in figure 24 which shows the number of new UI spells by age over the two periods for the members of certain unemployment funds. Among both white- and blue-collar groups the UT scheme has been actively exploited but not in all worker groups. There are no notable spikes at the age limits for construction workers, nor for teachers. The underlying reasons for the lack of the spike are likely to be quite different. In the construction sector, employment contracts are typically signed for the duration of each construction project, and hence the employers may not often need to layoff large groups of workers when downsizing.

A majority of unemployed teachers are recently graduated young persons who work as substitute teachers before finding a tenure position. There is also a strange practice where teachers on maternity leave often return to “work” for the holiday period, putting their substitutes out of work for the summer months. This may explain why 43% of teachers’ UI spells in figure 24 started in June and as many as 75% between June and August. Older teachers in permanent positions in the public sector are rarely laid off.

The layoffs of paper workers are strongly concentrated in the oldest groups as around 40% of UI benefits were awarded to workers who can qualify for extended benefits after exhausting their regular benefits. The paper industry is dominated by a few larger firms, and large firms in particular are keen to find soft ways to get rid off their workers when downsizing.

As the existing studies have shown, laid off workers eligible for extended benefits are likely to stay unemployed for a long time. This suggests that the excess unemployment inflow at the age limit of the UT scheme leads to higher unemployment levels also in the groups above this age limit. Figure 25 demonstrates how the older groups are overrepresented among unemployment benefit recipients and in particular among UI recipients. These figures do not only capture the high layoff risk of older groups but also their poor chances to find a new job if laid off. The mass of older unemployed has moved by a few years from 2003 to 2013 due to the increases in the age limit of the UT scheme. There are many more workers around age 60 on labor market subsidy or basic unemployment allowance in 2013 than ten years ago.

**Long-Term Effects of UT Eligibility** We next examine the effect of the 2005 reform on labor market outcomes over the years up to 2013. As pointed out above, this reform increased the age limit for the extended benefits by two years and abolished the unemployment pension which was replaced with additional weeks of UI benefits. Since the reform affected only those born in 1950 or later, we compare the 1949 and 1950 cohorts using the FLEED of Statistics Finland.<sup>36</sup> The earlier cohort became eligible for the UT

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<sup>36</sup>FLEED is a linked employer-employee data set with extensive information on earnings, employment and characteristics of both workers and firms

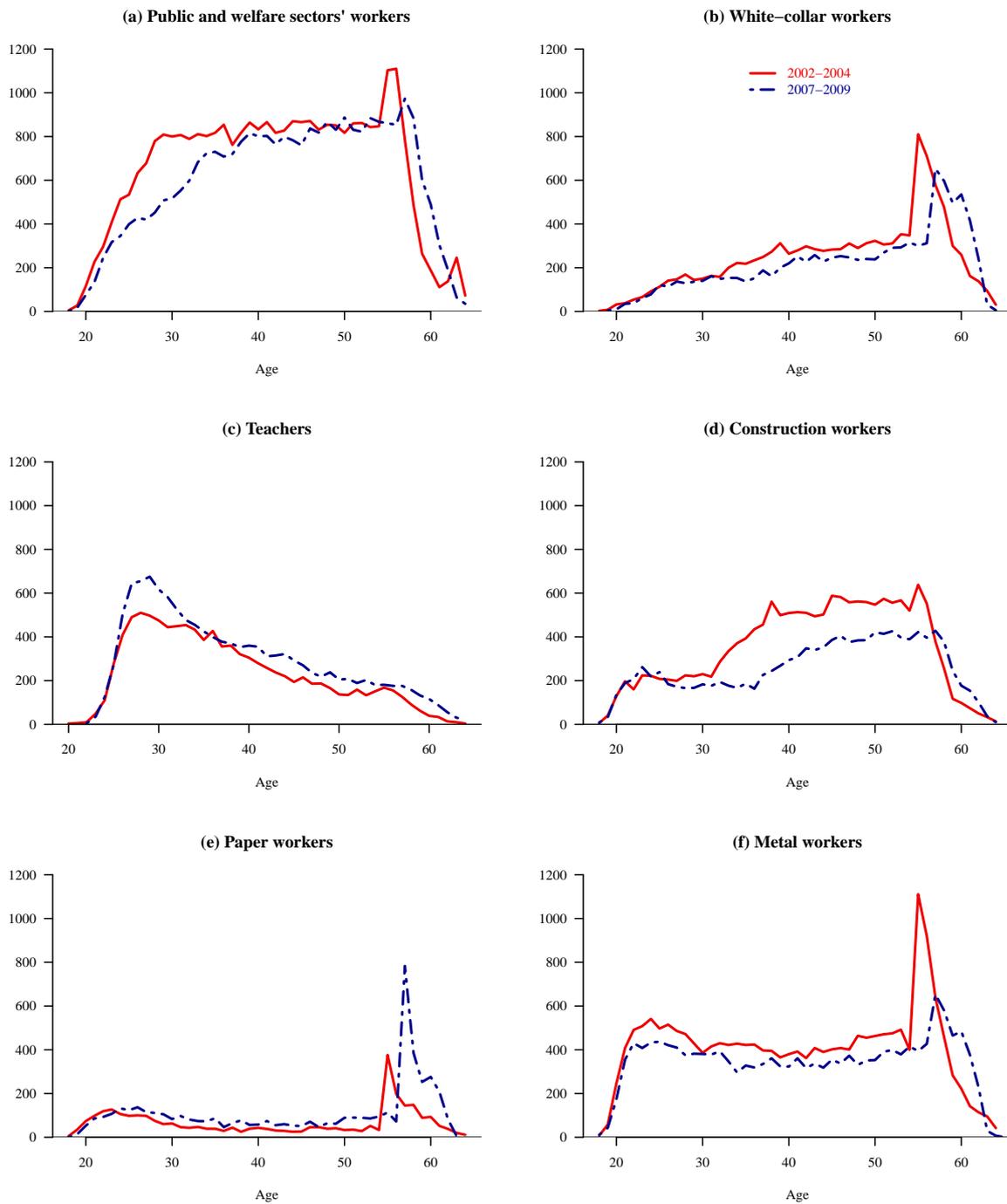


Figure 24: Number of new UI claimants (i.e. those who qualified for 500 days of benefits) in the years 2002–2004 and 2007–2009 by age and unemployment fund

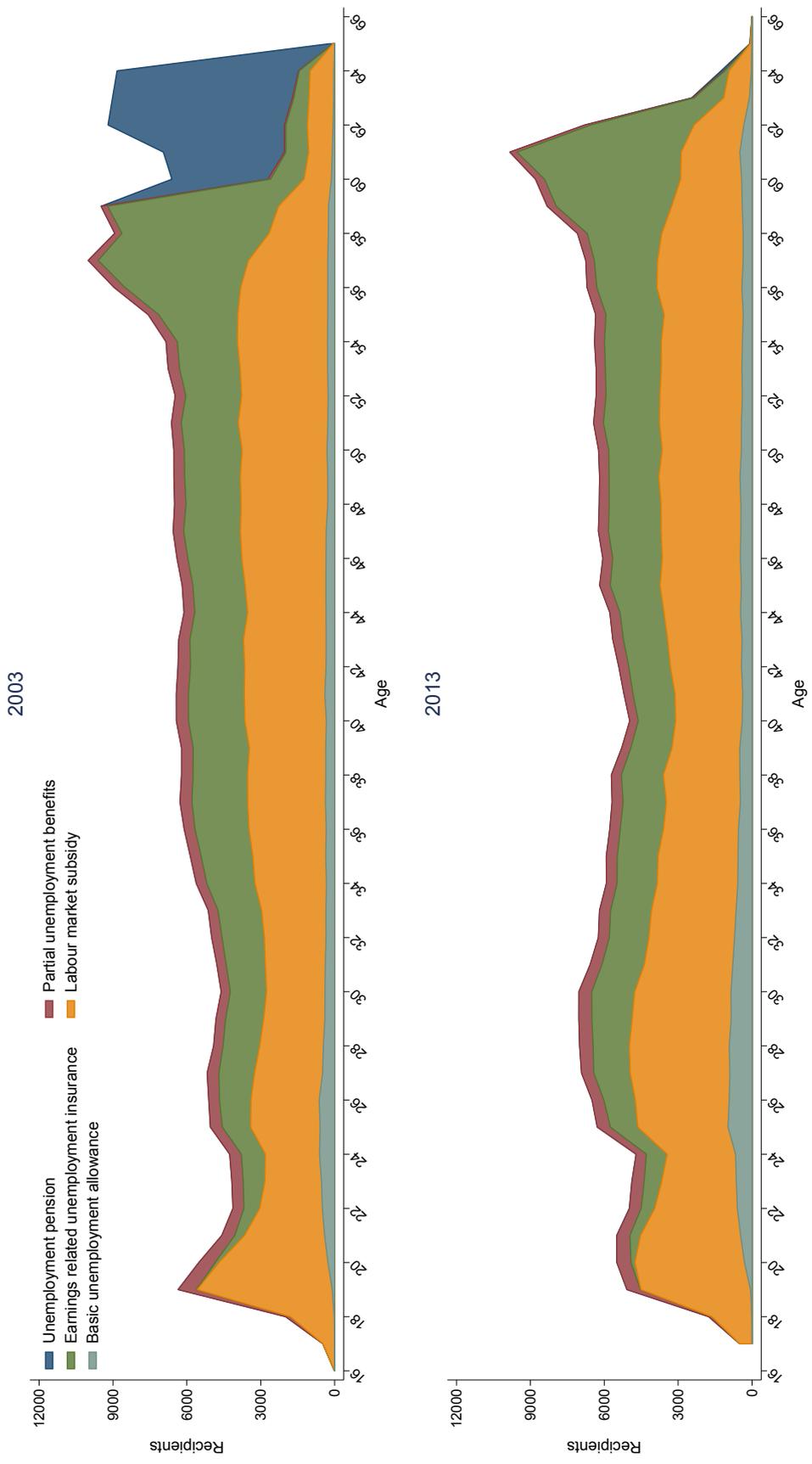


Figure 25: Unemployment benefit recipients by age at the end of September 2003 and 2013



scheme at age 55, the later cohort at age 57 (see figure 5). We limit our sample to those who worked in the private sector in 2001.

Figure 26 plots the average number of employment and unemployment months during a given year for each 1-week birth cohort around the cutoff value of January 1, 1950. In 2003, when neither cohort was eligible for the extended benefits, there is no difference between those born in different years. In other years there are notable differences between individuals born at the end of 1949 and those born at the beginning of 1950, and these increase from 2005 to 2008 by which time the 1950 cohort had become eligible. In relative terms, the gap in employment between the cohorts increases over all years as the employment level declines with age. In 2011, the average number of unemployment months for the 1949 cohort drops compared to 2008 and well below the level of the 1950 cohort. This is because many of those born in 1949 were on unemployment pension by that time.

The top-left panel of figure 27 shows the total number of employment months from the years 2003–2013. It appears that workers born on the first day of 1950 worked about 7 months more than their counterparts born one day earlier. As expected, there is a noticeable gap of roughly 20,000 Euros in the cumulative labor income as well. It is quite surprising to find only a minor difference in the cumulative earned income, even though the labor income is a major component of it.<sup>37</sup> Nor do we find a difference in sickness benefits received during the 11-year period.

Table 6 shows nonparametric regression discontinuity estimates of the effects of the 2005 reform on cumulative outcomes, i.e. the effects of becoming eligible for the UT scheme at age 57 instead of at age 55 (with the unemployment pension replaced by additional days of UI benefits) for those born on the first day of 1950. We report both conventional and bias-corrected estimates from linear and quadratic specifications.<sup>38</sup> These results are in line with the visual evidence seen in figure 27. The effects on cumulative months employed and wages are statistically significant and robust across different specifications, whereas the effects on earned income and sickness benefits do not differ from

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<sup>37</sup>Earned income consists of all taxable income apart from capital income. In addition to labor income it includes e.g. pension income, a fraction of business income, income from agriculture and taxable benefits such as unemployment benefits.

<sup>38</sup>Calonico et al. (2014) argue that the bandwidth selectors that are commonly used in regression discontinuity (RD) and regression kink designs tend to yield bandwidths that are too large to ensure the validity of the underlying distributional approximations. As a result, the RD estimates may be subject to a non-negligible bias and the resulting confidence intervals can be severely biased. They propose an alternative method where the RD point estimate is corrected by an estimated bias term, and the standard error estimates are adjusted for additional variability that results from the estimation of the bias correction term. This procedure yields bias-corrected point estimates and confidence intervals that are more robust to the bandwidth choice than the conventional methods. Calonico et al. (2014) also introduce a new method to choose the bandwidth such that the point estimator is mean square error optimal.

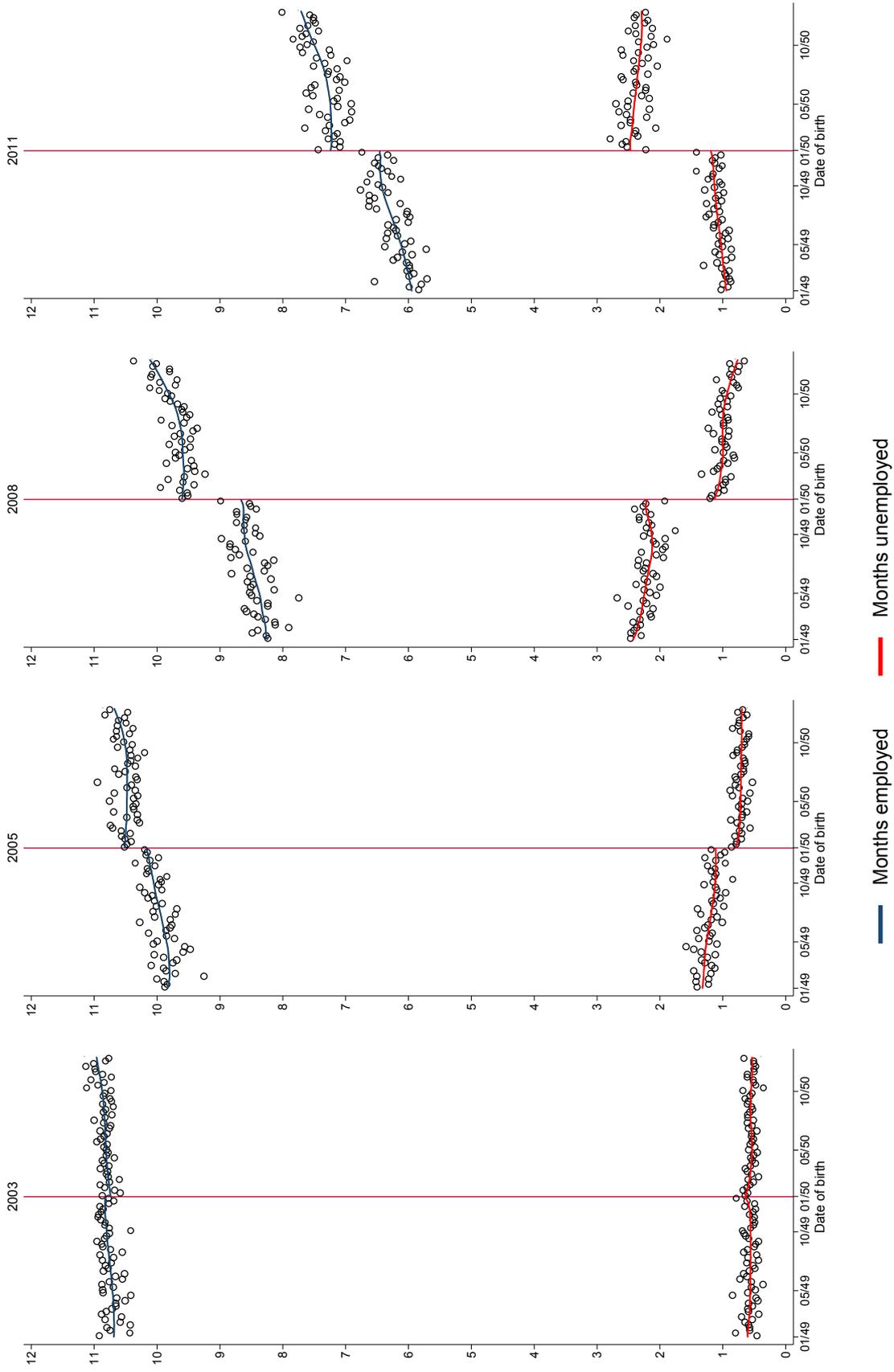


Figure 26: Average employment and unemployment months within a year by birth week

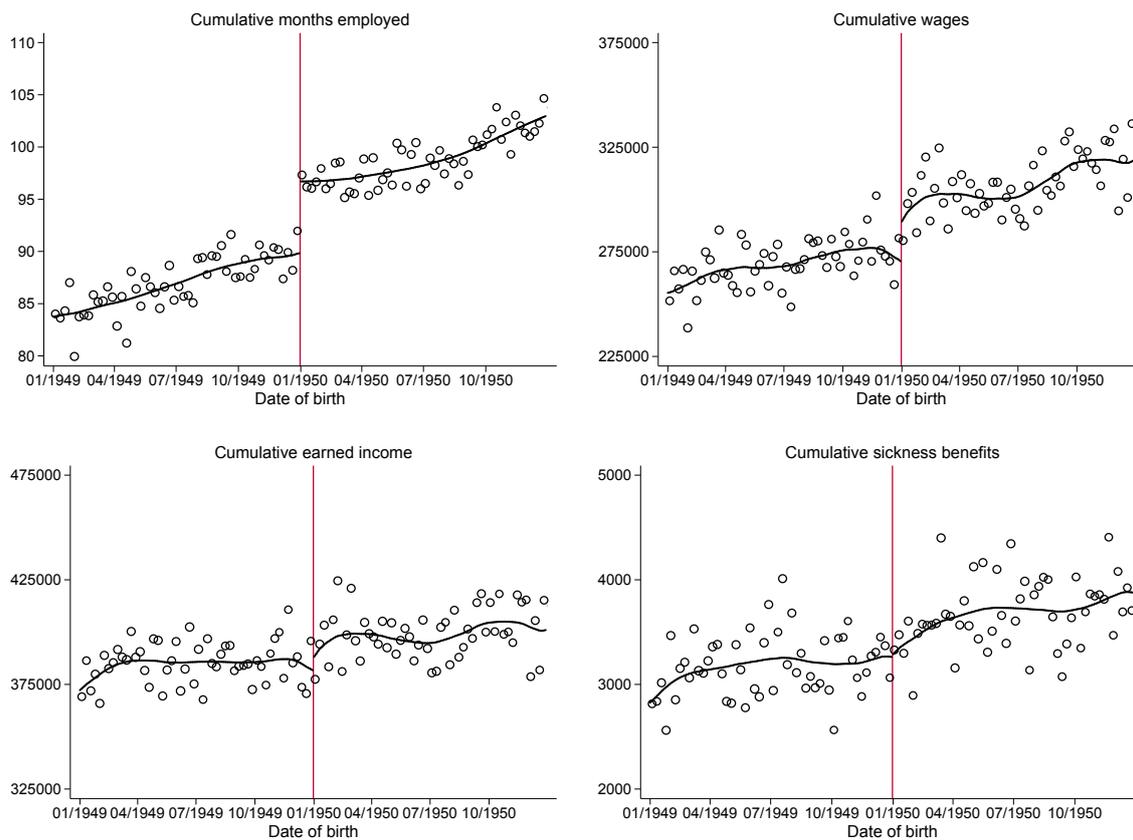


Figure 27: Cumulative outcomes over the period 2003–2013 by birth week

zero.

These findings confirm the observations in previous studies that the risk of job loss is higher for workers who can qualify for extended benefits and that those unemployed who are entitled to extended benefits are less likely to return to employment. The substantial drops in cumulative employment months and subsequently labor income illustrate the full impact of these employment effects. The fact that cumulative earned income is affected to a much lesser extent has to do with the unemployment insurance and pension systems and deserves further attention in future analysis.

**Employer Liabilities** It is noteworthy that employers' UI premiums for the oldest workers are partially experience rated. When an extended benefit is granted to the worker born in 1950 or later, the former employer may have to pay a given share of the extended benefit costs as a lump sum payment to the Unemployment Insurance Fund. This cost share increases linearly from 0% to 90% (from 0% to 80% for those born 1950–1956) as a function of the employer's payroll in the year preceding the dismissal. The cost of extended benefits is calculated assuming the worker will collect them until age 63 irrespective of

Table 6: Regression discontinuity estimates of the 2005 reform in the UT scheme on cumulative outcomes

	Months employed	Wages	Earned income	Sick benefits
	(1)	(2)	(3)	(4)
<b>A. Linear</b>				
Conventional estimates	7.0*** (1.1)	17952.7** (9990.7)	6918.6 (8473.8)	-15.8 (218.6)
Bias-corrected estimates	7.4*** (1.3)	16378.9* (8483.7)	5405.9 (9975.6)	-101.3 (243.3)
Bandwidth	107.8	67.3	66.6	91.4
Observations	18,323	11,342	11,188	15,348
<b>B. Quadratic</b>				
Conventional estimates	7.1*** (1.4)	18249.5* (9781.6)	3993.7 (9341.8)	-29.1 (259.8)
Bias-corrected estimates	7.4*** (1.6)	15710.7 (10855.5)	2348.6 (10536.8)	-100.5 (285.7)
Bandwidth	153.2	113.0	121.1	145.1
Observations	26,581	19,357	20,812	25,103

*Notes:* Outcome variables are cumulative amounts for years 2003–2013. Estimations are done using the `rdrobust` package (Calonico et al., 2016). Polynomial order for bias correction is quadratic for the point estimator from linear specification and cubic for the point estimator from quadratic specification. Bandwidths are mean square error optimal and symmetric on both sides of the cutoff. Robust standard errors reported for bias-corrected estimates. Significance levels: \*\*\* 1%, \*\* 5% and \* 10%.

the actual behavior. In the case of a worker who qualifies for an old-age pension before the regular benefits expire, the former employer is liable for a share of the costs of regular benefits actually paid to the worker.

In the case of pre-1950 cohorts the former employer had to pay a similarly defined share of the unemployment pension costs to the pension provider. Hakola and Uusitalo (2005) analyze a reform that changed the premium rates in 2000 and find that the experience rating of the unemployment pension costs reduced early exits from work among older workers.

## 5 Discussion of 2017 Changes

A number of changes in the UI scheme came into effect at the beginning of 2017. These include:

- The length of the entitlement period was cut by 100 days (20 weeks) except for those aged 58 or more with a work history of at least five years in the last twenty years.
- The waiting period before benefit payments start was extended by two days from five to seven days.
- The increased benefit based on a work history of at least twenty years was abolished.
- The increased benefit for the duration of ALMPs specified in the activation plan was slightly reduced.

It is of obvious interest to try to say something about the likely effects of these changes based on the evidence presented in this report. There is no doubt that the most important change is the 100-day cut in the length of the entitlement period. That corresponds to a 20% decline in the maximum benefit duration for most unemployed under age 58 and a 25% decline for those with less than three years of work history. We found that the elasticity of unemployment duration with respect to potential benefit duration is roughly 0.5. This suggests that the reform may shorten the unemployment spells of new UI recipients under age 58 by some 10% provided that the share of UI recipients with less than three years of work history is quite small.

According to the government's law proposal, the reform is assumed to increase employment by some 7500 person-years. This estimate is based on the assumptions that there are 193,904 new unemployment spells for UI recipients under age 58 and that a one week reduction in the benefit entitlement shortens unemployment spells by 0.1 weeks on average (our estimate is 0.15 weeks in section 4.3.2). Our results suggests that the latter assumption is likely to be conservative. Plugging our estimate into the same formula used by the government we obtain an estimate of about 11,000 person-years (which can be found in the robustness section of the government's memo by chance). This figure as well as the government's figure are likely to somewhat overstate the overall impact on employment. First, the shorter entitlement period may induce some UI recipients to leave the labor force rather than to find a new job more quickly. Second, more intensive search by UI recipients can to some extent weaken the job finding prospects of labor market subsidy recipients. Third, the shorter entitlement period may discourage job search among the members of unemployment funds who are not currently eligible for UI benefits and who

expect to experience additional spells of unemployment in the near future (through the entitlement effect). Finally, according to our findings in section 4.3.2, re-employed workers may return to unemployment more quickly as the shorter entitlement period can induce UI recipients to take up less stable jobs on average. Although it is difficult to assess the size of these effects, they are probably relatively small in comparison to the direct effect of the reform on the job finding rate of UI recipients.

Perhaps a more critical part of the calculations is the number of new UI spells, which appears to be a very rough estimate. An alternative estimate for the reform effect can be obtained by assuming that the aggregate number of UI days among workers under age 58 will be reduced by 10% due to the reform as implied by our elasticity estimate. This is a more straightforward approach because the total numbers of UI payment days by age groups are readily available from the official statistics. Using the data from 2014, on which the government's calculations are based, and ignoring the potential confounding effects pointed out above, this approach produces an estimate of 12,000 person-years for the employment increase.<sup>39</sup> If we use the most recent data from 2015, we obtain a slightly higher estimate of 13,000 person-years.

To sum up, the 100-day reduction in the length of the entitlement period might increase employment roughly by some 13,000 person-years due to the decrease in the average duration of UI spells. But the overall employment effect is likely to be somewhat smaller because of an expected increase in the average unemployment duration of non-recipients and other side effects pointed out above.

Other changes in the UI scheme in 2017 are likely to have much less effect. The longer waiting period may reduce temporary layoffs and unemployment entries among those who expect to be unemployed only for very short time, as well as encourage employed workers whose employment contract is about to end to search more intensively for a new job. We are not aware of any empirical results on the effects of the waiting period.

Based on the findings of Uusitalo and Verho (2010), the abolition of the increased benefit based on the long working career may increase the job finding rate over the first 18 weeks (i.e. 90 payment days) by some 15–20%,<sup>40</sup> which would imply a significant effect on the expected unemployment duration. Despite this, the effect of this change on aggregate unemployment is negligible because the size of the affected group is very small, being around 5% of UI recipients.

The reduction in the increased benefit that is paid for the duration of ALMPs specified

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<sup>39</sup>The total number of UI days for workers between ages 17 and 59 is obtained from the Statistical Yearbook on Unemployment Protection in Finland. The numbers are available for the 5-year age groups, which explains the use of the upper age of 59 instead of 58.

<sup>40</sup>The increase in the benefit level based on a long work history was smaller but it was available for a much longer time during the period analyzed by Uusitalo and Verho (2010).

in the individual-specific activation plans may discourage program participation somewhat. This probably has a very small, if any, effect on unemployment spells because the change in program participation is likely to be small and because ALMPs are not very effective at getting the unemployed back to work.

In addition to the changes in the UI scheme, several other changes that interact with UI eligibility were also introduced at the beginning of 2017. These changes extended the pool of jobs in terms of the distance and wage rate that are regarded as acceptable for unemployed job seekers, and tightened the obligation to participate in the activation measures. One change that is worth mentioning is that the unemployed are expected to meet their caseworker more frequently.<sup>41</sup> The meetings with the caseworker may expedite re-employment for two reasons: first, unemployed workers may receive moral support, job search assistance and information about training possibilities (“carrot”), and second, they are also exposed to close monitoring of their search activity and thus face a higher risk of sanctions if they have not complied with the rules (“stick”). There is some evidence that caseworker meetings enhance re-employment, and that both the counseling and monitoring components are likely to be important albeit the carrot side may be more effective (Rosholm, 2014). Moreover, compared to the traditional active labor market programs, the caseworker meetings are inexpensive, do not involve lock-in effects and possibly have a larger effect on the re-employment probability. Maibom et al. (2016) present empirical evidence on the effects of the caseworker meetings based on randomized experiments conducted in the Danish labor market. They also provide a brief survey of the previous literature.

## 6 Summary

The aim of this report is to provide an overview of the Finnish UI system since the year 2000 and to summarize what we know about the behavioral effects of the various components of the benefit scheme in the case of Finland. The main findings are summarized below.

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<sup>41</sup>According to the old rules, the first meeting was supposed to take place within the first two weeks after the beginning of the unemployment spell, the next two after three and six months of unemployment, and thereafter every six months. The meetings may have been passed if they were considered to be unnecessary by the caseworker. As of January 1, 2017, the first three meetings are as before but the subsequent meetings should occur every three months instead of every six months. As such workers who have been unemployed at least for six months are expected to meet their caseworkers more frequently. In practice, the change in the meeting frequency may be higher because the realized frequency of the meetings in the past has been much lower than indicated by the old rules.

**Evolution of Benefit Generosity over Time** We discussed how the key components of the UI scheme have been changed during the past 15 years. These changes have affected the generosity of the UI scheme in opposite directions, partly offsetting each other. The changes in the employment condition in 2003, 2010 and 2014 have made the UI system more generous by easing the access to the benefits. By contrast, all changes in the length of the entitlement period have reduced the benefit generosity. These include the abolition of the training subsidy in 2010, the shortening of the entitlement period in 2014 and 2017, and increases in the age threshold for the extended benefits in 2005, 2012 and 2015. In terms of the benefit levels the UI scheme became gradually more generous until 2012 due to various benefit increases, many of which were tied to the length of the working career or participation in labor market training. More recently, the benefit levels have declined due to the benefit cuts in 2015 and 2017.

To summarize these changes in a coherent way we computed the maximum amount of UI benefits for a reference population of new entrants to unemployment. This exercise suggests that the overall generosity increased between 2002 and 2014, exhibiting discontinuous jumps in 2003 and 2014 due to the loosening of the eligibility criteria. These increases were followed by declines in 2015 and 2017 which brought the overall generosity back to the level where it was at the beginning of the 2000s.

The development of the average benefit generosity masks different patterns between groups. The generosity of the UI scheme for the oldest workers has decreased during the period as they have been hit hard by the restrictions in the access to extended benefits and the abolition of the benefit increase based on a long working career. Workers with 3 to 19 years of work history have overall benefited from the changes. Those with less than three years of work history are back at the same level of the generosity they were entitled to in the early 2000s.

It should be stressed that these findings are only suggestive. Our measure of the average generosity depends on the reference population, a rather arbitrary choice (those with strong labor market attachment who became unemployed in 2009). The younger unemployed are under-presented in the analysis because labor market entrants and those with sporadic employment history are excluded due to the labor market history restrictions made for the technical reasons. The benefit level changes may also get too small a weight compared to the changes in the entitlement period given that the daily benefit level affects all unemployed whereas the length of the entitlement period is less relevant for a majority of UI recipients who find a new job relatively quickly.

Finally, it is worth noting that the finding that the average benefit generosity has returned to its early 2000s level does not mean that the incentives of the UI scheme would not have changed over the period. Compared to the initial rules it is much easier to



establish eligibility for UI benefits, after which slightly higher benefits are available but for a much shorter time than previously. These features of the UI scheme affect labor market outcomes in different ways.

**Benefit Eligibility and Unemployment Inflow** We found no evidence that workers would time their unemployment entry according to the employment condition rules, nor that employers would target layoffs at those employees who satisfy the employment condition. So it seems that the changes made in the employment condition came without undesirable behavioral effects. Yet there is a mechanical effect: a larger fraction of entrants to unemployment meet the employment condition and thereby qualify for a new period of UI benefits, which in turn affect their unemployment duration. Our results for the 2003 reform suggest that this effect on aggregate unemployment was very small.

It should be stressed that we only looked at the unemployment inflow among workers who have not been in subsidized employment during the past two years. It is possible that the more lenient employment condition has encouraged municipalities to place long-term unemployed into jobs with wage subsidies in order to help them to qualify for a new period of UI benefits. If there is such an effect, our analysis does not capture it.

Even though we found no inflow effect for the employment condition rules, there is sound evidence that the exit rate from employment to unemployment increases sharply at the age threshold for extended benefits. The size of this effect varies across sectors and worker groups, and it is known to be particularly large for the employees of large firms. The excess use of the extended benefits as a pathway to early retirement and as a soft way to reduce the workforce when firms are downsizing is a major cause for a high incidence of long-term unemployment among the oldest groups. The several increases in the age threshold for the extended benefits over the past years have alleviated the problem, but there is a risk that the problem will worsen over time due to the gradually increasing age threshold for old-age pensions. This may call for additional increases in the age threshold for the extended benefits in the future. Also the current practice where the large employers are partly responsible for the costs of the extended benefits received by their former employees seems justified.

**Effects of Benefit Levels** The size of benefit level effects is still subject to some uncertainty. According to Uusitalo and Verho (2010), the elasticity of nonemployment duration with respect to the benefit level is 0.8, implying that a 10% increase in the daily benefit would increase the expected time until re-employment by 8%. The elasticity estimates by Kyrrä and Pesola (2016) are somewhat larger, being between 1.5 and 2. The former estimate also captures the effect of the removal of the severance pay and may therefore be a bit too small, whereas the latter estimates are quite imprecise and sensitive

with respect to the statistical specification. Nonetheless, these results suggest that higher UI benefits lead to longer spells of unemployment, and the magnitude of this effect is relatively large compared to other countries.

The effect of the benefit level on the quality of the next job is difficult to interpret. Higher benefits seem to lead to more stable jobs after unemployment but these jobs are found to be lower paid on average. However, the net effect of higher benefits on earnings in two years following the beginning of the unemployment spell is clearly negative. This effect is of particular interest as it summarizes the effect of the benefit level on unemployment duration and subsequent jobs (up to the two-year limit). Our findings suggest that a 10% benefit hike will reduce earnings by 10% to 20% over the next two years.

It is difficult to assess the role of the generosity of the partial benefit scheme for those who work part time involuntarily or take very short full-time jobs. The existing evidence suggests that working on partial benefits can provide a stepping stone out of the benefits into regular full-time employment in most cases. However, there is an obvious risk that too generous rules encourage part-time work on partial benefits at the expense of full-time employment. How the introduction of the earnings disregard in 2014 has affected the prevalence of part-time unemployment and subsequent transitions to full-time employment is still an open question.

**Effects of Benefit Duration** We found a large spike in the exit rate out of UI benefits just before the benefits are about to expire. A notable part of this spike is attributed to transitions to new jobs, which indicate that some unemployed wait until their benefits expire before they take up a new job. The size of this group compared to the entire population of UI recipients is however very small. More importantly, most of the unemployed probably react to the length of their entitlement period well before the benefit exhaustion. According to our results, one additional entitlement week (i.e. extra five benefit days) increases the expected duration of unemployment by 0.15 weeks, which corresponds to an elasticity of 0.5. On the other hand, longer entitlement periods may improve the quality of the next job. The effect on the subsequent wage is quite small, but the effect on the expected duration of the next job is economically significant with an elasticity of 0.19. As such, a reduction in the length of the entitlement period induces UI recipients to find a new job more quickly but those jobs are shorter on average and thereby re-employed workers may also return to unemployment more quickly.

A special case is older unemployed who can qualify for extended benefits once their regular benefits have run out. It is well known that only a small share of this group will return to employment. There are many potential reasons for this, such as poor economic incentives due to unlimited UI duration, the lack of demand for their skills as most of

them are poorly educated, and sample selection as some individuals in this group may have entered unemployment by choice in order to exploit the extended benefits as an early retirement scheme.

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## A Data Sources

In the empirical analysis, we use comprehensive data that was obtained by combining various administrative registers. The primary source of information is the administrative register on job seekers, maintained by the Ministry of Employment and the Economy (TEM). The register covers all registered job seekers at the public employment service. As without registering as an unemployed job seeker the individual cannot qualify for unemployment benefits, all unemployment benefit recipients – and many unemployed non-recipients and employed job seekers – should be included in the register. This register contains information on unemployment spells, training courses and subsidized employment programs, as well as demographic characteristics like age, gender, education, occupation and living region. This information is available from the early 1990s to 2016. However, the register does not contain any information on receipt of unemployment benefits, nor on regular job spells. Therefore we supplemented the data by merging information from other administrative sources.

The UI benefits are paid by individual unemployment funds. Each fund however reports the benefits it paid out to the Insurance Supervisory Authority (FIVA) on a quarterly basis. From the benefit register of FIVA we obtain information on unemployment fund membership and received UI benefits and earnings-related labor market training subsidies. Along with daily benefits the records also contains information on the remaining UI entitlement at the end of each quarter. With this information we can keep track of the number of days until the UI benefit will expire. From the Social Security Institution (Kela) we obtain data on flat-rate basic unemployment allowances and labor market subsidies. Both the FIVA and Kela data are available from 1999 until 2013.

Finally, for all people who have been unemployed during the period 1999–2013, we merged employment and earnings records from the beginning of their working career from the registers of the Finnish Centre for Pension (ETK). ETK is a statutory co-operation body of all providers of earnings-related pensions in Finland, which keeps comprehensive records on job spells and earnings for the entire Finnish population. This information can be regarded as highly reliable, as it will be used to determine pension benefits. We use the employment records to construct a measure for the number of contribution weeks and to define the entry and exit states for the unemployment spells.

We define the spell of unemployment as the time the worker is collected unemployment-related benefits. More precisely, we combine sequential spells of benefit receipt whose distance is no longer than four weeks by treating such benefit periods as part of the same unemployment spell but ignoring the days without benefits between the benefit periods. The time spent in training courses is counted as part of the unemployment spell. The resulting unemployment spell may thus include periods on different types of benefits. For

example, a worker may first receive UI benefits, then labor market training subsidy for the duration of a training course, and finally end up to labor market subsidy after exhausting UI benefits. In some parts of the analysis we only consider earnings-related benefits, so that transitions from UI benefits to labor market subsidy is treated as transitions to nonparticipation or right-censored spells.

The unemployment spell may end with a transition to regular work, job placement program (i.e. subsidized work) or nonparticipation. We observe all subsidized employment periods in the TEM data. The data also includes information on exits to regular jobs that applicants found themselves or through the referrals of the employment authorities. However, the information on job findings may not be very reliable as the exit reason is often missing for those workers who found a new job on their own. For these reasons, the exits to regular work are detected by comparing the ending days of the unemployment spells and the starting days of the employment spells. The employment records also includes a pension insurance identifier of the employer for each job spell, which we can use to distinguish recalls to the previous job from exits to new jobs.