Combining Part-time Work and Social Benefits: Empirical Evidence from Finland*

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Abstract

We use population-wide data from Finland to provide evidence on the impact of earnings disregard policies on part-time work during unemployment spells. The share of part-time workers among benefit recipients increased sharply from about 10% to nearly 18% over a few years after the implementation of earnings disregards in unemployment benefits and housing allowances, which allowed individuals to earn up to 300 euros per month without reductions in their benefits. Using variation in the impact of the reforms on incentives between individuals eligible for different types of benefits, we estimate that the share of individuals working part-time during unemployment increased by 4.1–4.5 percentage points (23–32%) due to the implementation of earnings disregards, corresponding to a part-time work participation elasticity with respect to the participation tax rate of approximately 1. We find no evidence that earnings disregards crowd out full-time employment, but instead find moderate positive longer-run employment effects.

Keywords: labor supply; social benefits; part-time work; earnings disregards.
JEL Codes: H24; J21; J22

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1 Introduction

There is a common conception that the structure of labor markets is changing. In many developed countries, part-time and temporary work arrangements have become more common, and the share of workers who derive their income from a combination of social benefits and modest labor earnings has increased. To encourage benefit recipients to participate in part-time labor markets, many developed countries have introduced policies that financially encourage combining social benefits and part-time work, including, for example, the US, the UK and Germany (Boeri and Cahuc 2023). However, evidence on the effectiveness of these policies is still relatively scarce, even though their impact on the prevalence of part-time work arrangements among benefit recipients, and particularly their potential longer-run impact on labor market outcomes, are crucial for assessing the welfare and fiscal implications of such policies.

In this paper, we utilize the introduction of earnings disregards policies in Finland in 2014 and 2015 to study their effects on participation in part-time work and longer-run labor market outcomes. These reforms allowed benefit recipients to earn up to 300 euros per month without reductions in their benefits, providing much stronger incentives to participate in part-time employment. The reforms affected labor supply incentives differently across individuals eligible for different types of benefits. Together with our detailed population-wide data including monthly-level information on benefits, part-time earnings and employment days, this variation enables us to provide novel causal evidence on the impacts of earnings disregards.

According to the government's law proposal to the Parliament, the implementation of earnings disregards was motivated solely by the aim of encouraging benefit recipients to participate in part-time or temporary work while receiving benefits (Government Proposal 2013). We study how this policy reached its goal in increasing part-time working during unemployment spells. In addition, we assess whether earnings disregards affect longer-run employment outcomes by following benefit recipients and their labor market outcomes over a longer period. Potential longer-run employment effects are relevant when assessing the overall benefits and costs of these types of policies. We also study whether improved

financial incentives to part-time work are associated with transitions from full-time work to part-time work while receiving unemployment benefits. Such effects would counter the policy's goal of increasing employment.

We begin by illustrating how the share of partially unemployed individuals has developed over time. As in many other countries, Finland applies a system of partial unemployment benefits, in which benefit recipients can work part-time during their unemployment spell without fully losing their benefits.[1] While working and receiving benefits, one euro of labor income reduces unemployment benefits by 0.5 euros.

Our descriptive evidence shows that part-time working while receiving unemployment benefits has increased over the last 20 years, and this increase is clearly associated with improvements in financial incentives. The share of unemployment benefit recipients with labor earnings remained rather stable at around 10–12% in 2000–2013. This share began to rise rapidly after the implementation of earnings disregards in the mid-2010s, and reached 18% by 2020. These patterns suggest that financial incentives are likely to play an important role in the labor supply decisions of benefit recipients and the recent surge in part-time work among benefit recipients in Finland.

We then turn to a more detailed analysis of how financial incentives affect participation in part-time work and longer-run employment outcomes. We zoom in on the earnings disregard reforms and analyze labor supply choices among unemployed individuals whose incentives were affected differently by these reforms. The first reform in January 2014 introduced an earnings disregard in unemployment benefits and reduced participation tax rates for part-time work for all unemployed individuals. The second reform in September 2015 introduced a similar earnings disregard in housing allowances. This reform had no effect on unemployed individuals who were not eligible for housing allowances, but it significantly improved incentives for part-time work among those who received them. Our analysis focuses on the latter reform where the identifying variation in incentives

[1] Partial unemployment benefits are also known as adjusted, part-time or supplementary unemployment benefits in the literature. In Finland, partial benefits are also paid to those unemployed individuals who take up a full-time job for two weeks or less. We do not distinguish between these workers and those who work part-time while receiving benefits, and we refer to all partial benefit recipients as part-time workers or part-time unemployed workers.

stems from differences in household incomes and composition that affect eligibility for housing allowance among otherwise similar individuals. We find that the development of part-time working in the groups that were affected differently by this reform follow each other closely before the reform, supporting our empirical strategy.

Following the reform in September 2015, the share of part-time workers among unemployed individuals who also received housing allowance (treatment group) increased more rapidly than among unemployed individuals whose households were not eligible for housing allowance and were therefore unaffected by the reform (control group). We find that the reform increased the share of individuals working part-time during unemployment by 4.5 and 4.1 percentage points among earnings-related and flat-rate unemployment benefit recipients, respectively. In relative terms, these effects correspond to increases of 23% and 32% in part-time work participation relative to pre-reform baseline shares of 20% and 13% among earnings-related and flat-rate benefit recipients affected by the reform, respectively.

We evaluate the magnitude of the responses by measuring a part-time work participation elasticity with respect to changes in incentives for part-time work. Using average part-time earnings, we find that the introduction of the earnings disregard in housing allowance reduced the average participation tax rates for part-time work by approximately 22% and 31% for earnings-related and flat-rate benefit recipients who received housing allowances. Combining these changes in the participation tax rates with the estimated behavioral responses implies a part-time work participation elasticity of approximately 1 for both groups. This indicates that part-time labor supply choices among unemployment benefit recipients are highly responsive to financial incentives.

Consistent with the estimated increases in the share of part-time workers among unemployment benefit recipients, we estimate average increases of 15% and 33% in part-time earnings following the reform for earnings-related and flat-rate UB recipients, respectively. These estimates imply an average elasticity of part-time earnings with respect to the participation tax rate of approximately 0.7–0.9.

Part-time work during unemployment can affect longer-run labor market outcomes

through multiple channels. It may serve as a *stepping stone* to more permanent employment by increasing work experience and strengthening contacts with employers. On the other hand, subsidized part-time work can crowd out full-time employment and delay transitions to full-time employment by reducing the time available for job search and by making part-time work more attractive compared to full-time employment, giving rise to a so-called *lock-in effect*. Therefore, due to these opposing mechanisms, the sign of the net impact of part-time work during unemployment on subsequent full-time employment is unclear. Moreover, since partial benefits and earnings disregards make part-time employment financially more attractive compared to full-time employment, they may encourage unemployed job seekers to devote more time searching for part-time jobs instead of full-time jobs. This way policies promoting part-time work can reduce transitions to full-time employment also among unemployment benefit recipients who have not (yet) engaged in part-time work. To account for this *ex ante effect* of partial benefits and earnings disregard policies, one must be able to compare unemployed workers under different policy schemes, which is a key novelty in our analysis. While we do not attempt to identify these three mechanisms separately, we utilize our quasi-experimental setup to estimate the overall effect of earnings disregard policies, including all of these potential channels.

Using our population-wide job spell and unemployment data, we find no evidence that earnings disregards crowd out full-time employment. Instead, we find evidence of at least moderate stepping-stone effects on subsequent full-time employment. Following the September 2015 reform, full-time working days within the subsequent 12 months increased by approximately 9% among earnings-related benefit recipients, or about six days from a pre-reform baseline level of 74 days. Their likelihood of receiving unemployment benefits six months later fell by 2.1%, or 1.7 percentage points from a baseline probability of 80%. For flat-rate benefit recipients, full-time working days increased by 10%, or about five days from a baseline of 49 days. The corresponding fall in benefit receipt six months later was 1.5%, or 1.3 percentage points from a baseline probability of 87%.

Stronger financial incentives for part-time work make combining benefits with part-time

employment relatively more attractive than full-time employment, which could induce transitions from full-time employment to unemployment with part-time earnings. Such an undesired effect of the earnings disregards would counter the goal of increasing employment and would raise the fiscal costs of implementing these policies. However, we do not find significant increases in transitions from full-time work to unemployment with part-time earnings following the introduction of the earnings disregards. In contrast, transitions from full-time unemployment to part-time work increased after the reform, especially among flat-rate unemployment benefit recipients. These findings imply that the costs of the earnings disregards arising from transitions from full-time employment to part-time work with benefits are small at best.

Our study contributes to the literature on the labor supply effects of partial unemployment benefits and earnings disregards. Munts (1970), Holen and Horowitz (1974), McCall (1996) and Le Barbanchon (2016) provide evidence that unemployed individuals in the US labor market often earn just enough income to remain below the earnings disregard threshold. In most US states, unemployment benefits are reduced on a dollar-per-dollar basis once labor earnings exceed this threshold, which may explain the pronounced bunching observed at the disregard thresholds. O´Leary (1997) and Lee et al. (2021) analyze a randomized experiment conducted in the Washington State UI system in 1994 that provided more generous partial benefits for treatment group members who take up part-time work. Both studies find that more generous partial benefits increased part-time work, leading to longer benefit duration and higher benefit expenditures, without a notable effect on overall labor supply. Exploiting variation in earnings disregard reforms across US states in the mid-1990s, Matsudaira and Blank (2014) find no effect of earning disregards in welfare assistance programs on the labor supply of single mothers.

Several European studies have relied on the timing-of-events approach or matching methods to estimate the effect of part-time work during unemployment spells on subsequent employment. These include Gerfin and Lechner (2002), Gerfin et al. (2005) and Lalive et al. (2008) for Switzerland, Kyyrä (2010) for Finland, Cockx et al. (2013) for Belgium, Fremigacci and Terracol (2013) and Auray and Lepage-Saucier (2021) for France, Kyyrä

et al. (2013) for Denmark, and Godøy and Røed (2016) for Norway.[2] Many of these studies find significant lock-in effects during periods of part-time work while receiving benefits (e.g. Fremigacci and Terracol 2013 and Kyyrä et al. 2013), although not all do (e.g. Cockx et al. 2013 and Godøy and Røed 2016). Most studies also document stepping-stone effects towards full-time employment following part-time work, such that the estimated net effects on subsequent employment are typically either positive or close to zero. Although the sign and magnitude of the net effect may vary across subgroups of unemployed individuals, in most cases part-time working during unemployment seems to reduce benefit duration and increase employment in the European labor markets.[3] However, since these studies do not account for possible ex-ante effects of the partial benefit and earnings disregard schemes, they do not identify the overall effects of these policies, as we do in our analysis.

Finally, our study contributes to the broader literature on the effects of financial incentives on labor supply, which are often difficult to identify using administrative data due to lack of suitable (quasi-)experimental variation in incentives. A recent study from Finland by Verho et al. (2022) utilizing the basic income experiment as an empirical setting finds that a massive reduction in participation tax rates had only a modest impact on the labor supply of flat-rate unemployment benefit recipients, who are predominantly long-term unemployed individuals and those with short or no employment histories. Similarly, Bastani et al. (2021) estimate a small participation elasticity of 0.13 for women with children in Sweden. Our empirical setting enables us to estimate the effects of financial incentives for participation in part-time work, as the earnings disregards do not directly affect incentives to participate in full-time employment. We provide novel quasi-experimental evidence that the part-time labor supply margin is highly responsive to changes in financial incentives among unemployment benefit recipients.

The remainder of the paper is organized as follows. Section 2 describes the institutional

[2]See Boeri and Cahuc (2023) for a summary of this literature.

[3]Unemployed workers may be unaware of the possibility of retaining part of their benefits when taking up part-time work or may not fully understand complex benefit rules. Using randomized information experiments, Altmann et al. (2022) and Benghalen et al. (2023) show that providing information about partial benefits increases the propensity to work part-time while receiving benefits in Denmark and France, respectively.

background and the earnings disregard reforms in Finland. Section 3 presents the data, provides descriptive evidence on longer-run trends in part-time unemployment, and introduces our empirical methods. Section 4 reports the results of the effects of the earnings disregard reforms, and Section 5 concludes.

2 Institutions and Earnings Disregard Reforms

2.1 Unemployment Benefits and Housing Allowance

Unemployment benefits (UB). Finland applies a typical two-tier unemployment compensation system that provides earnings-related unemployment benefits for a limited period of time, and less generous flat-rate unemployment benefits thereafter. To be eligible for unemployment compensation, a claimant must register as an unemployed job seeker at the local Employment and Economic Development Office, search actively for a full-time job, and be ready and able to start working upon receiving a job offer.

Unemployment funds pay earnings-related benefits (*ansiopäiväraha*) to their unemployed members who satisfy the employment-history condition, which requires that they have been working and making membership contributions for a minimum number of weeks within the last 28 months (26 weeks in 2022). During each contribution week, the claimant must have worked for at least 18 hours. Membership of unemployment funds is voluntary. In 2022, about 70% of all workers were members of unemployment funds.

The level of the earnings-related benefit is determined by the average labor earnings over the employment weeks required for eligibility. There is no cap on the benefit level, but the replacement rate declines rapidly with past earnings. For a worker with median labor earnings (3195 euros per month in 2022), the replacement rate is slightly below 60%. As of 2017, the maximum duration of earnings-related benefits has been 400 days for those with at least three years of work history, and 300 days for those with a shorter work history. Workers aged 58 or older are entitled to extended benefits, which can be received until the statutory retirement age.

Unemployment fund members who exhausted their earnings-related benefits or who

do not satisfy the employment-history condition and those who do not belong to any unemployment fund are eligible for flat-rate unemployment benefits, which are paid by the Social Insurance Institution for an indefinite period.[4] Without child supplements, the flat-rate benefit was 768 euros per month in 2022, which amounts to 48% of the average earnings-related benefit.

Unemployment benefits are applied for retrospectively with a two-week reporting period at the beginning of unemployment, and subsequently in four-week or monthly periods if the unemployment spell continues. An unemployed individual reports any amount of work performed to the unemployment fund or Social Insurance Institution, either electronically or using a paper form. In addition to reporting the number of working hours, the amount of labor earnings is also reported. The income is reported using a payslip, a salary certificate, or other reliable documentation, such as an informal salary statement from the employer.

Benefit recipients who take up a part-time job (up to 80% of full-time working hours) or a short full-time job with a duration of no longer than two weeks (four weeks before 2013) may be eligible for partial unemployment benefits (*soviteltu päiväraha*).[5] In exchange for the partial benefits, these workers should continue their search for full-time employment and be willing to accept a full-time job if such a job is offered. The main eligibility requirement for partial benefits is that part-time work must be involuntary in nature. Therefore, it is possible to transition directly from full-time to part-time employment and start collecting partial benefits. This may also occur within the same company, provided that the reduction in working hours was initiated by the employer.

The basic rule of partial benefits is that each euro of labor earnings reduces the benefit by 0.5 euros. For example, earning 800 euros per month would reduce monthly benefits by

[4]There are two types of flat-rate benefits: a flat-rate basic unemployment allowance (*peruspäivärahа*) and labor market subsidy (*työmarkkinatuki*), both of which are paid by the Social Insurance Institution. The levels of these benefits are the same, and the only difference is that the unemployment allowance is not means-tested and it is available for a limited period of time. We do not make a distinction between these two very similar benefits, and refer to both of them as "flat-rate unemployment benefit". At the end of 2021, among all unemployment benefit recipients, 39% received earnings-related benefits, 11% unemployment allowance, and 50% unemployment assistance.

[5]In what follows, we do not make a distinction between short full-time and part-time jobs and refer to all partial UB recipients as part-time unemployed or part-time workers receiving UB.

400 euros. However, the combined amount of benefits and labor earnings cannot exceed the benefit recipient's pre-unemployment monthly labor earnings (90% of pre-unemployment earnings before 2014), i.e. the earnings that define the level of earnings-related benefits. Earnings exceeding this cap rule cut the benefit by 100%.

In certain jobs where the amount of work varies significantly, the employment contract may not specify a fixed number of working hours but instead define a range of hours per week. In such cases, the employer is only required to provide the minimum number of hours stated in the contract, which can be zero. These types of employment contracts are more common for specific occupations, such as waiters, chefs, cashiers, and substitute caregivers. Workers under such contracts may be eligible for unemployment benefits during periods of minimal work availability.[6]

Overall, the Finnish partial benefit scheme, especially after the introduction of the earnings disregards we discuss below, is rather generous compared to similar schemes in other countries (see Boeri and Cahuc 2023 for a cross-country comparison). Even before the introduction of earnings disregards, the financial incentives for participating in the part-time labor market were relatively good due to the partial benefit system, and the earnings disregard policies further enhanced them. However, the recipients of multiple benefits, such as housing allowance, were still faced with higher effective tax rates when participating in the labor market, which we discuss in more detail below.

Housing Allowance (HA). Low-income households are entitled to a means-tested housing allowance (*yleinen asumistuki*) to cover part of their housing expenses, provided by the Social Insurance Institution. Eligibility is based on gross income, financial wealth, and household size, and it can be claimed for private rental apartments, social housing units and owner-occupied apartments. In 2017, approximately half of housing allowances was received by unemployed households.

[6]In some cases, unemployment benefits can be received without job loss. When facing temporary difficulties, Finnish employers have the option to furlough their permanent workers. Furloughs can be either full-time or part-time. During a furlough, the employment contract remains in effect, but wage payments are temporarily halted or reduced. Furloughed workers are entitled to unemployment benefits, including partial benefits, under the same conditions as unemployed workers. However, we exclude furlough workers from our analysis and focus only on unemployed individuals.

The amount of HA can be up to 80% of eligible housing expenses. In brief, until January 2015, the amount of eligible housing expenses depended on the floor area of the unit and the details of the building such as construction year, household size and structure, and four municipality groups. After January 2015, only the region of residence and the household size and structure have been taken into account. Especially in the capital city region, eligible housing expenses are almost always exceeded, so a single unemployed person eligible for the allowance typically receives a housing allowance of 413 euros per month.

Earnings affect HA in a similar way as they affect UB. The main difference is that all household members' earnings, not just the unemployed person's earnings, impact the housing allowance. The main rule is that for each euro earned the HA is reduced by 0.34 euros.

Housing allowance can be applied for either online or using a paper form. The application for HA requires attachments such as a payslip and a copy of the employment contract. The Social Insurance Institution conducts an annual review of housing allowance, but if the household's income or other conditions change, HA can be adjusted earlier. An interim review is conducted if the household's income increases by at least 400 euros per month or decreases by at least 200 euros per month. As a result, increased income has a less immediate impact on reducing HA compared to unemployment benefits, which are assessed each month.[7]

Income Support. It is important to note that partial benefits and earnings disregards have little effect on the labor supply incentives of very low-income individuals who are entitled to last-resort income support. This means-tested income support is intended for persons whose income from work, benefits or assets does not cover their essential daily needs such as food and housing. Additional labor earnings reduce income support almost one-to-one, thereby largely offsetting incentives to engage in part-time work. For this reason, we exclude individuals who received income support from our baseline

[7]Kyyrä et al. (2017) provide a more detailed description of the Finnish unemployment benefit system, and Eerola and Lyytikäinen (2021) of the Finnish housing allowance system.

analysis. This sample restriction affects particularly the number of flat-rate UB recipients in the analysis, as they typically have lower incomes and are therefore more likely to be eligible for income support. Consequently, our results for flat-rate UB recipients should be interpreted with some caution. However, our main results and policy implications remain qualitatively similar when individuals receiving income support are included in the analysis (see Appendix Table A3), although the average effects on part-time work are somewhat smaller in that case, as can be expected.

2.2 Earnings Disregard Reforms and Changes in Incentives

Implementation of Earnings Disregards. A monthly earnings disregard of 300 euros for unemployment benefits was introduced in January 2014. Prior to the reform, all labor earnings reduced unemployment benefits by 50%. After the reform, individuals receiving UB can earn up to 300 euros per month without any reductions in benefits. Earnings above the 300-euro disregard threshold reduces benefits by 50%, as before.

The stated objective of the reform was to further encourage unemployed individuals to accept short-term and part-time jobs (Government Proposal 2013). Consistent with this objective, participation tax rates for such jobs reduced significantly following the reform for all UB recipients (except for those receiving last-resort income support, whom we exclude from our analysis), as we will discuss in more detail below. In addition to the partial UB system already in place, the earnings disregard further increased disposable income for unemployed individuals who took up part-time employment.

A monthly earnings disregard of 300 euro was introduced for housing allowances in September 2015. The earnings disregard in HA functions similarly to the earnings disregard in UB. After its implementation, HA recipients can earn up to 300 euros per month without these earnings affecting the amount of HA. Therefore, this reform had a similar impact on financial incentives as the earnings disregard in UB. However, as mentioned above, HA is reviewed less frequently than UB, implying that the incentive effects of earnings disregard in HA are likely to materialize more gradually than in UB, where benefits are reviewed on a monthly basis.

The earnings disregard in HA further improved financial incentives to accept part-time work among unemployed individuals who receive the allowance. This applies particularly to flat-rate UB recipients, who in many cases are also eligible for means-tested HA due to their lower income levels. By contrast, individuals with higher household incomes due to relatively high earnings-related UB or a working spouse are typically not eligible for HA. For these individuals, the earnings disregard in HA had no (immediate) impact on incentives to participate in part-time employment. For these reasons, our empirical analysis in Section 4 focuses on this latter reform, which generated differential changes in part-time work incentives across UB recipients.

The new earnings disregard policies received substantial coverage in the Finnish media at the time of implementation. In addition, the unemployment funds administering the earnings-related UB and the Social Insurance Institution, which administers both flat-rate UB and HA, informed their customers about the reforms and the new rules. Furthermore, the earnings disregard policies were likely to be relatively transparent to benefit recipients: the simple 300-euro disregard rule is presumably easier to understand than, for example, the more complex progressive income tax rules in place both before and after the implementations of earnings disregards. Even though we cannot directly measure the salience or complexity of the reforms, these considerations suggest that UB and HA recipients were likely to be aware of the changes in the social insurance system. Also, a rapid increase in part-time work right after the implementation of the earnings disregards illustrated in Figure 3 below suggests that UB recipients were aware of the policy and responded promptly to the new rules.

Changes in Incentives. Figures 1 and 2 describe participation tax rates in different groups before and after the implementation of earnings disregards. The participation tax rate indicates how much monthly household disposable income increases as labor earnings increase, compared to a situation where an individual would have remained unemployed with no labor earnings. The higher the participation tax rate is, the weaker are the financial incentive to enter employment. For example, a participation tax rate of 0.7 implies that 30% of monthly gross wage income is retained after accounting for income

taxes and reduced social benefits. In our analysis, the participation tax rate accounts for the combined effects of income taxes and changes in social security benefits on disposable income when entering employment, excluding last-resort income support, as discussed above.[8]

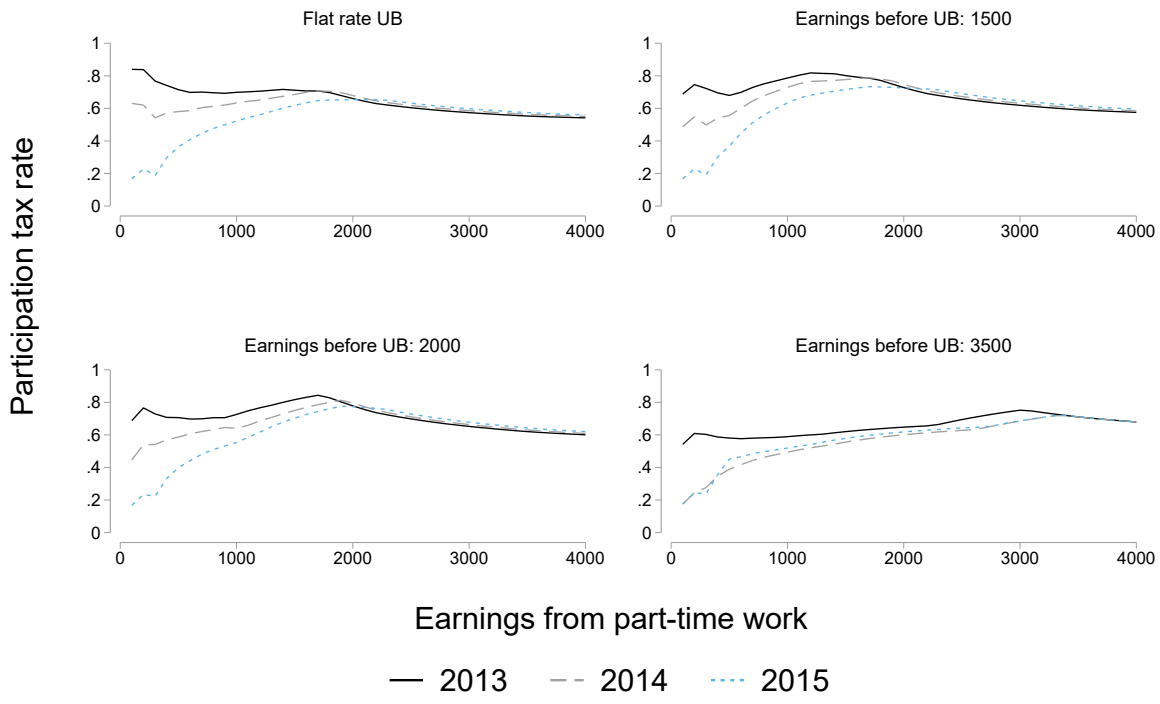
Figure 1 illustrates participation tax rates for single-person households receiving UB in 2013–2015. In the figure, we present participation tax rates at 100 euro intervals of monthly gross earnings, ranging from 100 to 4000 euros. The figure includes both flat-rate and earnings-related UB recipients, with pre-unemployment earnings for the latter ranging from 1500 to 3500 euros per month. As discussed above, pre-unemployment earnings determine the daily UB for unemployment fund members, such that higher prior earnings lead to higher benefits among those eligible for earnings-related UB. In addition, individuals with lower total income (earnings + benefits) are more likely to be eligible for HA, which is incorporated in the calculation of participation tax rates in the figure. Table A1 in the Appendix provides details on HA eligibility for these example cases.

From Figure 1 we can observe that participation tax rates were generally above 0.6 before the introduction of earnings disregard policies (solid line). For example, in 2013 the participation tax rate was 0.6 for an individual with monthly pre-unemployment earnings of 3500 euros (bottom-right panel) who earned 500 euros per month while unemployed. Participation tax rates were higher and around 0.7–0.8 for individuals receiving flat-rate UB and for those receiving earnings-related UB with lower pre-unemployment earnings, as these individuals were also eligible for HA. This illustrates that the means-testing of HA further reduced incentives to participate in part-time employment.

Figure 1 clearly illustrates that the earnings disregard in UB introduced in 2014 reduced participation tax rates for part-time work for all UB recipients (dashed line). This reduction reflects the fact that the first 300 euros of labor earnings no longer reduced UB, thus increasing disposable income when working part-time with small earnings. The changes in participation tax rates were relatively large. Using average part-time earnings

[8]Following Brewer et al. (2010), the participation tax rate is defined as $1 - [T(z_j, b_j) - T(0, b_0)]/z_j$, where $T(z_j, b_j)$ refers to net income after all taxes paid and benefits received when earning gross wage income of z_j, and $T(0, b_0)$ is net income after taxes paid and benefits received with no wage income.

Figure 1: Participation tax rates for single-person households, 2013–2015



Notes: The figure shows participation tax rates (PTRs) in 2013, 2014 and 2015 for unemployed individuals receiving flat-rate UB and for earnings-related UB recipients with different levels of pre-unemployment earnings (1500, 2000 and 3500 euros per month). The PTR measures how much monthly household disposable income increases with labor earnings relative to remaining unemployed with no earnings, accounting for income taxes and social benefit rules. The calculations exclude the effects of last-resort income support, as households receiving this benefit are excluded from our analysis. PTRs are calculated using the SISU microsimulation model.

of approximately 600 euros per month among individuals eligible for HA (flat-rate UB recipients and those with low pre-unemployment earnings), the participation tax rate reduced by approximately 36%. For individuals not eligible for HA, whose average part-time earnings were 900 euros per month, the reduction in the participation tax rate was 21% in 2014.[9] Given the magnitude of these changes in incentives, we can expect the reforms to have an impact on part-time labor supply choices.

The implementation of an earnings disregard in housing allowance in 2015 reduced participation tax rates only for individuals eligible for HA (dotted line). Therefore,

[9]Figure A1 in the Appendix shows the part-time earnings distributions for earnings-related and flat-rate partial UB recipients in 2013, separately for those with and without HA. The figure indicates that partial UB recipients without HA tend to have somewhat higher part-time earnings than those with HA.

participation incentives improved mainly for recipients of flat-rate UB and for recipients of earnings-related UB with low pre-unemployment earnings. After this reform, participation tax rates for earnings up to approximately 700 euros per month fell below 0.4 for all UB recipients. Importantly, as this reform did not apply to individuals not receiving HA, participation incentives for UB recipients not entitled to HA remained unchanged between 2014 and 2015 (bottom-right panel).

Figure 2 presents similar graphs for two-person households under different assumptions about spouses' earnings: 500 euros (upper panel) or 1500 euros (lower panel) per month. As discussed above, spousal earnings do not affect UB but they are taken into account when determining eligibility for HA. As in Figure 1, higher household earnings indicate that the household is less likely to be eligible for HA. Table A1 in the Appendix provides details on HA eligibility for these groups.

Figure 2 delivers a similar message as Figure 1 above: participation incentives improved for all UB recipients following the 2014 reform, whereas the 2015 reform reduced participation tax rates only for unemployed households with lower earnings, which are also eligible for HA. Therefore, differences in spousal earnings among UB recipients generate additional variation in how the September 2015 reform affected incentives to participate in the part-time labor market.

As seen from Figures 1 and 2, due to the relatively small income threshold of the disregard at 300 euros per month and because of the cap rule that the sum of part-time earnings and partial UB cannot exceed pre-unemployment earnings, incentives for entering employment with monthly earnings of around 2000 euros or higher were not affected by these reforms. Therefore, earnings disregard policies affect incentives only for part-time work. This feature enables us to provide novel evidence on how individuals respond to changes in financial incentives concerning this particular labor supply margin.

Figure 2: Participation tax rates for two-person households, 2013–2015

Notes: The figure shows participation tax rates (PTRs) in 2013, 2014 and 2015 for earnings-related UB recipients with different levels of pre-unemployment earnings (2000 and 3500 euros per month) and with different levels of spousal earnings (500 and 1500 euros per month). The PTR measures how much monthly household disposable income increases with labor earnings relative to remaining unemployed with no earnings, accounting for income taxes and social benefit rules. The calculations exclude the effects of last-resort income support, as households receiving this benefit are excluded from our analysis. PTRs are calculated using the SISU microsimulation model.

3 Data, Descriptive Statistics and Methods

3.1 Data and Sample Restrictions

We combine various administrative datasets to construct our data. Our data from the Social Insurance Institution and unemployment funds include individual-level information on each unemployment spell, and monthly-level information on unemployment benefits, earnings when receiving benefits and received housing allowances in the period 2000–2021. These data allow us to reliably follow the development of part-time work while receiving UB and HA over a long period and to study how the earnings disregard reforms are linked to part-time work. To measure longer-run labor market outcomes, we use data on all employment spells from the pension providers. The employment records are available until the end of 2018, and thus our analysis on the impact of earnings disregard reforms is conducted for the period of 2012–2018. To these data we link key background characteristics such as total earnings, age, gender, place of residence, and family status from different registers of Statistics Finland. The data also enable us to link individuals living in each household. These data are available at an annual level until 2020.

One data limitation is that after the implementation of earnings disregards, we do not observe earnings below the 300-euro threshold for all earnings-related UB recipients. This is due to the fact that some of the unemployment funds that are responsible for UB payments do not register individual earnings below 300 euros after 2014, even though they typically record the part-time work status of benefit recipients in these cases too.[10] Due to this restriction, our analysis of part-time earnings while unemployed is based on a sub-sample of individuals for whom monthly earnings below 300 euros are observable in the data, which covers 66% of the recipients of earnings-related UB.

As discussed above in Section 2, we restrict our baseline estimation sample for the analysis of the earnings disregard reforms to individuals who did not receive last-resort income support. Our estimation sample excludes observations on individuals who received income support in the year in question, the preceding year or the following year, since

[10]Whether earnings below the earnings disregard are registered or not in a given unemployment fund depends on the fund's IT system provider, which we know.

income support recipients are largely unaffected by the earnings disregards' incentive effects (see Section 2). However, our results remain qualitatively similar across alternative sample definitions, including a sample that includes all income support recipients and a sample that excludes individuals who received income support at any point during 2012–2018 (see Appendix Table A3).

3.2 Descriptive Statistics

Key Characteristics. Table 1 presents descriptive statistics on key variables using our main estimation sample for the period 2012–2018, which we use to analyze the impacts of earnings disregard reforms. The table shows mean values for all UB recipients and separately for earnings-related and flat-rate UB recipients.

From Table 1 we observe that those with earnings-related UB are older and more likely to have a spouse, but less likely to have children below the school starting age (7 years in Finland). On average, 21% of earnings-related and 13% of flat-rate UB recipients had part-time jobs in a given month in 2012–2018. Also, as can be expected, those with flat-rate UB are more likely to receive HA due to their lower individual and spousal incomes. Finally, earnings-related UB recipients' average monthly part-time earnings among those who worked part-time (i.e. part-time earnings greater than zero) were higher (924 euros) compared to those with flat-rate UB (690 euros).

Development of part-time unemployment over time. Figure 3 describes the longer-run development of part-time work while receiving unemployment benefits among the full sample of UB recipients. Panel A illustrates the development of the number of unemployed individuals and part-time workers receiving UB, and Panel B shows the overall trend in the share of part-time workers among UB recipients in 2000–2021, using monthly-level data. The figure shows that while the number of unemployed persons has varied following the changes in the business cycle, the share of part-time workers among UB recipients remained relatively stable around 10–12% during 2000–2013, although the share slightly dipped after the financial crisis in 2008–2009. After 2013, the share of

Table 1: Descriptive statistics, 2012–2018

	All	Earnings-related UB	Flat-rate UB
Age	43.83	47.43	39.52
Female	0.54	0.56	0.52
Spouse	0.64	0.68	0.58
Spouse's earnings' (annual)	16,089	18,314	13,432
Family size	2.44	2.38	2.52
Number of children aged 7 and below	0.21	0.19	0.24
Working part-time (yes/no)	0.17	0.21	0.13
Received housing allowance (yes/no)	0.17	0.08	0.28
Earnings from part-time work (per month)	825	924	690
Observations	20,532,113	11,174,089	9,358,024
Unique observations	1,043,259	668,714	540,956

Notes: The table presents the descriptive statistics for individuals who received unemployment benefits in 2012–2018, excluding those who received last-resort income support in the year in question, the preceding year and the following year. Mean values are presented for all UB recipients and for recipients of earnings-related and flat-rate UB separately. Part-time work, receipt of housing allowance and earnings from part-time work are measured at the monthly level, and other outcomes are measured annually. Mean monthly earnings from part-time work are calculated for those with positive part-time earnings while receiving UB.

part-time unemployed began to increase sharply, and prior to the COVID-19 pandemic starting in March 2020 their share reached 18%.[11] This increase took place at the same time as earnings disregards in UB and HA were implemented, as denoted by vertical dashed lines in the figure. This tentatively suggests that these policies increased part-time working while receiving UB, which we analyze in more detail below.[12]

Moreover, the increase in the monthly share of the part-time unemployed in the post-reform period cannot be explained by higher part-time work intensity, i.e. longer part-time work spells among groups that used to combine part-time work and benefits already before the reforms. Out of all individuals who received UB in 2013, 17% worked

[11]During the COVID-19 pandemic in 2020–2021, the Finnish labor market saw a sharp rise in furloughed workers, partly due to temporary legislative changes that made it easier to furlough workers. We focus on unemployed workers and exclude furloughed workers from our analysis. We also exclude entrepreneurs receiving benefits. The entrepreneurs were temporarily given eligibility for flat-rate UB during the pandemic.

[12]Over the same period, the share of part-time workers among all workers in Finland increased much less and in a smoother fashion from 12% in 2000 to 14% in 2020. This suggests that the rapid increase in part-time workers among UB recipients in the mid-2010s does not stem from a similar sharp increase in the prevalence of part-time work in Finland at the same time.

Figure 3: Full-time and part-time unemployed individuals, 2000–2021

Notes: Panel A shows the number of unemployed individuals in 2000–2021 using monthly-level data. Light blue bars denote full-time unemployed, and dark blue bars denote part-time unemployed who work part-time while receiving benefits. Panel B shows the share of part-time unemployed among all UB recipients in 2000–2021. The black line denotes the total share of part-time unemployed, and the gray line denotes the share excluding the mechanical increase induced by the earnings disregard reform. The vertical dashed lines denote the implementations of earnings disregards in unemployment benefits (January 2014) and housing allowances (September 2015).

part-time at some point while receiving UB within the year. This share increased to 24% by 2019, indicating that a higher share of the unemployed have worked part-time after the reforms.

Also, Figure 3 illustrates the seasonal variation in unemployment occurring each year, both before and after the earnings disregard reforms. First, unemployment tends to peak at the beginning of each year (left panel). Second, both the number of part-time workers receiving UB and their share among all UB recipients typically drop each year in the summertime and also slightly at the beginning of the year. The summertime drop is particularly pronounced among women (see Panel B of Figure A2 in the Appendix), and is likely driven by school holidays. During the summer, fixed-term teachers, who are often women, are more likely to be unemployed, and mothers of young children may be more frequently out of employment due to limited access to childcare. This issue is recently illustrated and discussed in more detail using data from the US by Price and Wasserman (2024).

In addition to the share of UB recipients who work part-time, Panel B of Figure 3 reports the corresponding share after excluding the potential mechanical effect of the 2014 earnings disregard reform. After the reform, the first 300 euros of earnings do not reduce unemployment benefits, which could mechanically increase the number of individuals eligible for small amounts of UB among those with relatively high part-time earnings. For example, a recipient of flat-rate UB who took up a part-time job with a monthly wage of 1400 euros would not be eligible for UB before 2014, but after the reform she would still be eligible for partial UB due to the earnings disregard. The figure shows that removing these individuals as partial UB recipients does not change the overall pattern of an increasing share of part-time unemployed workers after 2014, but it reduces this share by approximately 1–1.5 percentage points. Based on this finding, we conclude that the mechanical effect does not significantly alter the implications discussed above.

Figure A2 in the Appendix shows the development of the share of part-time workers among UB recipients in different subgroups. The figure shows that part-time work is more common among earnings-related UB recipients, but the share of part-time workers increased also for flat-rate UB recipients after the implementation of earnings disregards (Panel A of Figure A2). Similarly, combining part-time work and unemployment benefits is more common among women compared to men, but again part-time work increased in both groups after 2014 (Panel B). The share of part-time workers among UB recipients increased in all age groups but most notably in the oldest age group after 2014, and by 2020 the differences by age were rather small (Panel C). Finally, the figure shows that individuals with low pre-unemployment earnings are much more likely to work part-time while receiving UB compared to other income groups (Panel D). However, part-time work while receiving UB increased in all income groups after the earnings disregard reforms.[13]

Transitions to part-time work with UB. The implementation of earnings disregards increased financial incentives to switch from a full-time job to a part-time job while collecting UB. One channel for such transitions is to continue working in the same firm as

[13]A previous working paper version of this study (Kalin et al. 2024) includes more descriptive evidence on the longer-run developments in part-time work while receiving UB among different occupations.

before but with reduced working hours. However, in this case, eligibility for UB requires that the reduction in working time is initiated by the employer. From our detailed data, we can observe the labor market status of part-time workers before they started to receive UB, which enables us to characterize transitions to part-time work while receiving UB from different sources. Figure 4 illustrates the number of these transitions over time for part-time workers receiving earnings-related and flat-rate UB.[14]

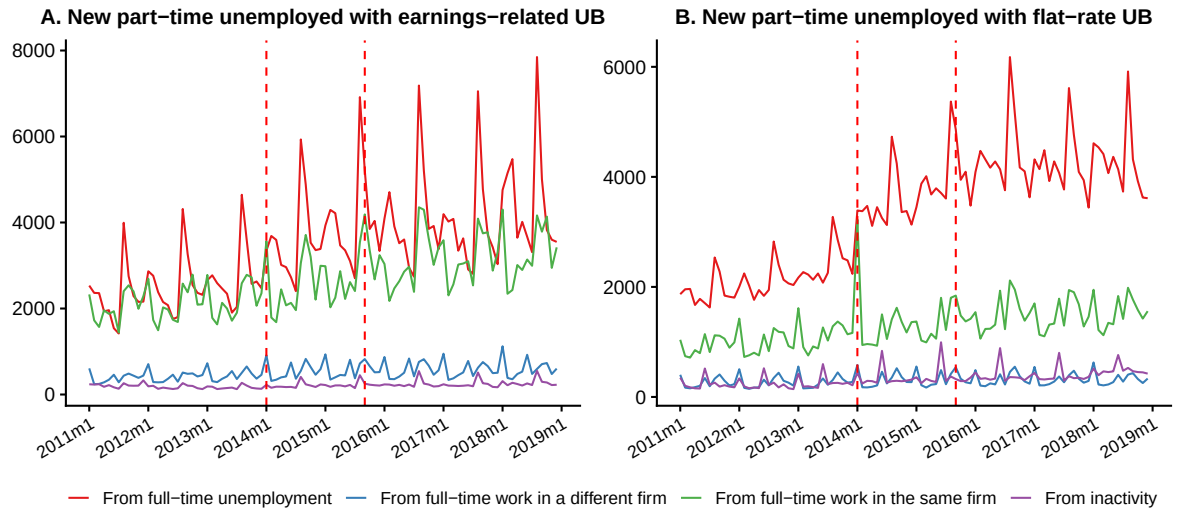
Overall, during 2011–2018 most newly transitioned part-time workers with UB were fully unemployed before starting their part-time work spell. This share was 50% among earnings-related UB recipients and 63% among flat-rate UB recipients. However, a significant share became part-time workers while receiving UB immediately after being fully employed in the previous month. Most of these individuals continued working part-time for the same firm in which they were previously employed. On average, 39% of new part-time workers with earnings-related UB were employed by the same firm before receiving UB, compared to 25% of new part-time workers with flat-rate UB. It is far less common for individuals to leave a full-time job at one firm and take up a part-time job in a new firm and start collecting UB in the next month. Likewise, it is relatively rare to enter part-time unemployment from outside the labor force.[15]

Figure 4 shows that the number of transitions from full-time work to part-time work with UB did not drastically increase after the implementation of earnings disregards, despite the rapid overall increase in part-time work while receiving UB after 2013 described above in Figure 3. For earnings-related UB recipients, the number of transitions from full-time work increased slightly after 2013 following the overall increase in part-time working, but the increase in transitions from full-time unemployment to part-time work with UB was somewhat larger compared to transitions from full-time work. For flat-rate

[14]We are unable to link the employer-level employment data with the benefit data that include monthly housing allowances. Therefore, we can describe transitions to part-time unemployment at the employer level only for all UB recipients combined.

[15]Figure 4 conceals considerable variation across different sectors. Direct transitions from full-time work to part-time unemployment within the same firm are particularly common among workers in the service sector, postal and transport services, and social and healthcare. In contrast, such transitions are relatively rare among construction and manufacturing workers. In certain sectors with fluctuating labor demand, working hours and work opportunities vary, and workers regularly supplement their labor income with unemployment benefits.

Figure 4: Transitions to part-time unemployment by previous labor market status, 2011–2018



Notes: The figures decompose the inflow into part-time unemployment by labor market status in the previous month for part-time workers with earnings-related (left panel) and flat-rate UB (right panel). The red line shows the number of new part-time unemployed who were previously full-time unemployed. The green line shows the number of those who continued working part-time at the same firm where they worked full-time in the previous month. The blue line shows the number of those whose employer changed at the beginning of part-time work. The lilac line shows the number of those who were not in the labor market in the previous month. Vertical dashed lines mark the introduction of earnings disregards in unemployment benefits (January 2014) and in housing allowances (September 2015).

UB recipients, we find a distinct increase in the number of transitions from full-time unemployment to part-time work with UB after 2013, while the number of transitions from full-time work to part-time work with UB remained rather stable. These findings indicate that the overall increase in part-time work with UB is not driven by increased transitions from full-time work to part-time unemployment. This implies that the potential negative employment effects through increased transitions from full-time work to part-time work with UB after the implementation of earnings disregards are not a major issue.

3.3 Methods and Definitions

As discussed in detail above, the implementation of earnings disregards had a differential impact on incentives to work part-time for different unemployed individuals depending on whether their households received housing allowance or not. As shown in Figures 1 and 2, the earnings disregard in UB implemented in January 2014 reduced participation tax rates

for all unemployed individuals. The earnings disregard in HA implemented in September 2015 further reduced participation tax rates, but only for those who also received HA, leaving the incentives of other unemployed individuals unchanged. Due to the differential impact of the latter reform on incentives to work part-time, we therefore focus on this reform in our empirical analysis.

We define our treatment group as individuals who received UB in the month in question and received HA in the same month and in the three preceding months, and the control group as those receiving only UB in the same month. We define HA status by using previous months' HA receipts to rule out cases where HA is received only for a short period of time, such as one month. However, altering the treatment group definition, for example, to only include HA recipients in the month in question, has no significant impact on our results. We then compare monthly-level labor market outcomes between the treatment and control groups before and after the reform using cross-sectional data.

As described above, individuals receiving earnings-related and flat-rate UB differ in various characteristics, including work history, prior earnings, age and spousal earnings. Earnings-related UB recipients are likely to be more attached to the labor market, as they typically have more work experience and higher pre-unemployment earnings. In contrast, flat-rate UB recipients include those with more limited work experience and longer unemployment spells. In addition, the share of housing allowance recipients is larger among flat-rate than among earnings-related UB recipients, causing an imbalance in the size of the treatment and control groups across types of UB. Furthermore, earnings-related UB recipients tend to earn more while working part-time (on average 924 euros per month) compared to those receiving flat-rate UB (690 euros). These differences indicate that pooling all UB recipients together can be challenging, as their labor market histories and potential responses to the implementation of earnings disregards might differ from each other. Therefore, we study the impact of the earnings disregard reform separately for both earnings-related and flat-rate UB recipients.

Our identification assumption is *not* random assignment into the treatment and control groups, but that the development of labor market outcomes in the groups would have

remained similar without the earnings disregard reform. This is commonly referred to as the parallel trends assumption. To assess the validity of this assumption, we compare the outcomes between the treatment and control groups long before the implementation of the reform. Our graphical analysis below illustrates that the part-time work outcomes of the groups evolved very similarly in the months preceding the reform, strengthening the validity of our baseline identification assumption. However, there is more variation in pre-reform trends between the groups in the longer-run labor market outcomes among earnings-related UB recipients. We take this into account by allowing group-specific pre-existing linear trends in our baseline analysis for all outcomes. We discuss our estimation approach in more detail below.

Our main outcome variable is an indicator for participation in part-time employment while receiving UB. Using our detailed data, we define participation in part-time work each month and follow the development of the share of UB recipients working part-time over time, as in Section 3.2 above. In addition, we study how labor earnings from part-time work are affected by the reform.

Earnings disregards can also affect longer-run labor market outcomes such as future full-time employment and unemployment benefit usage. As discussed above, the expected impact of part-time work on transitions to full-time employment is, however, ambiguous due to the potentially opposite lock-in and stepping-stone effects. We measure longer-run labor market outcomes with the number of full-time employment days and the likelihood of benefit receipt. First, we use the employment spell data to calculate the total number of working days in the next 12 months for UB recipients in each group for each month, including weekends and holidays but excluding days in part-time work during an UB spell. Since we only observe annual total earnings and do not have data on working hours, this measure includes all working days when not receiving UB, including full-time work and potential part-time work without UB. We then estimate the impact of the reform on the number of working days to analyze whether the introduction of the earnings disregard in HA had an effect on subsequent days in full-time employment. In addition, we expand this variable to cover working days in the next 24 months to analyze potential effects

on full-time employment that may occur over a longer period. Second, we analyze the likelihood of leaving UB within the next three or six months to measure the effect of earnings disregards on future receipt of UB. Both of these variables (future working days and unemployment) capture the combination of potential stepping-stone, lock-in and ex-ante effects of the policy, which is central to assessing the overall impact of earnings disregards on both future full-time employment and benefit usage.[16]

To plot the development of the outcome variables over time, we estimate the following equation separately for the treatment and control groups:

$$Y_{it} = \lambda_t + X_{it}\beta + \epsilon_{it} \tag{1}$$

where Y_{it} is the monthly outcome for individual i in period t. We omit the month immediately before the introduction of earnings disregards in HA (August 2015) from the regression, so that the estimated coefficients λ_t capture average changes in outcomes from this reference month. We include as controls (X_{it}) age, gender, household size and the number of children younger than 7 years. ϵ_{it} denotes the error term. We cluster standard errors at the individual level.

We estimate the following difference-in-differences specification to capture the differences between treatment and control groups and the magnitude of the effects of the 2015 reform, separately for earnings-related and flat-rate UB recipients:

$$Y_{it} = \lambda_t + \alpha_1(Treat_{it} \times Post_t) + \alpha_2 Treat_{it} + X_{it}\beta + \epsilon_{it} \tag{2}$$

where the treatment group ($Treat_{it}$) is defined as individuals receiving both UB and HA and the control group as individuals receiving UB only, as discussed in more detail above. $Post_t$ denotes the period from September 2015 until December 2018, the last month for which data are available in our employment spell data. We use the period from January

[16]Other relevant outcomes could be the wage of the first full-time job as a proxy for job quality, and subsequent full-time earnings as a measure of potential longer-term effects. However, because we observe overall earnings only annually, these outcomes would suffer from substantial measurement error.

2012 to August 2015 as the pre-reform period in our regressions.[17] In the baseline analysis we use the same set of control variables as in Equation (1) above. To study potential heterogeneity of the response, we interact the $Treat_{it} \times Post_t$ variable with indicator variables for gender and age group for all UB recipients, and an indicator for above-median pre-unemployment earnings for earnings-related UB recipients.

To account for slightly differential pre-trends between the treatment and control groups in some of the outcomes, we apply a simple two-step procedure in our baseline analysis. First, we regress the outcome variable on a linear time trend, the treatment dummy, their interaction, and control variables, using only the pre-reform data. Based on these estimates, we then calculate predicted outcomes for all individuals over all time periods and subtract the predicted values from the observed outcomes. This procedure effectively removes group-specific pre-existing linear trends from the outcome variable. In the second step, we conduct a standard difference-in-differences analysis using the de-trended outcome variable. That is, we replace Y_{it} with its de-trended counterpart in Equation (2) and estimate the model without control variables X_{it} (as their effects are already removed). As a robustness check, we present the main results without adjusting for pre-reform trends in the Appendix.

The advantage of our baseline cross-sectional estimation is that it allows us to examine the longer-run impacts of the reform, including effects on subsequent employment outcomes. However, a potential threat to identifying the effect of the earnings disregard using Equation (2) is compositional changes within the treatment and control groups that could alter the likelihood of participating in part-time work independently of the reform. For example, if the share of women among HA recipients, who are more likely to participate in part-time work (see Panel B of Figure A2 in the Appendix), were to increase, this change could drive the estimated effect rather than the financial incentives created by the earnings disregard reform. Although we control for gender and other observable characteristics in our regressions, compositional changes in unobserved characteristics could produce a similar type of bias.

[17] Restricting the pre-period to include only the months after the first reform in January 2014 has no significant impact on our results.

We conduct three tests to support the validity of our findings. First, we illustrate that the composition of the treatment and control groups in our sample did not change significantly at the time of the earnings disregard reform. Thus, compositional shifts are unlikely to explain the observed effects after the reform. Second, while the overall number of HA recipients in Finland and in our data increased over time during our analysis period, this increase evolved smoothly throughout the period, including the years prior to the implementation of earnings disregards. Therefore, increases in the relative size of the treatment group, which could be driven by, for example, the mechanical effects of the earnings disregards discussed above, do not explain our findings.[18] Third, we estimate the impact of the reform on part-time work using (unbalanced) panel data in which we fix the treatment and control status at the time of the reform and follow the same individuals over time before and after September 2015 (over a single continuous spell of UB receipt). We define the treatment group as individuals receiving both UB and HA in August and September 2015, and the control group as those receiving only UB in the same months. These panel data estimates are similar but smaller in magnitude compared to the estimates from the cross-sectional baseline model (see Figure A4 in the Appendix), suggesting that unobserved compositional changes are unlikely to explain our main findings.[19]

Finally, the introduction of earnings disregards generated a new kink in the budget set of UB and HA recipients at 300 euros, above which benefits begin to be gradually reduced. In principle, this discontinuity could be used to identify local intensive-margin responses to financial incentives using the so-called bunching method (see e.g. Kleven 2016). We do not use the bunching method for two reasons. First, it does not capture participation responses, which are our primary outcome of interest. Second, identifying a credible counterfactual from a non-monotonous part-time earnings distribution is challenging, implying that the

[18]Table A2 reports the composition of HA recipients by year, and Figure A3 shows the share of HA recipients among all UB recipients in our sample over 2012–2018.

[19]A downside of the panel data approach is that it restricts the analysis to individuals who were unemployed in specific months. Because unemployment spells are often short, studying part-time employment responses over a longer time horizon limits the sample to a relatively small and negatively selected group of individuals who remain unemployed for longer periods. In addition, panel estimation is likely to be affected by mean reversion issues (see e.g. Jakobsen and Søgaard 2022), which in Figure A4 appear as jumps in the outcomes at the time when we fix the treatment status of the individuals. For these reasons, we use cross-sectional analysis as our baseline estimation approach, which does not limit the sample to the long-term unemployed and is not affected by potential mean reversion issues.

resulting local intensive-margin estimates are likely to be biased. However, we illustrate and briefly discuss changes in the part-time earnings distribution around the earnings disregard reforms in Section 4.

4 Results

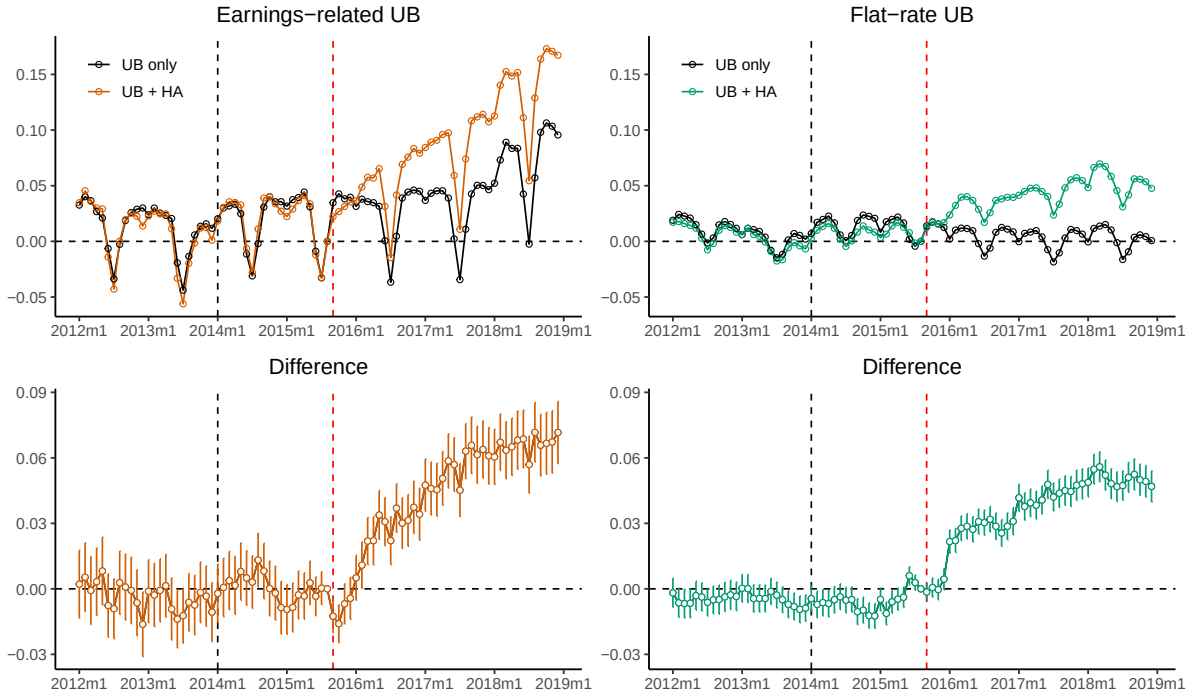
4.1 Participation in part-time work and part-time earnings

We begin by illustrating trends in participation in part-time work and part-time earnings while receiving UB around the earnings disregards reforms. The upper panels of Figure 5 show part-time work participation rates (shares of part-time workers among all UB recipients) for earnings-related (left panel) and flat-rate (right panel) UB recipients in 2012–2018, separately for the treatment (UB and HA) and control groups (UB only), estimated using Equation (1). The lower panels show the differences between the groups each month. The development of part-time work while receiving UB is measured as a deviation from August 2015, one month before the second earnings disregard reform, which is denoted as zero for both groups.

Figure 5 shows that participation in part-time work evolved very similarly in the treatment and control groups before the earnings disregard reforms for both benefit types. This supports the validity of our empirical approach. After January 2014, when the earnings disregards were introduced for all UB recipients (black dashed line), we observe a small increase in part-time work in both groups. As expected, no significant differences in between the treatment and control groups emerge at this point, since the reform affected all UB recipients similarly.

From September 2015 onward (red dashed line), part-time work increased significantly more in the treatment group than in the control group among both benefit types, indicating that the earnings disregard policy affected part-time work decisions while receiving benefits. The effect grows gradually after September 2015, which is consistent with the fact that HA is reviewed less frequently than UB, implying that the reform did not immediately improve incentives for part-time work for all HA recipients. As discussed in Section 3.2, there is

Figure 5: The share of part-time unemployed workers, 2012–2018



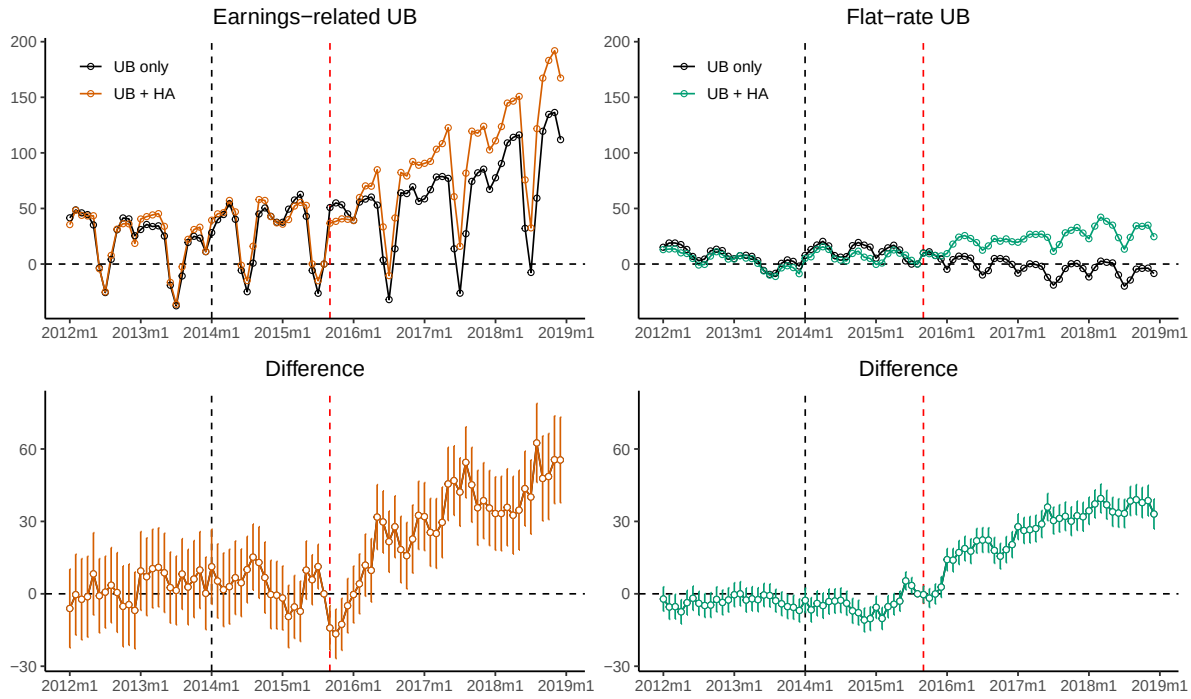
Notes: Upper panels show the share of part-time unemployed workers with labor earnings among all UB recipients in 2012–2018 for earnings-related and flat-rate UB recipients, separately for those receiving both UB and HA and those receiving only UB. The time series are adjusted for group-specific pre-reform linear trends and measured as deviations from August 2015 (denoted as zero for all groups). Lower panels show monthly differences between the groups with 95% confidence intervals. Baseline shares of part-time workers are reported in Table 2.

clear seasonality in unemployment and part-time work while receiving UB: part-time work typically declines during the summer months, which is also visible in the upper panels of Figure 5.[20]

Figure 6 shows the evolution of earnings from part-time work while receiving UB separately for the recipients of earnings-related and flat-rate UB. Average part-time earnings evolved similarly in the treatment and control groups prior to the implementation of earnings disregards for both benefit types. Following the reform in September 2015, average part-time earnings increased in the treatment group relative to the control group,

[20]Figure A5 in the Appendix presents the development of part-time work without pre-reform trend adjustments, and the results are very similar to those in Figure 5. As an additional robustness check, we have estimated the effects of the 2015 reform on part-time work when the treatment status is based on simulated HA eligibility using annual income information available in the data rather than observed monthly HA receipt. The estimate for earnings-related UB recipients (0.0277) is smaller than in our baseline analysis, and for flat-rate UB recipients the estimate is statistically insignificant and close to zero (−0.0003). This reflects the fact that simulated eligibility does not capture incomplete take-up of HA, implying imprecise treatment assignment in this specification. Also, simulated treatment assignment based on annual income data can yield imprecise results on actual HA eligibility at the monthly level.

Figure 6: Earnings from part-time work, 2012–2018



Notes: Upper panels show average monthly earnings from part-time work (including zeros) in 2012–2018 for earnings-related and flat-rate UB recipients, separately for those receiving both UB and HA and those receiving only UB. The time series are adjusted for group-specific pre-reform linear trends and measured as deviations from August 2015 (denoted as zero for all groups). Lower panels show monthly differences between the groups with 95% confidence intervals. The sample of earnings-related UB recipients for part-time earnings includes only members of unemployment funds that report earnings below the earnings disregard. Baseline part-time earnings are reported in Table 2.

consistent with the increased shares of part-time workers in Figure 5.[21]

Table 2 presents the difference-in-differences estimates for participation in part-time work and part-time earnings based on Equation (2), estimated separately for earnings-related and flat-rate UB recipients. The estimates for part-time work participation in columns (1) and (3) largely confirm the visual evidence presented above. Participation in part-time work increased by approximately 0.045 (4.5 percentage points) for earnings-related UB recipients and by 0.041 (4.1 percentage points) for flat-rate UB recipients after the implementation of the earnings disregard for HA in September 2015.

We evaluate the magnitude of the estimated responses by approximating a part-time

[21]Figure A6 in the Appendix presents the evolution of part-time earnings without pre-reform trend adjustments, and the findings are very similar to those in Figure 6. Figure A7 shows monthly earnings distributions for UB recipients in 2013, 2014 and 2016. These distributions shift slightly to the right following the earnings disregard reforms for both benefit types. In addition, local bunching is visible at the 300 euro threshold, indicating that some individuals are able to adjust their earnings to remain just below the point at which benefits begin to be reduced.

Table 2: Regression estimates for part-time work

	(1)	(2)	(3)	(4)
	Earnings-related UB		Flat-rate UB	
	Working part-time	Part-time earnings	Working part-time	Part-time earnings
$Treat_{it} \times Post$	0.0445***	25.25***	0.0410***	28.88***
	(0.0033)	(4.003)	(0.0017)	(1.276)
Baseline control	0.184	166.3	0.117	82.7
Baseline treatment	0.197	173.9	0.128	87.3
Observations	11,174,089	7,530,009	9,358,024	9,358,024

Notes: The table reports difference-in-differences estimates from Equation (2) for participation in part-time work and earnings from part-time work separately for earnings-related and flat-rate UB recipients. The estimates are adjusted for group-specific pre-reform linear trends. Baseline levels refer to the average values of the outcome variables in August 2015. The sample of earnings-related UB recipients for part-time earnings includes only members of unemployment funds that report earnings below the earnings disregard. Earnings include zero values. Standard errors clustered at the individual level are presented in parenthesis. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

work participation elasticity with respect to changes in incentives for part-time work. To do this, we relate the estimated relative change in part-time work participation to the relative average change in the participation tax rate for part-time work (see Section 2) induced by the earnings disregard in HA. The 2015 reform reduced the participation tax rate by approximately 22% for earnings-related and 31% for flat-rate UB recipients, calculated using average positive monthly part-time earnings in the treatment group (806 and 681 euros per month, respectively; see Appendix Table A3, Panel E). Our point estimates of 4.45 and 4.10 percentage points increases in part-time work correspond to 22.6% and 32.0% increases relative to the treatment group baseline means (0.197 for earnings-related and 0.128 for flat-rate UB recipients). These imply participation elasticity estimates of approximately 1 for both earnings-related and flat-rate UB recipients. Hence, part-time labor supply while receiving UB is highly responsive to financial incentives. These estimates are larger than typical estimates for full-time work participation in the literature, where elasticities with respect to the participation tax rate are generally below 0.5 (see e.g. Chetty et al. 2013).

Table 2 includes the estimates for earnings during part-time work for both benefit types. Following the increase in the share of part-time workers, the estimates in columns (2) and (4) indicate statistically significant average increases of 25 and 29 euros per month for earnings-related and flat-rate UB recipients, respectively. These correspond to 15%

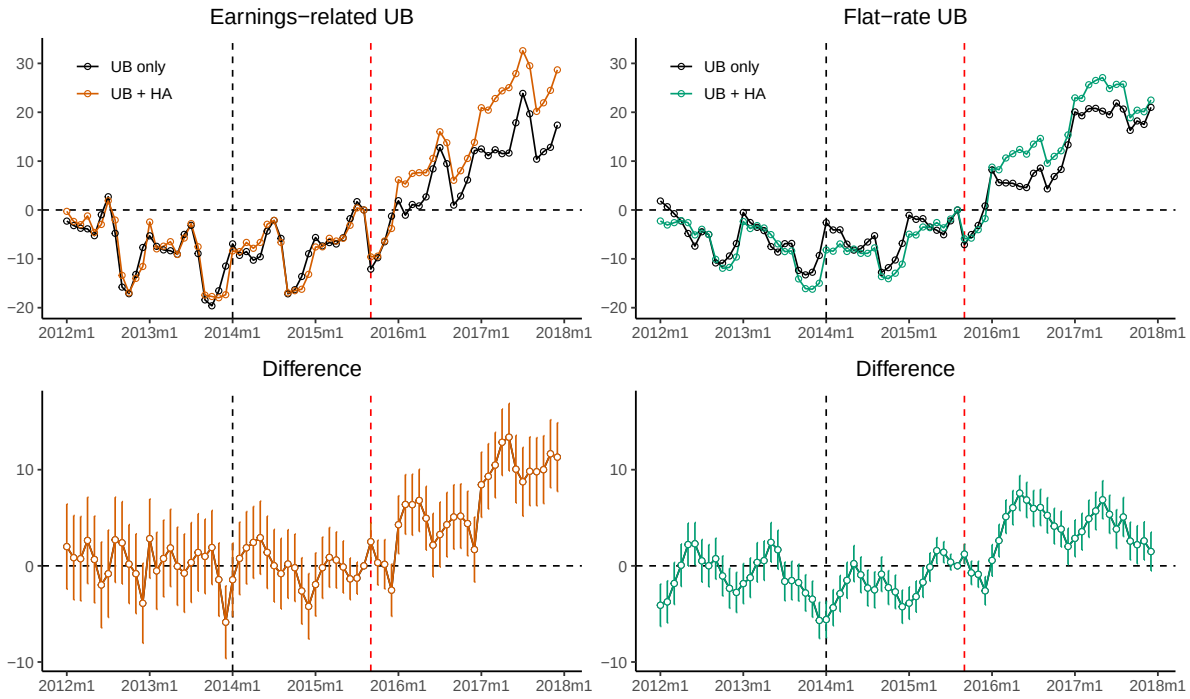
and 33% average increases relative to the treatment group baseline means of 174 and 87 euros per month in August 2015, which translate into average earnings elasticities of 0.7–0.9 with respect to the participation tax rate.

Table A3 in the Appendix presents the results for alternative estimation samples and specifications. Panel A reports estimates from a specification that does not allow for group-specific pre-reform linear trends, and the results are similar to those presented in Table 2. Panel B reports results for a sample exluding individuals who received income support at any point during 2012–2018, panel C for a sample excluding only individuals who received income support in the year in question, and panel D for a sample including all income support recipients. These alternative samples provide qualitatively similar results to our baseline analysis for earnings-related UB recipients. However, the sample including all income support recipients delivers smaller average effects on part-time working, as can be expected. The results for flat-rate UB recipients are more sensitive to how income support recipients are treated, reflecting the fact that a larger share of flat-rate UB recipients receive income support. Therefore, although our results remain broadly similar across specifications, our findings and their implications for flat-rate UB recipients should be interpreted with some caution. Finally, Panel E of Table A3 reports the intensive-margin results for part-time earnings (i.e., excluding individuals with zero part-time earnings). Conditional on participating in part-time work, we find no significant average change in monthly part-time earnings for earnings-related UB recipients and a small increase of 22 euros (3.2% from the pre-reform baseline earnings of 681 euros per month) for flat-rate UB recipients.

4.2 Full-time employment and unemployment

Figure 7 plots the development of full-time working days (working days excluding days when receiving UB) within the 12 subsequent months following each unemployment month for earnings-related (left panels) and flat-rate (right panels) UB recipients, separately for the treatment and control groups. On average, earnings-related and flat-rate UB recipients in the treatment group worked full-time for 74 and 49 days in the 12 months following

Figure 7: Full-time working days withing the next 12 months, 2012–2017



Notes: Upper panels show average full-time working days within the next 12 months in 2012–2018 for earnings-related and flat-rate UB recipients, separately for those receiving both UB and HA and those receiving only UB. The time series are adjusted for group-specific pre-reform linear trends and measured as deviations from August 2015 (denoted as zero for all groups). Lower panels show monthly differences between the groups with 95% confidence intervals. Baseline working days are reported in Table 3.

the September 2015 reform.

The number of full-time working days developed very similarly in the treatment and control groups before the earnings disregard reforms. After September 2015, working days increased gradually in the treatment group relative to the control group among both benefit types. This indicates that the implementation of the earnings disregard in HA had a small positive effect on subsequent full-time employment among UB recipients.

Table 3 presents the regression estimates for longer-run employment outcomes for both earnings-related (Panel A) and flat-rate (Panel B) UB recipients, estimated using Equation (2). Column (1) shows estimates for the number of full-time working days within the next 12 months, and these results confirm the visual patterns observed in Figure 7 above. Specifically, the estimates indicate an increase of 6 full-time working days over the subsequent 12 months for earnings-related UB recipients and 5 days for flat-rate UB recipients in the treatment group relative to the control group. Column (2) extends

Table 3: Regression estimates for full-time employment and unemployment

	(1) Working days within next 12 months	(2) Working days within next 24 months	(3) Unemployed 3 months later	(4) Unemployed 6 months later
Panel A – Earnings-related UB				
$Treat_{it}$ x $Post_t$	6.492***	14.10***	-0.0117***	-0.0167***
	(0.8007)	(2.104)	(0.0017)	(0.0025)
Baseline control	103.7	286.4	0.786	0.700
Baseline treatment	74.3	213.3	0.858	0.798
Observations	9,349,515	7,441,433	10,613,659	10,132,595
Panel B – Flat-rate UB				
$Treat_{it}$ x $Post_t$	4.991***	10.14***	-0.0107***	-0.0133***
	(0.4386)	(1.223)	(0.0009)	(0.0013)
Baseline control	62.6	180.5	0.874	0.825
Baseline treatment	48.8	142.8	0.911	0.866
Observations	7,568,543	5,881,174	8,634,469	8,105,305

Notes: The table reports difference-in-differences estimates from Equation (2) separately for earnings-related (Panel A) and flat-rate UB recipients (Panel B). The estimates are adjusted for group-specific pre-reform linear trends. Columns (1) and (2) show estimates for the number of full-time working days within the next 12 and 24 months, and columns (3) and (4) show estimates for the likelihood of receiving UB 3 and 6 months after the current month, respectively. Baseline levels refer to the average values of the outcome variables in August 2015. Standard errors clustered at the individual level are presented in parenthesis. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

the follow-up period to 24 months to capture potential longer-run effects on full-time employment. Over this longer horizon, we again find positive effects of approximately 14 and 10 working days for earnings-related and flat-rate UB recipients, respectively.

Columns (3) and (4) report estimates for the likelihood of still receiving unemployment benefits three and six months after the current month, respectively. This specification analyzes the potential impact of earnings disregards on the duration of unemployment benefit spells. In theory, earnings disregards and the associated increase in part-time work during unemployment may either increase the likelihood of remaining a benefit recipient through a lock-in effect or decrease it through a stepping-stone effect, similarly as for subsequent full-time working days. For earnings-related UB recipients, the estimates indicate small negative effects on the likelihood of remaining unemployed: 1.2 and 1.7 percentage points three and six months after the current month, respectively. For flat-rate UB recipients, the estimates imply reductions of approximately 1.1 and 1.3 percentage

points after three and six months.[22] These findings are consistent with the small average increases in full-time working days for both benefit types in columns (1) and (2).[23]

In relative terms, the effects on full-time working days within the next 12 months correspond to increases of approximately 9–10%, and the likelihood of remaining on unemployment benefits three months later declines by around 1.2–1.4% relative to treatment-group baseline means. Both of these findings point to a moderate positive average effect of earnings disregards on subsequent labor market outcomes among UB recipients. That is, our evidence provides no indication of dominating lock-in effects of earnings disregards that would crowd out full-time employment. Taken together with the evidence in Figure 4, which shows no significant increase in transitions from full-time work to part-time work with UB, this suggests that earnings disregards are unlikely to have a negative impact on full-time employment.

4.3 Heterogeneity

Table 4 presents the regression results when we interact the $Treat_{it} \times Post_t$ term in Equation (2) with various heterogeneity indicators. We analyze how the effects on part-time work and full-time working days differ by age (below 30 years, 31–50 years and above 51 years) and gender for all UB recipients, and by pre-unemployment earnings (below or above the median) for earnings-related UB recipients.

[22]Figure A8 in the Appendix plots the shares of individuals who were receiving UB in August 2015 or August 2014 and who continue to receive UB in subsequent months. We observe that among the recipients of earnings-related UB (left panel), the likelihood of remaining on UB declined in the post-reform period compared to the pre-reform period for both groups. For flat-rate UB recipients (right panel), the patterns are similar but the changes over time are much smaller. Overall, these findings are in line with our baseline results in Table 3 that the September 2015 reform had very small effects on the likelihood of being unemployed 3 and 6 months later.

[23]Figure A9 in the Appendix shows the development of all longer-run employment outcomes, which are closely in line with the estimated effects in Table 3. Figure A10 presents the same outcomes without adjusting for pre-reform trends. The figure illustrates that there are differential pre-trends in the outcomes between the treatment and control groups among earnings-related UB recipients, while the pre-reform trends are rather similar for flat-rate UB recipients. Table A4 reports the corresponding regression estimates without adjusting for group-specific linear trends. The estimates for flat-rate UB recipients are similar but slightly smaller in magnitude compared to those in Table 3, which is expected given the absence of clear pre-reform trend differences between the treatment and control groups. In contrast, for earnings-related UB recipients, adjusting for group-specific linear pre-trends reverses the sign of the estimated effects on the numbers of future full-time working days. This pattern is consistent with the differential pre-reform trends observed for this group in Figure A10 and underlines the importance of accounting for such trends in the analysis.

Table 4: Heterogeneity results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Earnings-related UB				Flat-rate UB		
	31–50 years	Above 51 years	Male	Above median	31–50 years	Above 51 years	Male
Panel A - Part-time work							
$Treat_{it} \times Post_t$	-0.0066	-0.0601***	-0.0832***	-0.0452***	-0.0158***	-0.0383***	-0.0542***
	(0.0059)	(0.0066)	(0.0050)	(0.0049)	(0.0031)	(0.0037)	(0.0029)
Observations	11,174,089	11,174,089	11,174,089	11,174,089	9,358,024	9,358,024	9,358,024
Panel B - Full-time working days within the next 12 months							
$Treat_{it} \times Post_t$	-11.90***	0.2829	-6.896***	4.272***	-3.150***	-3.364***	-9.148***
	(1.508)	(1.588)	(1.194)	(1.488)	(0.7675)	(0.8338)	(0.6449)
Observations	9,349,515	9,349,515	9,349,515	9,349,515	7,568,543	7,568,543	7,568,543

Notes: The table reports difference-in-differences estimates from Equation (2) interacted with indicator variables for age (below 30 years, 31-50 years and above 51 years) and gender for all UB recipients, and with an indicator variable for pre-unemployment earnings (above or below median) for earnings-related UB recipients. The estimates are adjusted for group-specific pre-reform linear trends. The baseline coefficients on $Treat_{it} \times Post_t$ are 0.1041 (standard error 0.0058) for earnings-related UB recipients and 0.0854 (0.0030) for flat-rate UB recipients for the part-time work outcome; the corresponding coefficients for full-time working days are 12.92 (1.470) and 12.02 (0.7742), respectively. Standard errors clustered at the individual level are presented in parenthesis. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Among earnings-related UB recipients, the effect of the reform on part-time work was larger for individuals younger than 51, and larger for those with below-median pre-unemployment earnings than for those with above-median earnings. In addition, the part-time work response is significantly larger for women than for men. Among flat-rate UB recipients, the part-time work response is likewise larger among women than men, and among younger individuals compared to older ones. For full-time working days within the next 12 months among earnings-related UB recipients, we observe a larger effect for younger individuals than for middle-aged individuals, for women than for men, and for those with higher pre-unemployment earnings. Among flat-rate UB recipients, the effect is also larger for younger individuals than for older ones, and for women than for men.

Overall, the heterogeneity results imply that both part-time labor supply responses and the positive effects on subsequent full-time employment are larger for women than for men across both benefit types. We find similar patterns for younger individuals compared to older ones. This evidence suggests that policies encouraging part-time work during unemployment are more effective in promoting part-time work participation and subsequent full-time employment among groups – such as women and younger individuals

– that are more likely to work part-time to begin with (see Panels B and C in Figure A2 in the Appendix).

5 Discussion

In this paper, we show that participation in part-time employment among unemployment benefit recipients increased considerably following the introduction of earnings disregard policies that allow recipients to earn small amounts of income without benefit reductions. Our implied participation elasticity for part-time work is approximately 1, indicating that part-time labor supply choices among benefit recipients are highly responsive to changes in financial incentives. This elasticity is larger than what is typically found for labor market participation more generally (Chetty et al. 2013) and for intensive-margin earnings responses among wage earners (see Neisser 2021 for a survey), where elasticity estimates are often found to be below 0.5.

Furthermore, we find that earnings disregards and the associated increase in part-time work during unemployment benefit spells do not crowd out full-time employment. Instead, we find moderate positive effects on subsequent full-time employment. This evidence is consistent with previous studies that typically do not find sizable average effects or strong associations between part-time work and future full-time employment (O´Leary 1997; Boeri and Cahuc 2023; Lee et al. 2021).

Overall, earnings disregards likely increase the welfare of benefit recipients who work part-time by raising their income without generating negative crowd-out effects on future labor market outcomes. Beyond higher income, part-time work during unemployment may have additional benefits by, for example, improving mental health through increased social interactions and meaningful daily activity (see e.g. Ahammer and Packham 2023 for evidence on the health effects of extended UI benefits). Part-time work may also affect qualitative aspects of subsequent employment, such as job stability or quality. Future research is needed to study these broader welfare effects of part-time work in order to draw more comprehensive conclusions on the overall welfare effects of policies that encourage

part-time work among benefit recipients.

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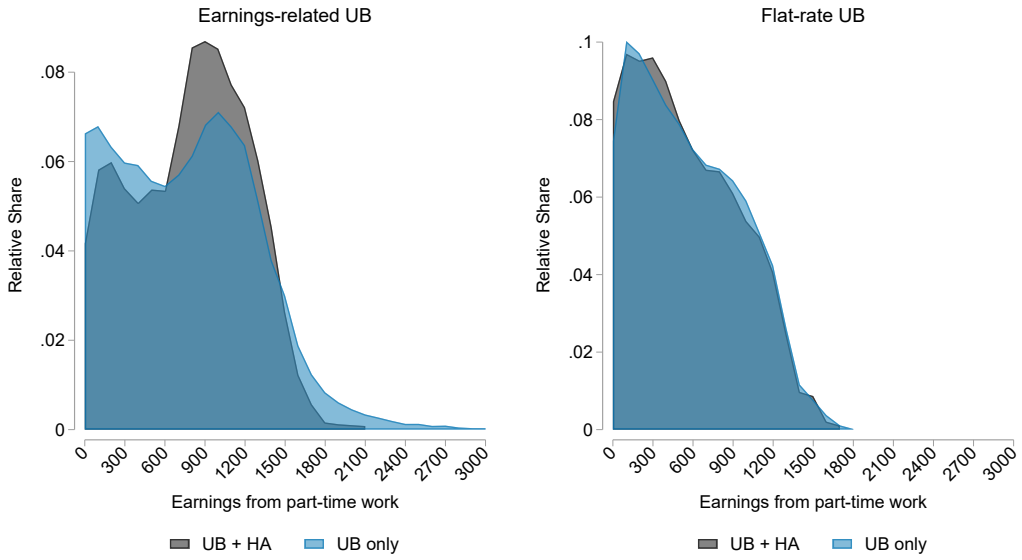
Appendix

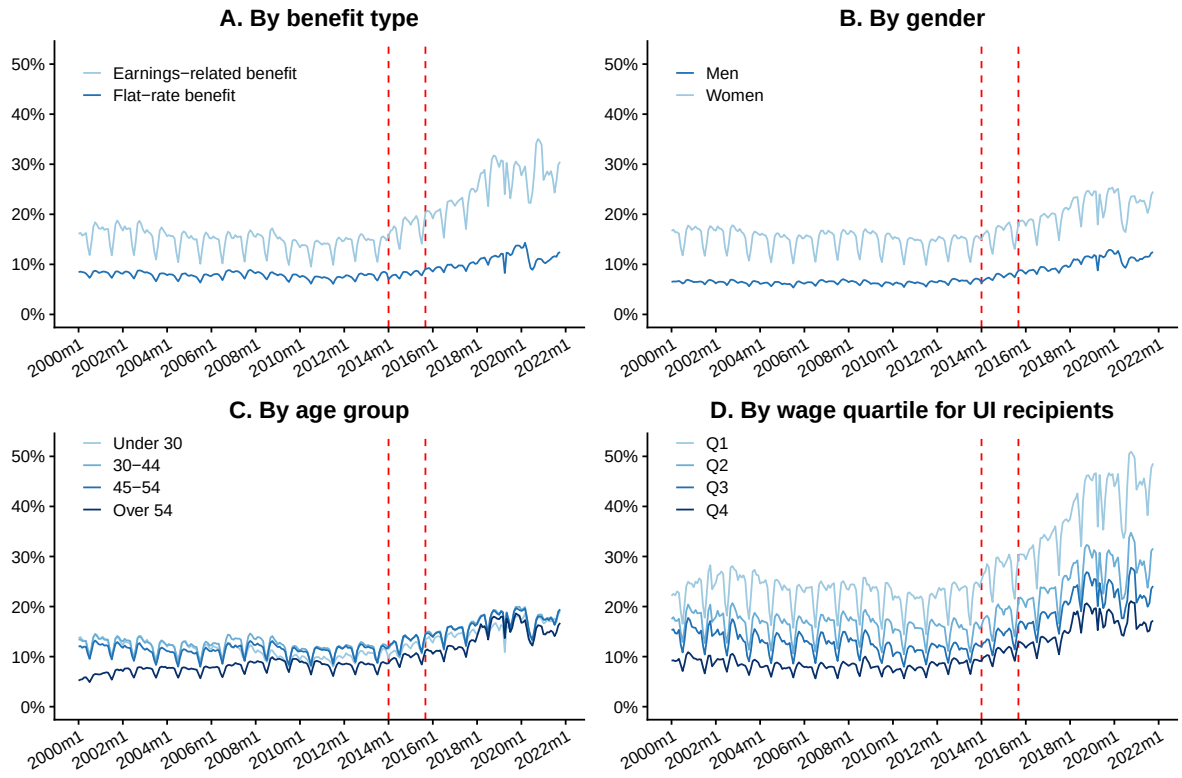
Figures

Figure A1: Distributions of part-time earnings among unemployment benefit recipients in 2013



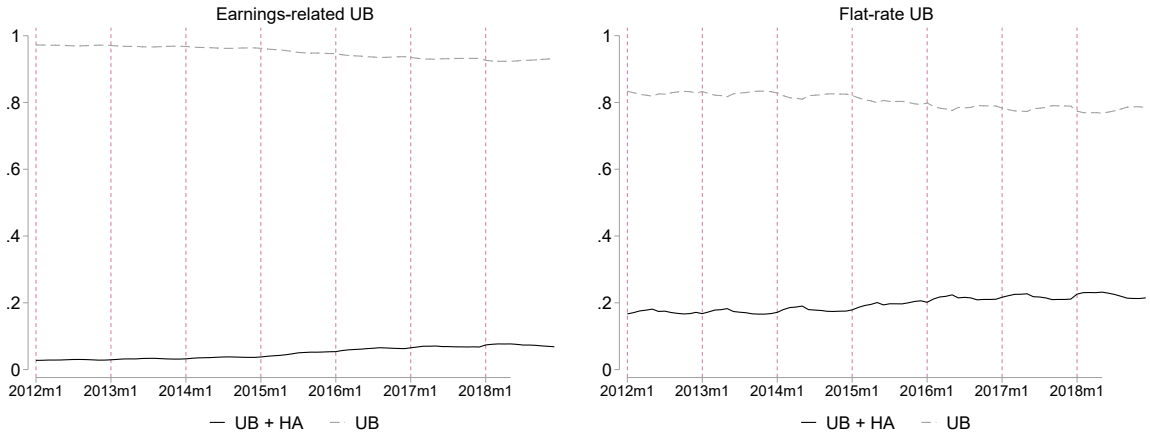
Notes: The figure shows the distributions of monthly part-time earnings among earnings-related UB recipients (left panel) and flat-rate UB recipients (right panel) in 2013, separately for those who receive UB and HA and for those who receive only UB. The figure for earnings-related UB includes only those individuals for whom we can observe earnings below the 300-euro threshold after the reforms, who comprise 66% of all earnings-related UB recipients (see Section 3).

Figure A2: The share of part-time unemployed workers in different subgroups, 2000–2021



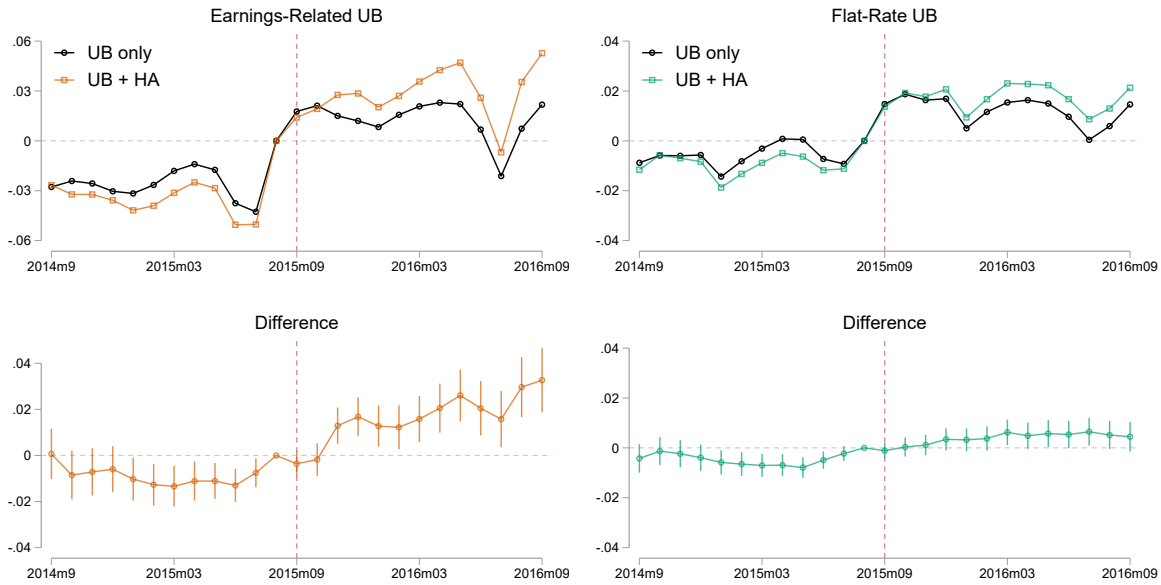
Notes: The figure shows the share of part-time unemployed workers among all UB recipients in 2000–2021 by benefit type, gender, age, and among recipients of earnings-related benefits by pre-unemployment wage quartile. The vertical dashed lines denote the implementations of earnings disregards in unemployment benefits (January 2014) and housing allowances (September 2015).

Figure A3: Shares of treatment and control group, 2012–2018



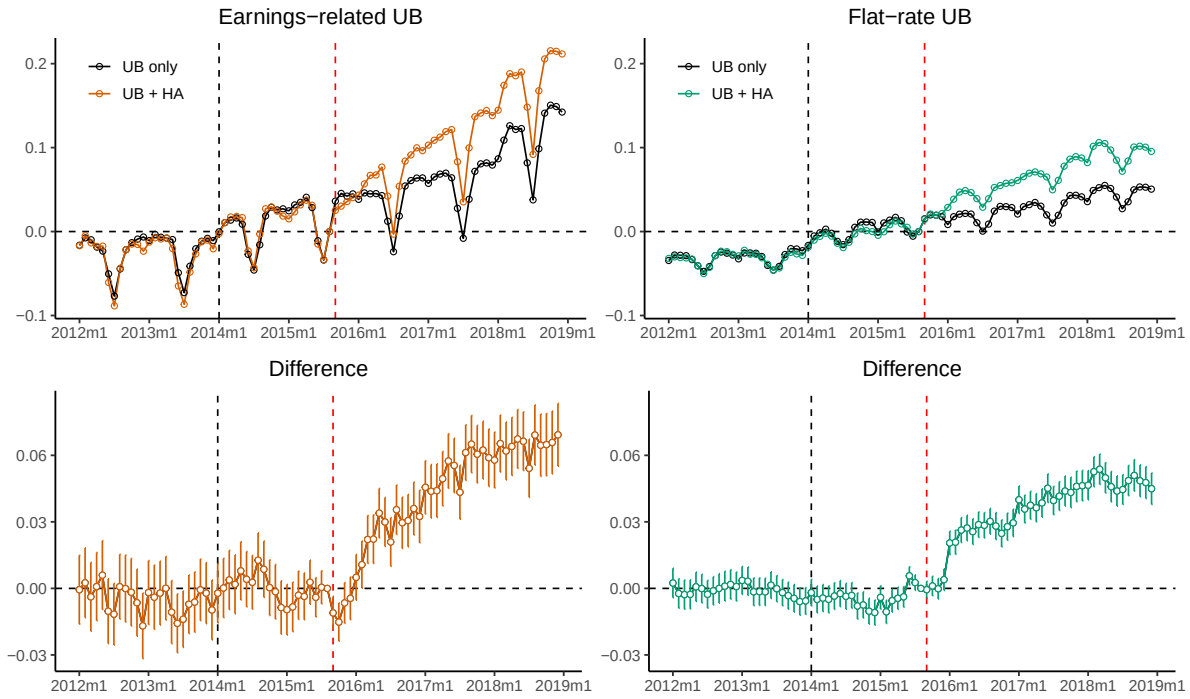
Notes: The figure presents the monthly shares of the treatment group (i.e., those who receive both UB and HA) and control group (i.e., those who receive only UB) for earnings-related (left panel) and flat-rate benefit recipients (right panel) in 2012–2018 in our baseline estimation sample.

Figure A4: The share of part-time unemployed workers, panel data analysis



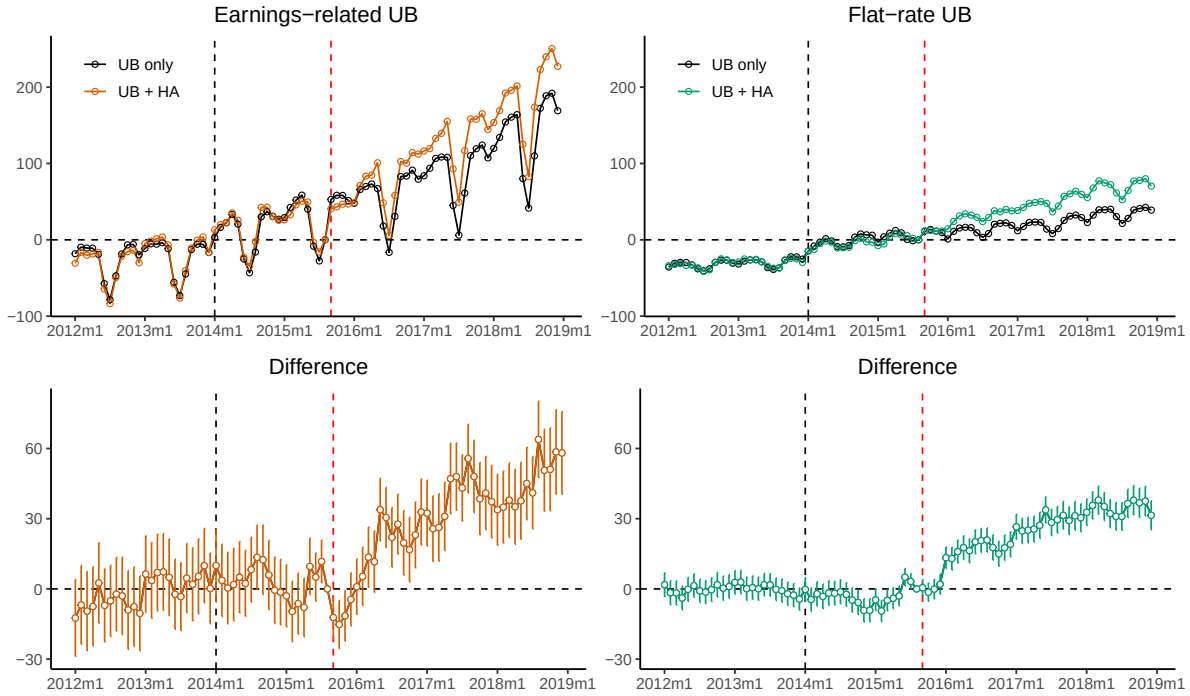
Notes: The figure shows the share of part-time unemployed workers with labor earnings among all UB recipients between September 2014 and September 2016 for earnings-related and flat-rate UB recipients, separately for those receiving both UB and HA and those receiving only UB. The share is measured as a deviation from August 2015 (denoted as zero for all groups). We fix the treatment/control status based on received benefits in August and September 2015, and follow these same individuals over time. The number of observations for the control and treatment groups in August 2015 are 121,263 and 6,910 for earnings-related UB recipients, and 89,640 and 23,299 for flat-rate UB recipients, respectively. Lower panels show monthly differences between the groups with 95% confidence intervals. The baseline shares of part-time workers in August 2015 are 18% and 20% among earnings-related UB recipients and 11% and 13% among flat-rate UB recipients in the control and treatment groups, respectively. The difference-in-differences estimate using Equation (2) is 0.00899 for earnings-related UB recipients and 0.00654 for flat-rate UB recipients. The flat-rate estimate is statistically significant at the 0.1% level ($p < 0.001$), and the earnings-related estimate is statistically significant at the 5% level ($p = 0.036$).

Figure A5: The share of part-time unemployed workers without pre-reform trend adjustment, 2012–2018



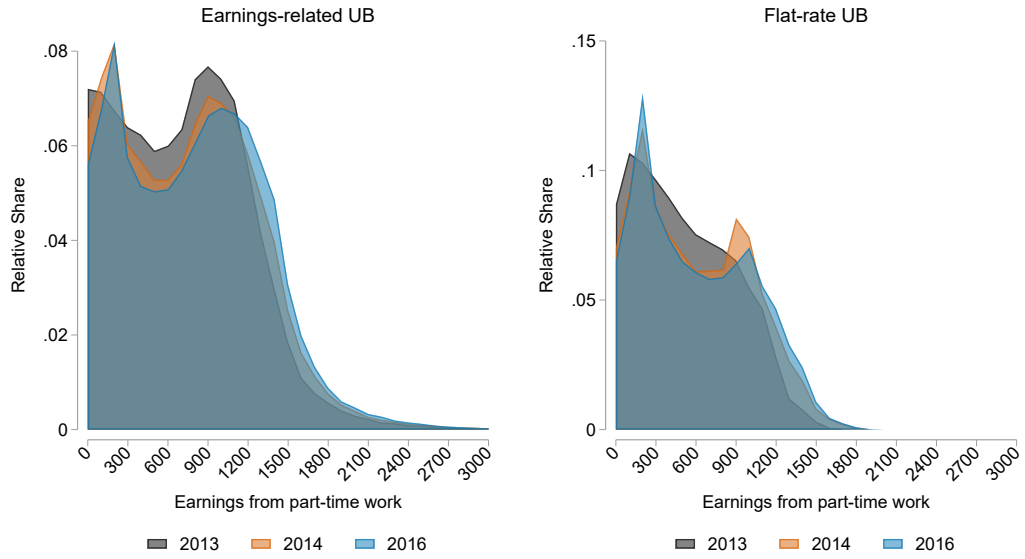
Notes: Upper panels show the share of part-time unemployed workers with labor earnings among all UB recipients in 2012–2018 for earnings-related and flat-rate UB recipients, separately for those receiving both UB and HA and those receiving only UB. The time series are measured as deviations from August 2015 (denoted as zero for all groups). Lower panels show monthly differences between the groups with 95% confidence intervals. Baseline shares of part-time workers are reported in Table 2.

Figure A6: Earnings from part-time work without pre-reform trend adjustment, 2012–2018



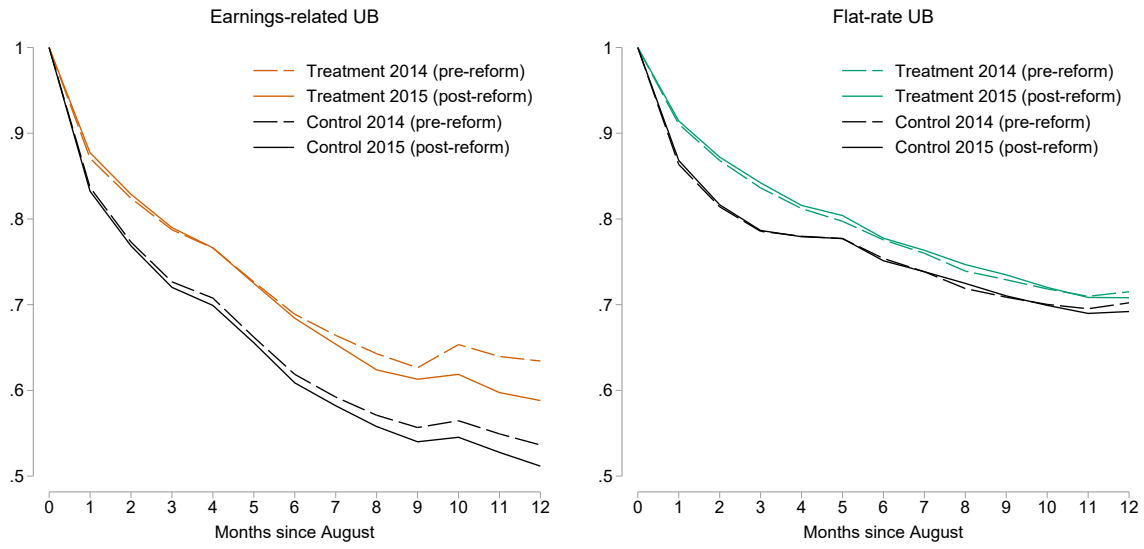
Notes: Upper panels show average monthly earnings from part-time work in 2012–2018 for earnings-related and flat-rate UB recipients, separately for those receiving both UB and HA and those receiving only UB. The time series are measured as deviations from August 2015 (denoted as zero for all groups). Lower panels show monthly differences between the groups with 95% confidence intervals. The sample of earnings-related UB recipients for part-time earnings includes only members of unemployment funds that report earnings below the earnings disregard. Baseline part-time earnings are reported in Table 2.

Figure A7: Distributions of part-time earnings among unemployment benefit recipients in 2013, 2014 and 2016



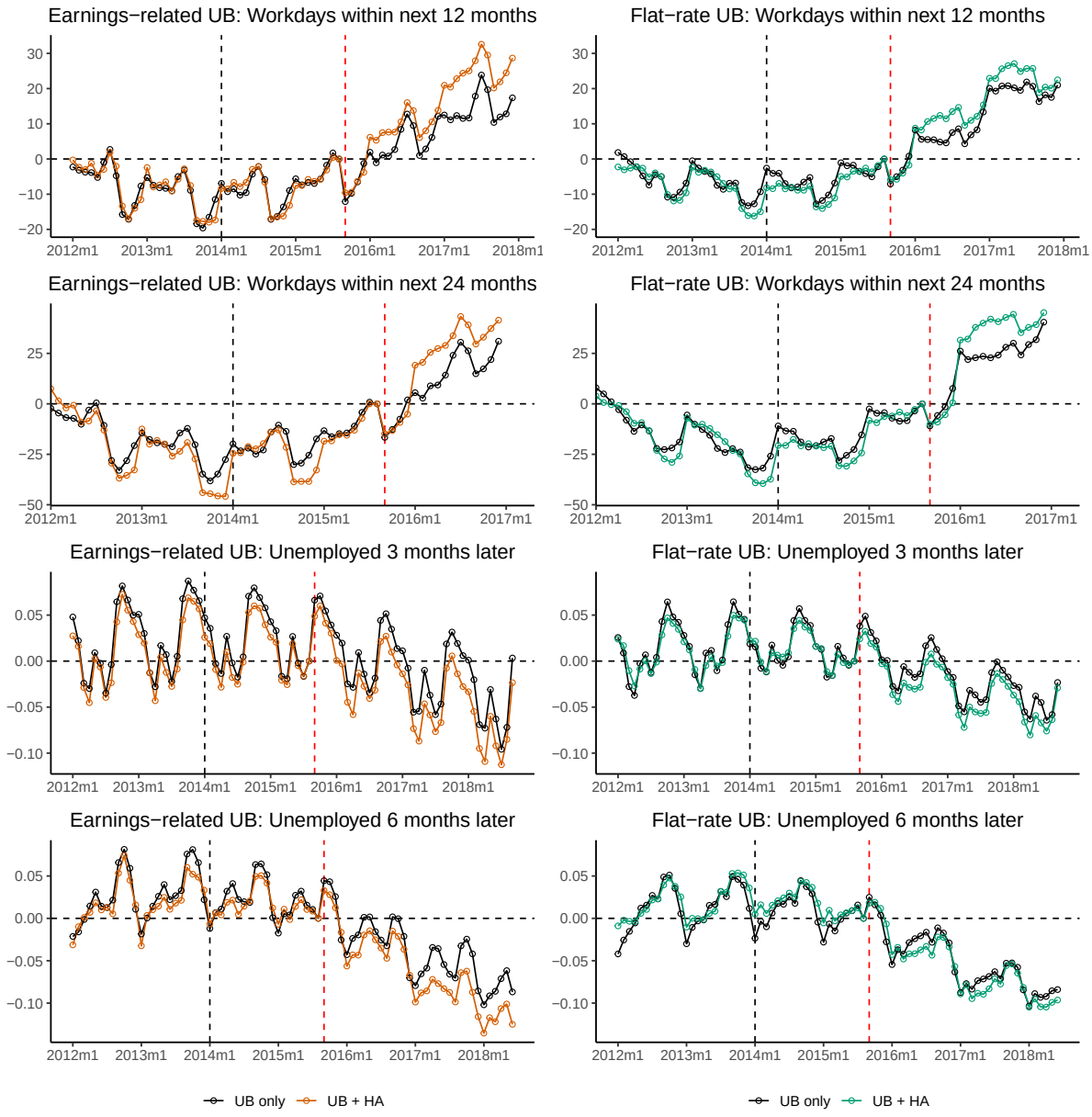
Notes: The figure shows the distributions of monthly part-time earnings among earnings-related UB recipients (right panel) and flat-rate UB recipients (left panel) before (2013) and after the earnings disregard reforms (2014 and 2016). The year 2015 is excluded because the second reform occurred in the middle of the year (September 2015). The figure for earnings-related UB includes only those for whom we can observe earnings below the 300-euro threshold after the reforms, who comprise 66% of all earnings-related UB recipients.

Figure A8: Shares of individuals receiving UB in August 2015 or August 2014 who remain on UB in subsequent months



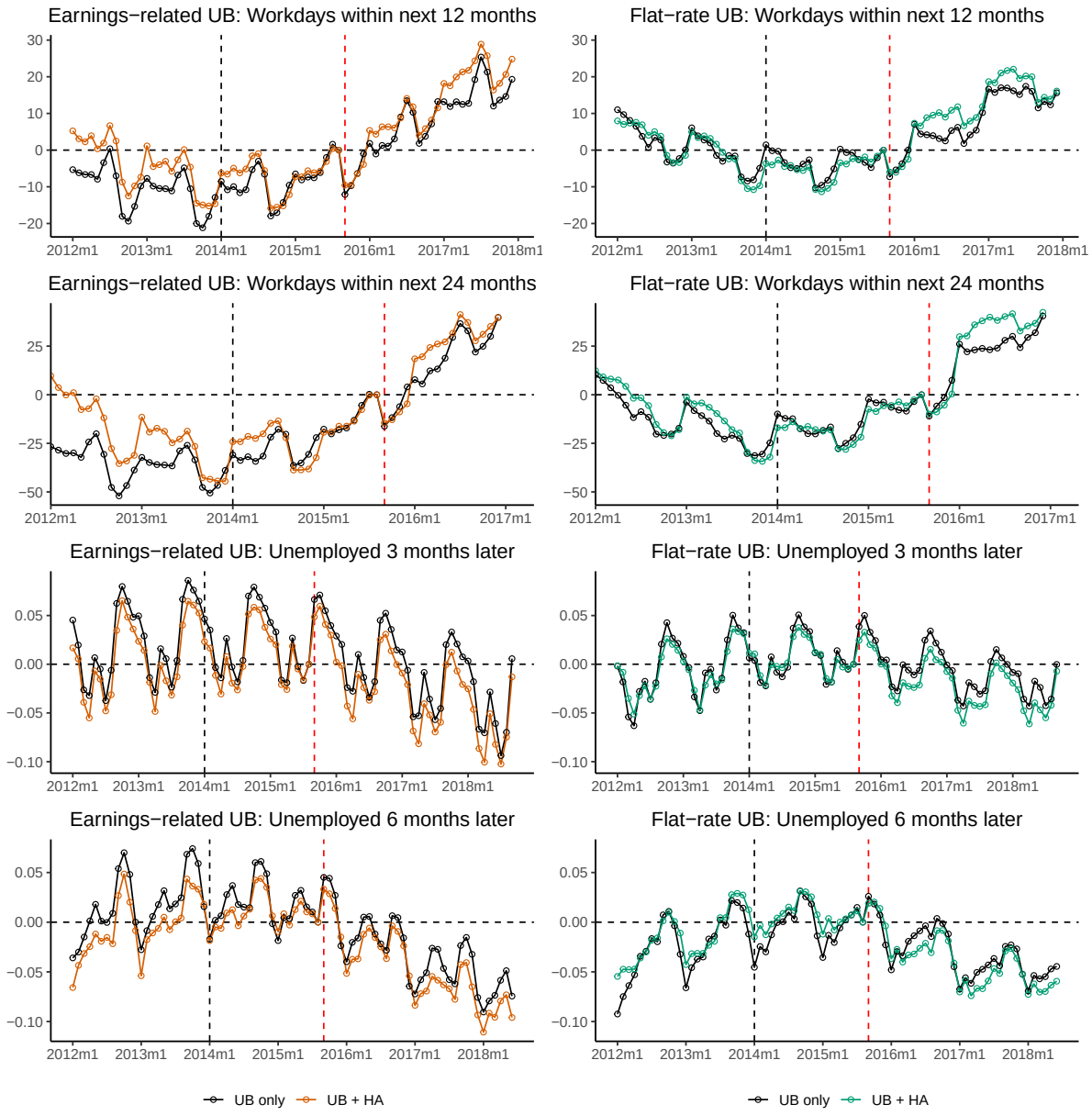
Notes: The figure plots the shares of individuals who were receiving UB in August 2015 (solid lines) or August 2014 (dashed lines) and who continue to receive UB in subsequent months for up to 12 months. Results are shown separately for earnings-related (left panel) and flat-rate (right panel) UB recipients and for the treatment group (UB+HA) and the control group (UB only). The horizontal axis denotes months since August 2015 or August 2014, with August normalized to zero.

Figure A9: Longer-run employment outcomes adjusted for group-specific linear trends



Notes: The figure plots average full-time working days within the next 12 and 24 months and the likelihood of receiving UB after 3 and 6 months for earnings-related (left panels) and flat-rate UB recipients (right panels), separately for those receiving both UB and HA and those receiving only UB. The time series are adjusted for group-specific pre-reform linear trends and measured as deviations from August 2015 (denoted as zero for both groups). Baseline values for the outcome variables are reported in Table 3 in the main text.

Figure A10: Longer-run employment outcomes without pre-reform trend adjustment



Notes: The figure plots average full-time working days within the next 12 and 24 months and the likelihood of receiving UB after 3 and 6 months for earnings-related (left panels) and flat-rate UB recipients (right panels), separately for those receiving both UB and HA and those receiving only UB. The time series are measured as deviations from August 2015 (denoted as zero for both groups). Baseline values for the outcome variables are reported in Table 3 in the main text.

Tables

Table A1: Simulated eligibility for housing allowance for different groups

	Year	Housing allowance (eur)	Monthly income threshold for HA eligibility
Flat-rate UB recipients			
Single-person households			
	2013	342.47	1800
	2014	372.96	1900
	2015	406.4	2300
Earnings related UB			
Single-person households			
Earnings before UB: 1500	2013	223.27	1800
	2014	257.76	1900
	2015	301.12	2300
Earnings before UB: 2000	2013	159.27	1000
	2014	189.76	900
	2015	232.32	2300
Earnings before UB: 3500	2013	0	0
	2014	0	0
	2015	44.16	500
Two-person households			
Spouse earns 500			
Earnings before UB: 2000	2013	174.8	900
	2014	220.12	800
	2015	384.92	2700
Earnings before UB: 3500	2013	0	0
	2014	0	0
	2015	193.76	1500
Spouse earns 1500			
Earnings before UB: 2000	2013	0	0
	2014	0	0
	2015	61.92	600
Earnings before UB: 3500	2013	0	0
	2014	0	0
	2015	0	0

Notes: The table presents the simulated housing allowance (HA) eligibility from the participation tax rate calculations presented in Figures 1 and 2 in the main text. The table reports the amount of HA with no earnings, and the monthly earnings threshold above which eligibility for HA ends.

Table A2: Descriptive statistics by UB type and HA status, 2012–2018

	2012	2013	2014	2015	2016	2017	2018
Panel A. Earnings-related UB, UB only							
Age	47.93	47.63	47.42	47.27	47.62	47.97	48.18
Female	0.54	0.53	0.54	0.54	0.55	0.56	0.57
Spouse	0.71	0.71	0.71	0.70	0.71	0.71	0.70
Family size	2.41	2.41	2.41	2.41	2.41	2.40	2.37
No. of children under 7 years	0.19	0.20	0.20	0.20	0.19	0.18	0.17
Observations	1,385,683	1,518,699	1,685,520	1,745,912	1,648,534	1,420,593	1,218,719
Panel B. Earnings-related UB, UB + HA							
Age	42.90	43.32	43.13	42.61	42.18	42.41	42.66
Female	0.74	0.72	0.70	0.68	0.67	0.68	0.68
Spouse	0.16	0.15	0.15	0.16	0.17	0.16	0.15
Family size	2.05	1.98	1.93	1.89	1.86	1.83	1.82
No. of children under 7 years	0.24	0.22	0.21	0.20	0.20	0.18	0.17
Observations	41,358	50,248	63,192	86,177	107,913	104,366	97,175
Panel C. Flat-rate UB, UB only							
Age	39.50	39.44	39.33	39.29	39.86	40.52	40.92
Female	0.51	0.52	0.53	0.53	0.54	0.56	0.56
Spouse	0.62	0.65	0.65	0.66	0.68	0.70	0.70
Family size	2.61	2.65	2.67	2.69	2.72	2.74	2.73
No. of children under 7 years	0.23	0.24	0.25	0.26	0.26	0.26	0.26
Observations	842,108	998,109	1,133,001	1,216,150	1,186,005	1,095,808	1,037,260
Panel D. Flat-rate UB, UB + HA							
Age	38.17	38.11	37.90	37.79	37.91	38.52	39.17
Female	0.48	0.47	0.46	0.47	0.46	0.47	0.47
Spouse	0.27	0.27	0.27	0.26	0.26	0.24	0.21
Family size	1.89	1.87	1.84	1.84	1.77	1.74	1.72
No. of children under 7 years	0.20	0.19	0.19	0.19	0.17	0.16	0.15
Observations	175,146	207,151	246,932	295,946	321,461	304,602	298,345

Notes: The table reports sample means for background characteristics in 2012–2018 for earnings-related and flat-rate UB recipients, separately for those receiving only UB (Panels A and C) and those receiving both UB and housing allowance (Panels B and D), who constitute our control and treatment groups. The figures indicate that the characteristics of the groups have not changed significantly over our examination period.

Table A3: Regression estimates for part-time work: Alternative specifications and samples

	(1)	(2)	(3)	(4)
	Earnings related UB		Flat rate UB	
	Working part-time	Part-time earnings	Working part-time	Part-time earnings
Panel A - Baseline estimates without group-specific linear pre-trends				
$Treat_{it} \times Post$	0.0427***	26.48***	0.0366***	24.77***
	(0.0033)	(3.986)	(0.0017)	(1.275)
Baseline control	0.184	166.3	0.117	82.7
Baseline treatment	0.197	173.9	0.128	87.3
Observations	11,174,089	7,530,009	9,358,024	9,358,024
Panel B - Sample with all income support recipients in 2012–2018 dropped				
$Treat_{it} \times Post$	0.0392***	15.68***	0.0270***	20.98***
	(0.0038)	(4.568)	(0.0019)	(1.473)
Baseline control	0.184	166.3	0.119	84.4
Baseline treatment	0.198	179.8	0.140	93.6
Observations	10,519,649	7,038,085	7,960,016	7,960,016
Panel C - Sample with income support recipients dropped each year				
$Treat_{it} \times Post$	0.0386***	21.58***	0.0391***	29.16***
	(0.0028)	(3.382)	(0.0014)	(1.080)
Baseline control	0.183	166.1	0.115	81.8
Baseline treatment	0.192	168.5	0.125	85.4
Observations	11,719,419	7,938,319	10,942,680	10,942,680
Panel D - Sample including income support recipients				
$Treat_{it} \times Post$	0.0244***	10.94***	0.0198***	16.51***
	(0.0022)	(2.579)	(0.0008)	(0.5777)
Baseline control	0.181	164.0	0.106	75.4
Baseline treatment	0.171	144.9	0.077	52.8
Observations	12,786,477	8,758,284	18,520,137	18,520,137
Panel E - Part-time earnings – intensive margin				
$Treat_{it} \times Post$		-1.869		21.81***
		(7.127)		(4.641)
Baseline control		846.1		711.1
Baseline treatment		805.9		681.0
Observations		1,658,872		1,206,700

Notes: The table presents the difference-in-differences estimates based on Equation (2) for participation in part-time work and earnings from part-time work for both earnings-related and flat-rate UB recipients. Panel A presents the results without pre-reform trend adjustment, using the baseline sample. Panel B shows the results using the previous baseline sample, where all individuals who received income support during 2012–2018 are dropped. Panel C shows the results using a sample in which income support recipients are dropped each year. Panel D shows the results when including all income support recipients in the sample. Panel E shows the results on part-time earnings conditional on participating in part-time work (intensive margin), using the baseline sample. Standard errors clustered at the individual level are presented in parentheses. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A4: Regression estimates for full-time employment and unemployment without pre-reform trend adjustment

	(1) Working days within next 12 months	(2) Working days within next 24 months	(3) Unemployed 3 months later	(4) Unemployed 6 months later
Panel A – Earnings-related UB				
$Treat_{it}$ x $Post_t$	-1.068	-3.912*	-0.0020	0.0029
	(0.7999)	(2.102)	(0.0017)	(0.0024)
Baseline control	103.7	286.4	0.786	0.700
Baseline treatment	74.3	213.3	0.858	0.798
Observations	9,349,515	7,441,433	10,613,659	10,132,595
Panel B – Flat-rate UB				
$Treat_{it}$ x $Post_t$	3.650***	4.779***	-0.0117***	-0.0161***
	(0.4393)	(1.223)	(0.0009)	(0.0013)
Baseline control	62.6	180.5	0.874	0.825
Baseline treatment	48.8	142.8	0.911	0.866
Observations	7,568,543	5,881,174	8,634,469	8,105,305

Notes: The table presents the difference-in-differences estimates based on Equation (2) for both earnings-related (Panel A) and flat-rate UB recipients (Panel B). Columns (1) and (2) show estimates for the number of full-time working days within the next 12 and 24 months, and columns (3) and (4) report estimates for the likelihood of receiving UB 3 and 6 months after the current month, respectively. Standard errors clustered at the individual level are presented in parentheses. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.