OECD Social, Employment and Migration Working Papers No. 272

The effect of declining unemployment benefits on transitions to employment: Evidence from Belgium

Andrea Salvatori

OECD

OECD JOBS STRATEGY

Organisation for Economic Co-operation and Development

DELSA/ELSA/WD/SEM(2022)6

For Official Use

English - Or. English

16 June 2022

DIRECTORATE FOR EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS

EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS COMMITTEE

The effect of declining unemployment benefits on transitions to employment: Evidence from Belgium

OECD SOCIAL, EMPLOYMENT AND MIGRATION WORKING PAPERS No. 272

Authorised for publication by Stefano Scarpetta, Director, Directorate for Employment, Labour and Social Affairs.

JEL codes: J08, J65, E24

All Social, Employment and Migration Working Papers are now available through the OECD website at www.oecd.org/els/workingpapers .

Abstract:

This paper provides new evidence on the effect of the 2012 reform on flows from UB to employment. The reform increased the steepness of the time profile of unemployment benefits by raising the initial benefit, lowering its long-term level and increasing the number of steps in-between. The analysis finds no indication that the 2012 reform of the Belgian UB system led to an increase in flows towards employment or inactivity either in the aggregate or when comparing groups of workers whose benefits were affected to different extents. While the results of this paper and recent literature provide little ground in favour of a further accentuation of the steepness of the time profile of UB in Belgium, the system could likely benefit from a simplification of the rules that would enhance its readability for workers and facilitate its administration and evaluation.

Andrea Salvatori, Andrea.SALVATORI@oecd.org

JT03497895

1 Introduction

The design of the unemployment benefit (UB) system in Belgium has become the subject of an intense policy debate in recent years. Much of the debate has focused on the question of how work incentives can be supported most effectively along the unemployment spell, with a specific emphasis on the time profile of unemployment benefits. In an effort to strengthen work incentives, Belgium implemented a reform in 2012 that made unemployment benefits decline more strongly over the unemployment spell and proposals have been made for further reforms along those lines (Ministere de l'Emploi, 2018[1]). To advance the debate, the OECD Economic Survey for Belgium called for an evaluation of this reform (OECD, 2020[2])).

This paper contributes to the ongoing debate by providing an evaluation of the 2012 reform on flows from UB to employment. The reform increased the steepness of the time profile of unemployment benefits by raising the initial benefit, lowering its long-term level and increasing the number of steps in-between. The effective impact of the reform on the profile of UB, however, varied considerably depending on the previous wage of the claimant. The paper makes use of semi-aggregated administrative data that allow following the labour market trajectories of groups of unemployment benefit recipients that started their claim before and after the reform. These groups are defined by the intersection of family type, gender, age, and wage bands.

The empirical analysis proceeds in three steps. First, it looks for evidence of a macro effect of the reform on outflows from UB by comparing the outcomes of UB recipients at a given point of the unemployment spell between the cohorts that started their claim just before the reform and those that started the claim just after the reform. Second, the analysis documents changes in labour market outcomes of specific subgroups that have been affected differently by the reform because of their different wage levels. For example, some groups of claimants continued to face flat benefits after the reform, while others saw the introduction of one or two new steps. Third, the analysis adopts a "difference-in-differences" framework whereby *changes* in outcomes for groups affected to different extents by the reform are compared before and after the reform. For example, the change in outcomes for the group that saw the addition of one or two steps is compared with the change in outcomes for the groups that continued to face flat benefits.

The analysis finds no indication that the 2012 reform of the Belgian UB system led to an increase in flows towards employment or inactivity either in the aggregate or when comparing groups of workers whose benefits were affected to different extents. As discussed in more detail in the paper, the analysis suffers from some limitations and it is possible that the 2012 reform did not produce an appreciable effect because of its limited scope. However, the findings of this paper are broadly in line with the conclusion emerging from recent contributions that have called into question the optimality of declining UB over the spell. These contributions, reviewed in Section 2, highlight that the adverse effect of UB on work incentives (i.e. its moral hazard cost) declines over the spell, while its insurance value increases over the spell as the unemployed progressively deplete their assets.

While the results of this paper and the recent literature provide little ground in favour of a further accentuation of the steepness of the time profile of UB in Belgium, the system could likely benefit from a simplification of the rules that would enhance its readability for workers and facilitate its administration and evaluation. Indeed, under the current system, the progressive decline of UB over the spell is governed by a complex interaction between policy rates, benefit floors and ceilings. Under a new and simpler set of

rules, the overall time profile of UB could remain unchanged or be adjusted to ensure fewer but larger steps even while maintaining the initial and long-term benefit at their current levels. Indeed, the Belgian UB system features one of the largest number of steps of smallest average size in the OECD and recent evidence suggests that - in a system with declining benefits - fewer but larger steps might increase job-search intensity and reduce unemployment (DellaVigna et al., 2017[3]).

However, in the case of workers with low wages, there is little scope for reducing the number of steps or increasing their size since their benefit schedule tends to be largely flat already (i.e. the benefit is very close (or equal) to the benefit floor from the start of the spell). Low-wage workers comprise a significant share of benefit recipients, particularly among those who have been unemployed for longer. Over 50% of claimants in 2012 had previous gross wages below 1800 Euro and only 37% move to employment within the first calendar quarter after the claim as opposed to almost 50% of those with higher gross wages. In addition, this paper finds no indication that the introduction of one or two relatively small steps for low-wage workers specifically led to an increase in flows into employment. This is consistent with the observation that this group is likely to include many low skill workers who likely face barriers to employment that dampen the effectiveness of financial incentives alone (OECD, 2020[4]). To support the transition into employment if these UB recipients other complementary activation policies are likely to be needed (Fernandez et al., 2020[5]).

The remainder of the paper proceeds as follows. Section 2 presents a brief overview of the relevant theoretical and empirical literature. Section 3 describes the aspects of the 2012 reform that are most relevant for the analysis of this paper. Section 4 describes the semi-aggregate administrative data used in the analysis. Section 5 provides some initial statistics on the characteristics of UB claimants and the speed at which they leave UB. Section 7 describes the empirical approach and Section 8 presents its results. Section 9 concludes with a discussion of the policy implications.

2 A brief overview of the literature on the time profile of UB[1]

The existing literature has typically considered the shape of the time profile of UB as part of the broader discussion on the optimal design of unemployment insurance. The optimal design of unemployment insurance depends on the value of consumption smoothing and the cost of providing it in terms of higher unemployment (and higher benefit expenses) and lower employment (and lost revenue) (Chetty, 2008[6]).[2] The latter is often referred to as the moral hazard effect of unemployment benefits and refers to the reduction in job-search intensity of jobless persons and their willingness to accept suitable job offers.[3]

The rationale for a declining unemployment benefit schedule has traditionally been provided by models that assume that workers are risk-adverse and forward-looking (Hopenhayn and Nicolini, 1997[7]; Cahuc, Carcillo and Zylberberg, 2014[8]). In these models, decreasing unemployment benefits later in the spell have a large impact on flows out of unemployment because it encourages job search not only among the long-term unemployed but also among forward-looking short-term unemployed. In other words, lowering UB for the long-term unemployed brings about a large reduction in the moral hazard cost associated with unemployment benefits. However, lower UBs in the long-term also imply lower income support at a time when workers might value it the most as they progressively deplete any existing assets to smooth consumption. An optimal time profile of the unemployment benefits aims to balance these costs and benefits, while taking into account the effect of any changes on the government budget. Using calibration exercises, these studies generally conclude that unemployment benefits should decline moderately over the spell (Shimer and Werning, 2008[4]). However, these insights have been challenged by a number of recent studies that relax some of the assumptions in these models.

A first criticism is that these models assume that the response of the unemployed to changes in UB levels does not vary over the unemployment spell, which may not necessarily be the case in practice. The long-term unemployed might respond differently to incentives than the short-term unemployed because of "duration dependence" and "dynamic selection" (Kolsrud et al., 2018[9]). Duration dependence occurs when the chances of finding employment decline over the unemployment spell either because of skills depreciation or discrimination against the long-term unemployed by employers who take the length of unemployment as a bad signal. Dynamic selection may occur because workers who remain unemployed for longer have lower chances of finding a job irrespective of their search effort. As a result, the responsiveness of unemployment outflows to changes in UB is likely to decline over the unemployment spell, reducing the moral hazard cost of providing UB to the long-term unemployed. At the same time, the value of unemployment benefit recipiency may increase as unemployed persons deplete their assets, as they remain unemployed. Whether these considerations reverse the conclusion that UB should decline over the unemployment spell is an empirical question.

Recent evidence for Sweden and Spain suggests that the long-term unemployed are less responsive to financial incentives than their short-term counterparts, weakening the case for declining benefit schedules. In particular, Kolsrud et al. (2018[9]) find that in Sweden the moral-hazard cost of UB decreases sharply along the unemployment spell: the adverse effect of an increase in the overall level of UB on the probability of leaving unemployment is almost entirely concentrated in the first three months of the unemployment

spell, while it tends to be small or even negligible for longer durations. Using consumption data, they also find that the value of UB increases over the unemployment spell, as workers deplete resources to support consumption. Overall, these results imply that a switch from the existing flat UB profile to one with increasing UB over the spell would be welfare improving for Sweden. Similarly, Campos, García-Pérez and Reggio (2017[10]) conclude that Spain could improve welfare by making their existing UB profile less declining.

While there are currently no studies on the effect of the UB time profile in Belgium specifically, two recent papers have obtained results for young graduates that are consistent with the hypothesis that the long-term unemployed are less responsive to financial incentives. In particular, Cockx *et al.* (2020[11]) find that a reform that abolished entitlements to UB for young graduates did not lead to significant increases in flows towards stable employment. Similarly, Cockx and Van Belle (2019[12]) find that increasing the waiting period before a claim from 9 to 12 months for young graduates does not increase flows to employment at any point during the period.

A second challenge to the argument in favour of declining benefits over the unemployment spell comes from behavioural economics, which suggests that workers behave systematically different from the way that is assumed in standard models. For example, Spinnewijn (2015[13]) suggests that taking account of the tendency of workers to systematically overestimate their probability of finding a new job ("biased beliefs") provides an argument for less strongly declining or even *increasing* unemployment benefits over the unemployment spell. This is because workers are less sensitive to future incentives if they do not expect to remain unemployed for long, lowering the moral hazard cost of higher unemployment benefits for the long-term unemployed.

However, other behavioural models suggests that the benefits of decreasing UB might be larger than in standard models. This is the case, for example, if workers have "reference-dependent" as opposed to time-invariant preferences, which gradually adjust to changing circumstances (e.g. reduced income and consumption levels) (DellaVigna et al., 2017[3]). Such preferences imply that workers who become unemployed initially search intensively in an effort to restore income and consumption to the level when working, but gradually decrease their job-search intensity as they get used to the lower level of income and consumption. Similarly, workers with reference-dependent preferences search more intensively immediately before and after the change in UB levels as they try to maintain their consumption constant, but as they grow accustomed to the new and lower level of income, their search effort decreases again. Della Vigna *et al.* (2017[3]) report job search patterns consistent with those predictions in Hungary, after the implementation of a reform that frontloaded unemployment benefits for some workers, introducing a new step decline in benefits after 90 days. This finding suggests that in the context of a system with declining benefits, fewer but larger steps might elicit a stronger behavioural response in terms of increased search intensity under the plausible assumption that the change in behaviour is more pronounced the larger the deviation from the (previous) reference level of income and consumption.

In summary, early theoretical insights point towards a declining profile of unemployment benefits due to the fact that higher long-term benefits discourage job search both among the short-term and the long-term unemployed. However, this view has been challenged by some recent empirical studies which suggest that declining unemployment benefits might not be optimal because the long-term unemployed respond weakly to financial incentives but benefit significantly from their insurance value. While no evidence is available on the effect of declining UB in Belgium specifically, recent papers have obtained results for young graduates that are consistent with the observation that the long-term unemployed are less sensitive to financial incentives – undermining the case for lowering UB in the long-term.

3 The 2012 reform of the Belgian UB system

This section describes the main features of the 2012 UB reform that inform the empirical approach described in Section 7**.** For a detailed description of the rules before and after the reform see Nevejan and Van Camp (2014[14])**.**[4]

The main objective of the 2012 reform was to increase the steepness of the time profile of unemployment benefits by raising the initial benefit, lowering its long-term level and increasing the number of steps in-between. Before the reform, the unemployment benefit started at 60% of the previous gross monthly wage and declined in two steps (at month 6 and month 12) to a long-term level that was also dependent on previous earnings but varied with the family situation of the recipient (i.e. in couple with dependents, in couple without dependents, single). Benefits were subject to floors and ceilings that varied with the family type and, at least for some of these, over the spell as well. The reform introduced a new step down at month 3 by increasing the initial benefit to 65% of the previous gross wage and a new long-term amount that varies across family types but is independent of previous wages. The convergence to this new (and, for most wage levels, lower) long-term benefit is achieved through successive reductions along the spell of the benefit ceiling.

Another novelty introduced by the reform is that the number of steps to reach the long-term benefit grows with the working history of the recipients. For workers with short working histories of at most 5 years, this generally meant two additional steps relative to the pre-reform regime, one at month 3 and the other between 14 and 24 months. This is illustrated in panel E of Figure 1 for a gross wage of 2400 Euro in the case of a claimant in a couple with dependants and 3 years of working history.[5] For lower levels of wages, the effect of the reform was more varied due to the presence of binding benefit floors and ceilings. Because a large proportion of claimants have low wages (see Section 5) this has important implications on the actual scope of the reform in terms of number of workers who saw significant changes in the time profile of their UB. To illustrate the range of cases that can arise, panels A through D in Figure 1 report the UB before and after the reform for selected levels of gross wages.[6]For low levels of wages, the benefit schedule is flat both before and after the reform as exemplified by the case of a gross wage of 1600 Euro per month reported in in Panel A of Figure 1. This is because the benefit floor is binding from the start (both before and after the reform) and is the same as the post-reform long-term benefit. For slightly higher levels of wages, the reform caused the benefit to change from flat to featuring with one or two steps. At 1800 Euro, the new initial higher policy rate lifts the benefit for the first 3 months above the benefit floor (Panel B of Figure 1). At 2000 Euro, the reform introduces a second step down later in the spell arising from the new and lower long-term benefit (Panel C of Figure 1). For yet higher wages (2200 Euro in Panel D of Figure 1), the benefit already had a step down before the reform at 12 months when it fell to its long-term level which was determined as a proportion of previous earnings. In this case, the reform introduced the new initial step at 3 months and the step at 20 months towards the new long-term benefit independent of previous wages.

The changes in the number of steps vary across family types because both the policy rates and the benefit ceilings and floors vary across family types. Table 1 summarises the various qualitative changes observed

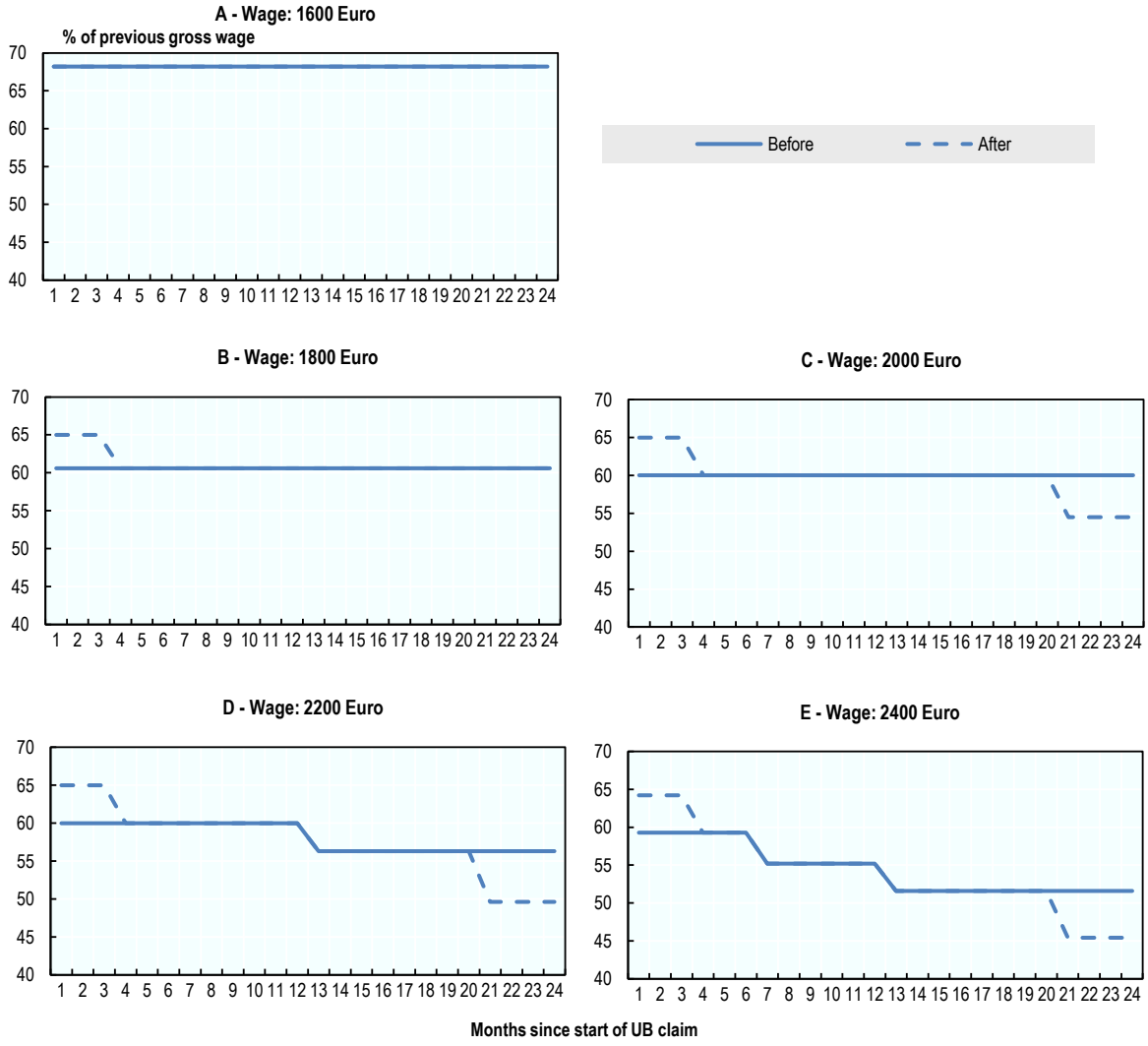
for a claimant with a working history of 3 years in the first 24 months for the three family types. These are the groups used in the analysis in Section 7 to investigate the effect of the reform. Note that there are no groups whose benefit remained flat for any of the claimants who are in couples with no dependants – which, as will be shown in section 5, are the largest group of claimants. Indeed, while in general the long-term benefit coincides with the initial floor, for this family type, the reform introduced a long-term level lower than the initial benefit floor.

An important point to notice from Figure 1 and Table 1 is that for some of the workers with low wages the reform increased the steepness of the UB time profile only by increasing the initial benefit. This is in fact the case for all groups that saw the addition of a single step compared to the pre-reform situation. This is worth bearing in mind when interpreting the results because, as discussed in section 2, a reform that does not lower the long-term benefit significantly would not be expected to increase job search amongst the long-term unemployed under any theoretical framework. Indeed, for any groups that only saw an increase in the initial UB, the reform can also be framed as simply increasing the overall level of benefit received over the spell – a change that theoretically could discourage transitions to employment.

Partly as result of the 2012 reform, Belgium stands out among its neighbours as the only country where the UB declines in a series of small successive steps (Hijzen and Salvatori (2020[15]). In fact, Belgium is the OECD country with the largest number of changes in UB over the spell and one of the countries with the smallest average size of these changes. In most other countries, however, the largest and most significant change in the level of support for the unemployed occurs when the entitlement to UB expires and claimants move to social assistance – which is generally means tested. Belgium is the only OECD country in which people can remain on UB indefinitely.

Figure 1. The impact of the reform on the time profile of UB differ across wage levels

Unemployment benefit as % of previous gross monthly wage over the spell for selected wage levels, before and after the reform. Simulations refer to a claimant with 3 years of working history in a couple with dependants.



Note: The simulations are obtained applying the parameters (i.e. policy rates, wage and benefit floors and ceilings) as reported in Nevejan and Van Camp (2014[14]). These refer to the parameters that were in place at the time of the implementation of the reform and all monetary amounts are expressed in prices of February 2012.

Table 1. The number of new steps introduced by the reform also varies across family types

Number of steps down over the course of a 24-month spell for a claimant with 3 years of working history, before and after the reform.

Number of steps		Family type		
Before the reform	After the reform	Single	In couple w/ dependents	In couple w/o dependents
0	0	X	X	
0	1		X	X
0	2	X	X	
1	2	X		
1	3		X	X
2	3	X		
2	4		X	X

Note: Computations based on simulations for the first 24 months applying for wages between 900 Euros and 3000 Euros applying the parameters (i.e. policy rates, wage and benefit floors and ceilings) as reported in Nevejan and Van Camp (2014[14]).

4 Data

The analysis of this paper uses administrative data from Crossroads Bank for Social Security provided by the Datawarehouse Labour Market & Social Protection of Belgium. As direct access to microdata is not possible, the data were provided at a semi-aggregated level to allow following the labour market trajectories of groups of unemployment benefit recipients defined by the intersection of family type, gender, age, and wage bands.

As discussed in section 3, the precise impact of the reform on the time profile of UB of different workers depends on previous earnings and the working history of the recipient. Unfortunately, the data provide no information on the working history of the claimants, and the wage information is only available in bands. The simulations discussed in Section 3, and summarised in Table 1, allow distinguishing between several possible implications of the reform for the time profile of UB depending on wage levels – ranging from no change (i.e. the benefit was flat both before and after the reform) to moving from 2 to 4 steps.

The data cover 3 cohorts that started their UB claim at different times before the reform (2011 Q4, and 2012 Q1 and Q3), and 4 cohorts that started their claim after the reform (from 2013 Q1, Q2, Q3 and 2014 Q1). Each cohort only includes individuals who in the quarter prior to the start of the claim were full-time employed. For each cohort of claimants, the data show the proportion in different labour market states (i.e. UB, employment, inactivity, other) in a series of calendar quarters following that of the initial claim (+1, 2, 4, 7, 10). For example, for the cohort that started a new UB claim in 2012 Q1 (quarter 0 for that cohort), the first available observation refers to the last day of 2012 Q2 (quarter +1 for that cohort) – which implies that between 3 and 6 months have elapsed since the start of the claim. This structure does not allow an investigation of flows around specific steps in UB - such as the one introduced by the reform at month 3 – but only an analysis of transitions between the different points in time available in the dataset.

5 The characteristics of UB claimants before and after the reform

This section presents descriptive statistics on the characteristics of UB claimants in Belgium just before and after the reform that came into effect in 2012 Q4. Data for the period before the reform are averages for the two cohorts that started their claims in 2012 Q1 and Q3 and those for the period after the reform are averages for the same calendar quarters of 2013. The total number of new claimants was similar before and after the reform - on average 22500 in the quarters before the reform, and 22900 in the quarters after the reform.

The demographic composition of new UB claimants was very similar immediately before and after the 2012 reform (Figure 2). Almost 65% of these were in couples without dependents, while men and those aged between 30 and 54 accounted for just under 60% of new claimants.

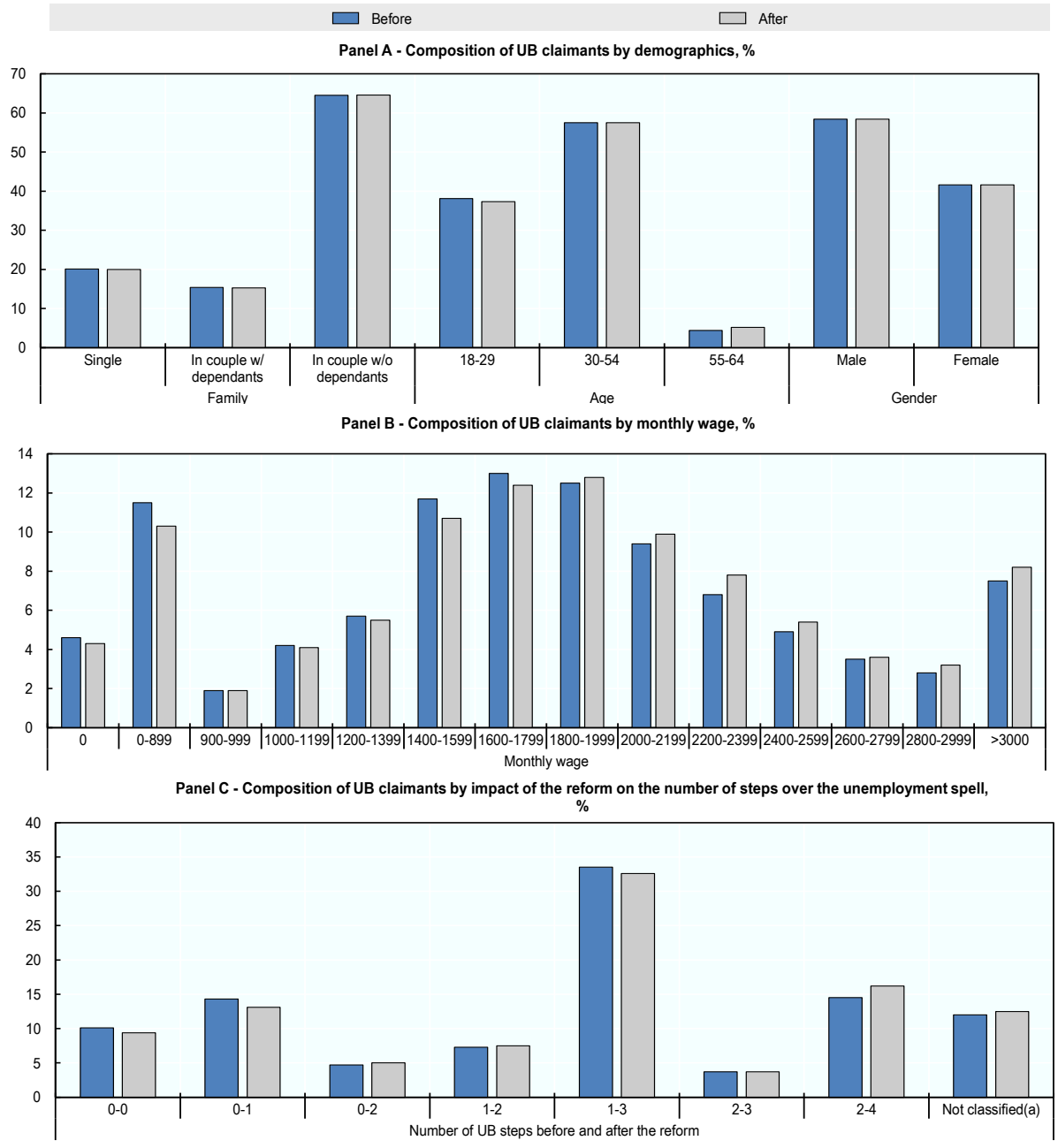
UB claimants come from jobs with gross wages considerably lower than the average wage of 2012 which stood at 3493 Euro[7] – with 50% of new claimants having earned less than 1800 Euro in their last job (Panel B in Figure 2).

The prevalence of low wages among claimants has important implications for the extent to which they were affected by the reform (see section 3 for more details). For more than 10% of claimants the reform did not introduce any changes at all because they have wage levels that correspond to the minimum benefit throughout the spell (i.e. the 0-0 group in Panel C in Figure 2). Another 25% only saw the introduction of one additional step (regardless of the pre-reform number of steps) in the form of a higher benefit earlier in the spell (Panel C in Figure 2). Hence, for about 35% of claimants the reform did not reduce the long-term level of the benefit and would therefore not be expected to directly affect the behaviour of the long-term unemployed under any theoretical framework.[8]

About a third of UB recipients have wage levels associated with UB with one step before the reform and three steps after the reform (Panel C in Figure 2). Overall, about 80% of claimants saw the introduction of a new step at month 3, while just over 50% saw the introduction of two additional steps – meaning that they saw both an increase in the initial benefit and a decline in the long-term benefit.

Figure 2. UB claimants are mostly in couple without dependants, middle-aged and men

Percentage of UB claimants by demographics and wage levels before and after the reform.



Note: The figures report the unweighted averages 2012 Q1 and Q3 ("Before") and 2013 Q1 and Q3 ("After"). The numbers refer only to individuals starting a new claim. The average total number of claimants was 22500 in the before-period and 22900 in the after-period. The changes in number of steps in Panel C are computed based on the simulations of UB for the first 24 months applying for wages between 900 Euros and 3000 Euros applying the parameters (i.e. policy rates, wage and benefit floors and ceilings) as reported in Nevejan and Van Camp (2014[14]). See Section 3 for more details. (a): Not classified refer to groups with the reported previous gross wage equal to zero or above 3000 Euro per month.

Source:

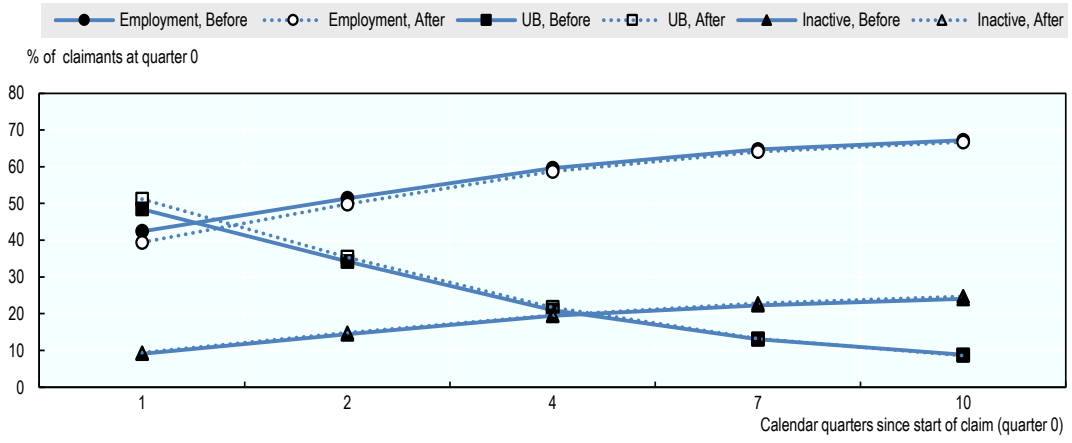
6 Summary statistics on flows from unemployment benefits

Most claimants who leave UB for employment do so already by the first calendar quarter after their claim, i.e. within the first 6 months of the spell (Figure 3). The share of claimants that have left UB for employment is 40% in quarter +1, and is above 65% at quarter +10. The share still on UB is around 50% in quarter +1 and falls below 10% by quarter +10. The remaining claimants move to other benefits that do not require active job search. Their proportion increases from about 10% in quarter +1 to about 25% in quarter +10.

There are only small differences in the share of claimants moving to employment before and after the reform. The slightly lower figure for the post-reform period is imputable to a general deterioration of labour market conditions that coincided with the introduction of the reform. The rest of the analysis attempts to control for these and other potential confounding factors to provide an indication of the possible effect of the reform on flows towards employment.

Figure 3. Most transitions to employment happen early in the spell

Labour market status of new claimants at different calendar quarters since the start of claim, before and after the reform, %



Note: The figure reports the share of claimants in different states in various calendar quarters after the one of the original claim (quarter 0). The figures report the unweighted averages 2012 Q1 and Q3 ("Before") and 2013 Q1 and Q3 ("After"). The reform came into effect in 2012 Q4. The average quarterly number of claimants was 22500 in the before-period and 22900 in the after-period.
Source:

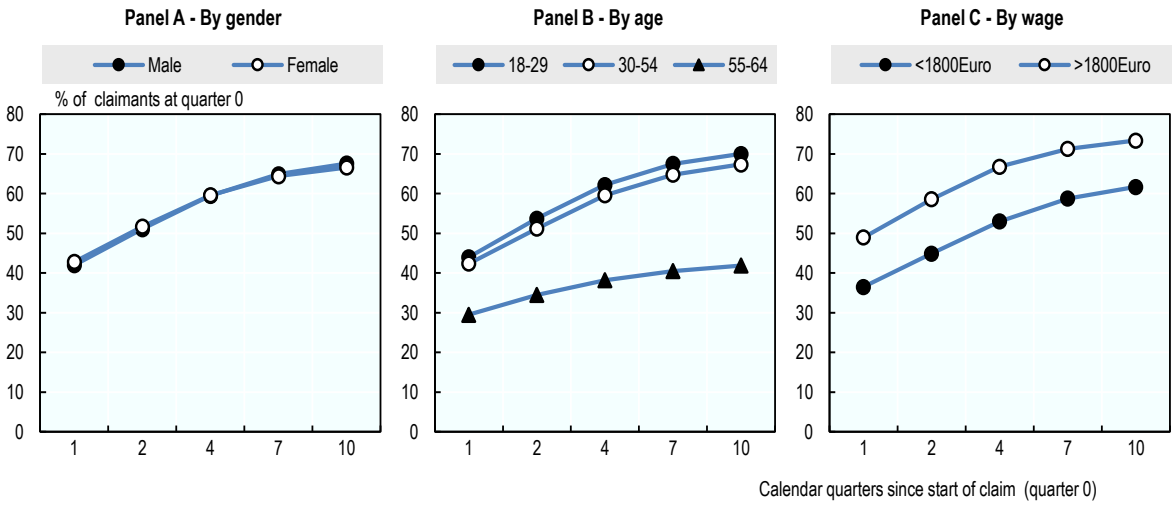
The before-after differences in flows towards employment are also small for any of the demographic groups that can be observed in the data. Hence, to facilitate the presentation, Figure 3 only reports results for flows to employment by demographics for the period before the reform.

Older claimants and those with lower previous earnings are less likely to move into employment, while the differences between genders are negligible. At quarter +1, only 30% of claimants aged 55 to 64 have found employment, while the figure is around 43% for the two younger groups. By quarter +10, the differences are even larger, with only 42% of older claimants having left UB for employment against 67% for those aged 30 to 54 and 70% for those aged 18 to 29. As shown in Figure 2, only about 5% of all claimants are aged 55 to 64.

By wage level, the differences are more stable over the spell, with the share of below-median earners that have moved into employment about 12pp lower than that of above-median earners both at quarter +1 (37% vs 49%) and +10 (62% vs 73%).

Figure 4. Older workers and low-wage workers are less likely to leave UB for employment

Share of new claimants who have moved into employment by a given quarter since the start of the claim (quarter 0), average 2012 Q1 – 2012 Q3 (before the reform).



Note: The figure reports the cumulative share of claimants who have moved to employment in various calendar quarters after the one of the original claim (quarter 0). The figures report the unweighted averages 2012 Q1 and Q3.
Source:

7 Empirical approach

To investigate whether the 2012 reform induced an increase in flows from UB to employment, this paper considers two main outcomes. The first is the hazard rate of moving into employment between two consecutive observations, that is, the share of a cohort still on UB in quarter *q-1* which moves to employment by quarter *q*. The second outcome is the cumulative outflow rate defined as the cumulative share that has left UB for employment as their first destination by quarter *q*. Equivalently, this is the proportion of the original cohort of claimants that is observed moving directly from UB to employment between any two consecutive observations up to quarter *q*.[9] Since changes in UB regimes have been observed to induce transitions to other benefits or inactivity as well (Petrongolo, 2009[16]), the analysis looks at hazard and cumulative outflow rates to inactivity as well.

The empirical analysis proceeds in three steps. First, the analysis looks for evidence of a macro effect of the reform by comparing the outcomes of UB recipients at a given point of the spell between the cohorts that started their claim just before the reform and those that started the claim just after the reform.

The second step is a before-after comparison of the outcomes of subgroups of workers who were affected in different ways by the reform – based on the classification by changes in the number of steps described in section 4. This approach essentially traces the labour market outcomes of claimants in different wage bands across different cohorts of claimants (before and after the reform), providing insights on whether any of these groups saw significant increases in flows into employment following the reform. For example, this part of the analysis highlights whether workers who went from a flat benefit to a benefit with one initial step saw an increase in flows to employment early in the spell.

The third and final step is a natural extension of the before-after analysis of the second step to a "difference-in-differences" setting. In particular, the analysis compares the *changes* in the outcomes for two groups of workers affected by the reform in different ways to try and purge the estimates of the effect of the reform of any common confounding factors, such as cyclical variations in the labour market. For example, this approach can compare the changes in the outcomes for the group whose benefit remained flat before and after the reform with the changes in outcomes for the group of workers whose benefit went from flat to one step.

These estimates are obtained from versions of the following model:

$$Y_{gc}^{Q} = \alpha + \sum_{g=2}^{G} \delta_g D_g + \sum_{c=2}^{7} \gamma_c C_c + \beta_2 Treated_{gc} * I(C > 2012q4) + \epsilon_{gc}$$

Where Y_{gc}^{Q} is the outcome of interest (e.g. the hazard or the cumulative flows to employment) at calendar quarter +Q since the start of the unemployment spell for group g (defined by family type, age, gender and wage band) in cohort c. As described in Section 4, a cohort is defined as a group of UB recipients who started their UB claim in the same quarter. $\sum_{g=2}^{G} \delta_g D_g$ are dummies controlling for time-invariant differences between the various groups included in the regression, while $\sum_{c=2}^{10} \gamma_c C_c$ are cohort dummies that account for time effects that are common to all groups – whether they are considered treated or not. If the model is estimated on a sample that only includes observations that are either in the control or in the treated group,

the coefficient of interest is β_2, which provides an estimate of the post-reform change in outcome for the treated group relative to the control group.

Different versions of this model are estimated using alternative definitions of the treated and control group based on the various cases reported in Table 1. The natural starting point is the comparison between claimants whose benefit went from flat to 1 or 2 steps (i.e. the treated group) vs those whose benefit remained flat (i.e the control group) – see Figure 7 for these results. The rationale for the comparison is that the group whose benefit remained flat after the reform provides an indication of what would have happened to the group that saw the introduction of one or two steps instead, had the reform not occurred. As customary, the credibility of this assumption can be investigated by comparing pre-reform trends between the different groups – section 0 returns to this point.

The discussion of the literature in section 2 highlights that there is no clear-cut theoretical prediction on the point of the spell when the impact of a change in the time profile of UB might be observed. Forward-looking workers might respond to the expected steeper decline of UB by searching more intensively early in the spell. However, the reduction in the long-term level of the benefit brought about by the reform might also be expected to generate stronger outflows later in the spell (i.e. at some point after the first 12 months). Recent evidence however suggests that long-term unemployed respond very weakly to financial incentives (see section 2). Various models incorporating behavioural insights, instead, suggest increases in outflows from UB just before the new steps introduced by the reform – i.e. around 3 months and after 14 months (with the complication that the precise number of steps – and their size – depend on the working history of the unemployed). In addition to this lack of clear-cut theoretical predictions, matters are complicated further by the time structure of the data which do not allow monitoring the outcomes at specific months since the start of the claim. Hence, the analysis investigates possible changes in flows at all points in times that can be observed in the dataset, although, in the interest of brevity, the paper only reports selected results that are representative of the broader results.

8 Results

There is no indication of an increase in the flows from UB to employment following the reform at any of the time intervals available in the aggregate data. To illustrate this finding, Figure 5 reports the hazards and cumulative shares of cohorts that have moved to employment for selected quarters – but the substantive conclusions are the same for any available point in time. The figures allow comparing directly the same outcome for the same point in time relative to the initial claim between the cohorts that started the claim before the reform and those that started the claim after the reform. The remainder of the paper presents only results on flows towards employment since the conclusions in terms of the (lack of an) effect of the reform are qualitatively the same when looking at flows towards inactivity.

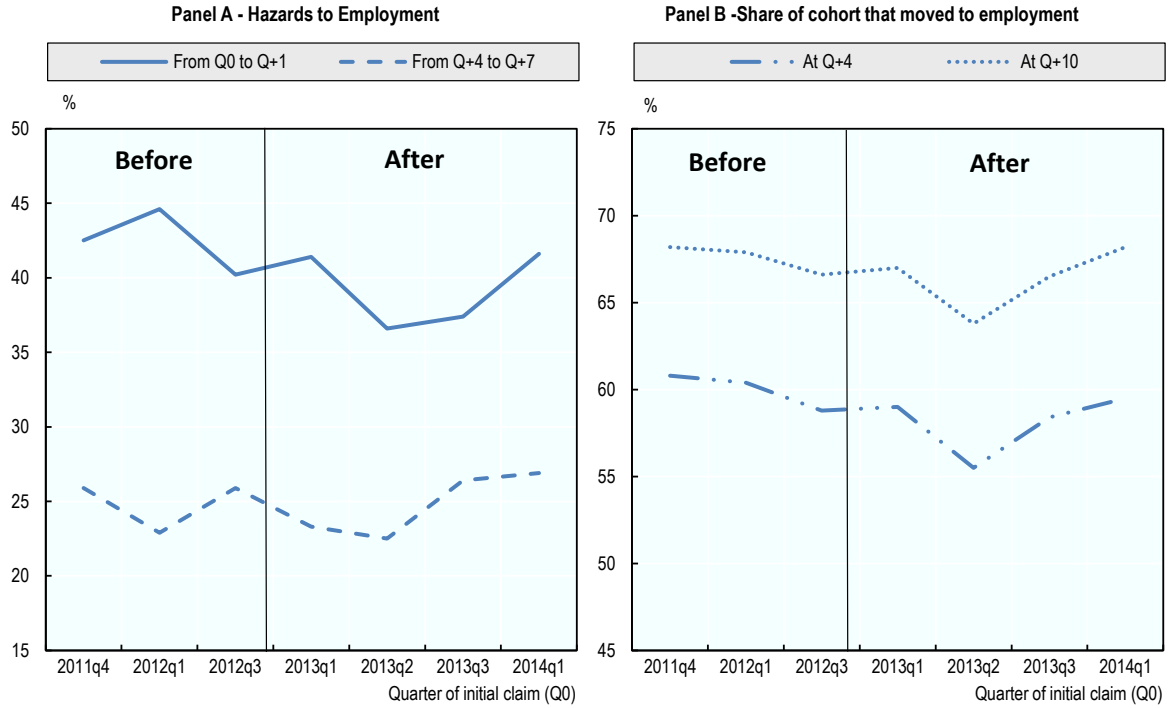
There is no indication of an increase in flows from UB to employment either in the short or long term. As discussed in Section 3, almost 80% of claimants have wage levels for which the reform introduced at least one additional step at month 3. Despite this, the hazard of leaving UB for employment between the quarter of the original claim and Q+1 (i.e. at most within 6 months) declined slightly from an average of around 42% for the cohorts that started their claim before the reform to around 39% for those that started the claim after the reform. This decline is due to a general deterioration of the labour market conditions that might confound estimates of the impact of the reform. The econometric exercise presented in Section 0 returns to this issue.

Similarly, the probability of finding employment by Q+7 for claimants who were still on UB at Q+4 did not improve after the reform, standing at around 25% both before and after the reform.

The stability or decline of the hazards at different points in time translate into stable or slightly declining cumulative shares of claimants that have found employment. Indeed, after the implementation of the reform, the share of claimants in employment declined from 60% to 58% at Q+4 and remained stable at around 67% at Q+10.

Figure 5. In the aggregate data, there is no indication of an increase in flows from UB to employment after the reform

Aggregate hazards to employment and cumulative shares that have moved to employment at a given points the unemployment spell for cohorts of claimants that started their claim before and after the 2012 reform.



Note: Hazard rates are the proportion of claimants who are still on UB in quarter q who have moved to employment by quarter q+n. The share of a cohort of claimants that has moved into employment is the cumulative share of a given cohort that has left UB for employment as its first destination between the original claim and the reference calendar quarter.
Source:

Results by groups of claimants affected by the reform in different ways

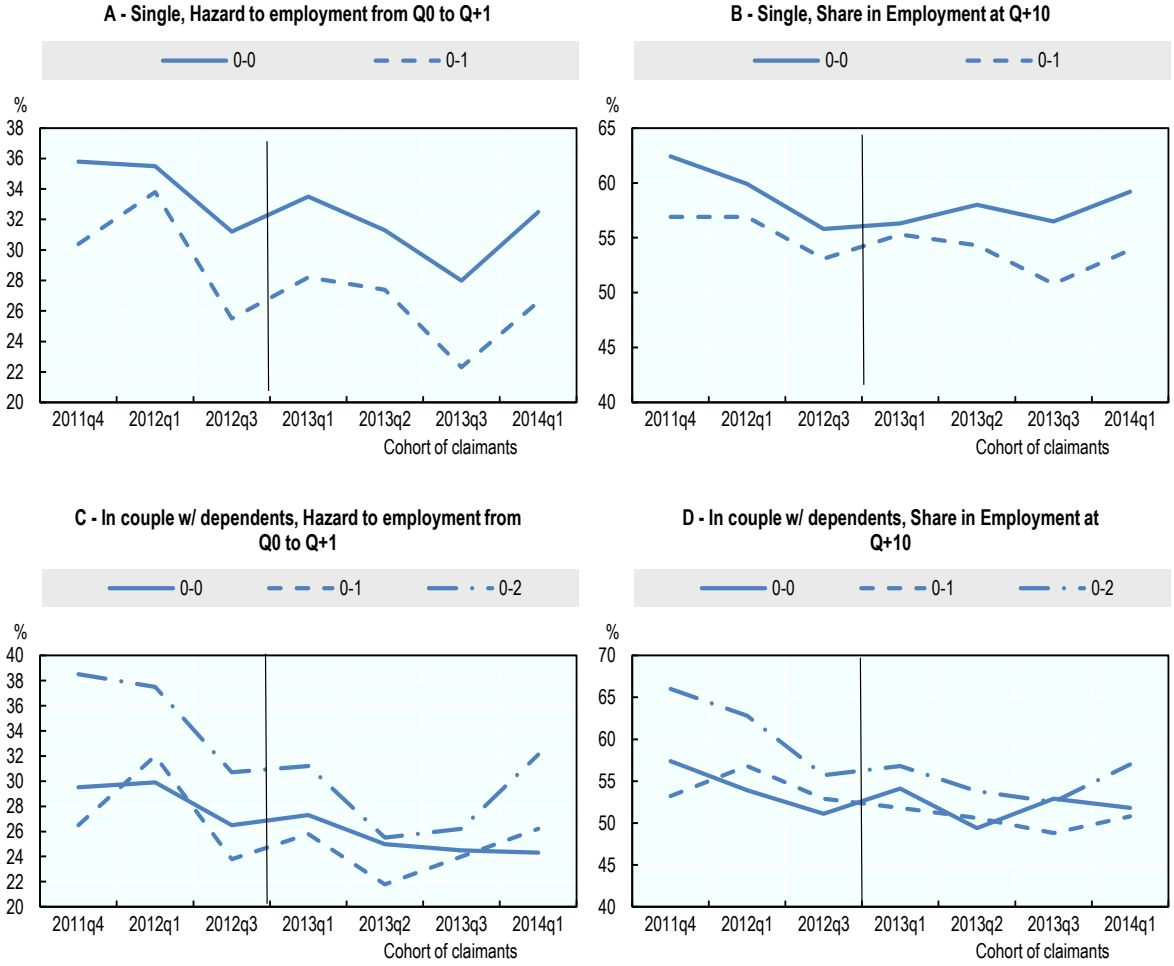
There is also no clear indication of an increase in flows to employment when breaking down the results by groups based on the number of steps introduced by the reform according to classification reported in Table 1. In fact, as already seen in the aggregate data, the prevailing trend across all groups is a negative one likely imputable to a deterioration of labour market conditions after the reform. This result holds for all groups defined by the change in the number of steps across the various time intervals observable in the data. To illustrate the point, Figure 6 plots the hazards between Q+0 and Q+1 and the cumulative shares that have left UB for employment at Q+10 separately for the following groups: no steps before and after the reform (0-0), zero steps before the reform and 1step after the reform 1 (0-1), and zero steps before and 2 steps after the reform (0-2).

Even the comparison of changes in outcomes across groups – in the spirit of a difference-in-differences exercise - offers no indication that the reform encouraged transitions to employment. In the context of a general deterioration of labour market outcomes, evidence of a smaller decline for the groups that saw the

introduction of new steps (0-1 or 0-2) relative to the group with always-flat benefits (0-0) would be consistent with a positive effect of the reform. To the contrary, at least for the case of couples with dependants, Figure 6 shows that workers in the 0-0 group have fared relatively better after the reform. However, the figure also shows that even before the reform the various groups did not follow the same trends – which casts doubts on the assumptions that two groups would have behaved similarly after 2012 in the absence of the reform itself. The next section pursues this difference-in-differences approach more formally using the regression framework described above.

Figure 6. Flows towards employment have continued to follow similar trends regardless of the number of new steps introduced by the reform

Hazards to employment and cumulative shares in employment for groups of workers by number of steps in UB before and after the reform



Note: The figure plots outcomes in the same calendar quarter relative to the start of the claim for different cohorts of claimants. The vertical line indicates the implementation of the reform. The groups are defined based on the number of steps in the UB time profile before and after the reform as discussed in Section 3.
Source:

Results from the difference-in-differences exercise

The final step of the analysis uses the regression framework described above to compare changes in outcomes between groups of workers affected differently by the reform in a difference-in-differences framework. This approach allows controlling for time-invariant differences across groups defined by age, gender, wage, and family types as well as for time effects that affect all groups in similar ways, such as business cycle fluctuations.

The natural starting point is the comparison between groups of claimants whose benefit went from flat to 1 or 2 steps (referred to the 0-1 and 0-2 groups) vs the group whose benefit remained flat (i.e. the 0-0 or control group). The rationale is that the group whose benefit remained flat after the reform provides an indication of what would have happened to the group that saw the introduction of new steps instead, had the reform not occurred.

Consistently with the patterns seen in Figure 6, the econometric results reported in Figure 7 show no indication that the introduction of the steps in the time profile of UB led to an increase in the hazards or the cumulative share moving to employment at any of the observed intervals. The point estimates are generally small and the confidence intervals always include zero. In fact, taken at face value, the point estimates for the cumulative share in employment actually indicate that the claimants who faced steps for the first time after the reform experienced lower cumulative flows to employment.[10]

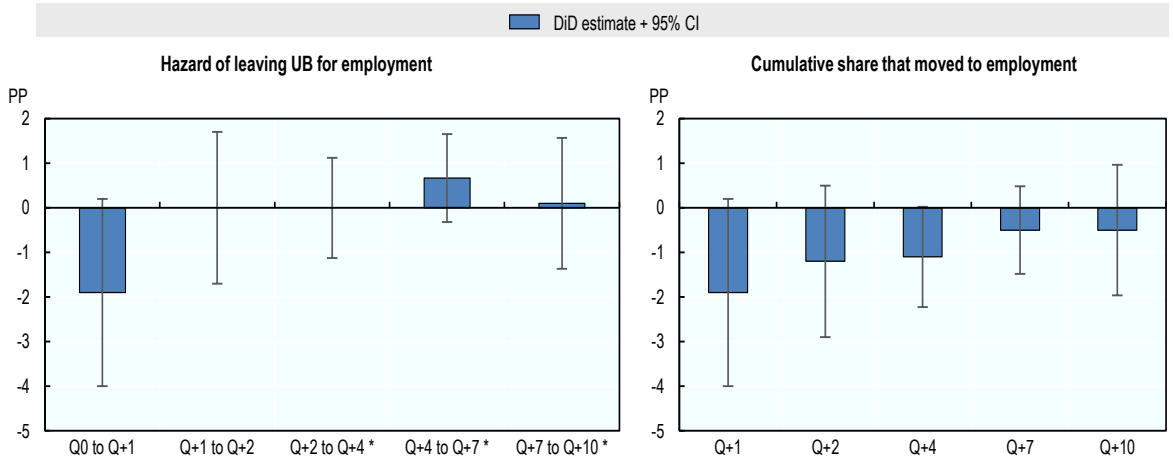
While this analysis borrows the logic and the language of the difference-in-differences approach typically adopted to isolate causal effects, the causal interpretation of these estimates is dubious due to the complexity of the reform and the features of the data. As already discussed, the aggregate nature of the data, the lack of information on working history and the availability of wage data only in bands prevents the precise measurement of the intensity of the reform for different workers. In addition, the visual inspection of Figure 6 offers only limited support for the existence of common trends between the various groups used in this exercise before the reform – which would increase the plausibility of the assumptions that the groups would have followed the same trend after 2012 in the absence of the reform. Furthermore, regardless of the presence of pre-reform common trends, post-reform trends for workers with different wage levels could be affected by other changes that cannot be accounted for in this framework. For example, updates in the benefit floors and ceilings over time – which given the availability of wage data in bands cannot be properly accounted for in this analysis – affect mostly workers in the control group who have lower wages (see discussion in footnote 5).

An additional limitation of these results in Figure 7 – albeit of a different nature - is that they are based on a sample that excludes over 60% of claimants who are in couples with no dependants (Figure 2) because for this family type no wage level corresponds to flat benefits both before and after the reform (Table 1). To include this large group, it is therefore necessary to consider different comparisons. Figure 8 reports the results obtained comparing groups that saw the introduction of two additional steps relative to groups that saw the introduction of only one additional step.

Consistently with the general lack of evidence of an effect of the reform, this new set of estimates provides no indication that a larger increase in the number of steps led to higher flows to employment. The point estimates for both outcomes are always very close to zero and come with confidence intervals that would be consistent with rather small effects (at most 1.5pp) at any point in time.

Figure 7. Workers who saw the introduction of 1 or 2 steps in their UB profile did not move to employment more quickly than workers whose benefit remained flat

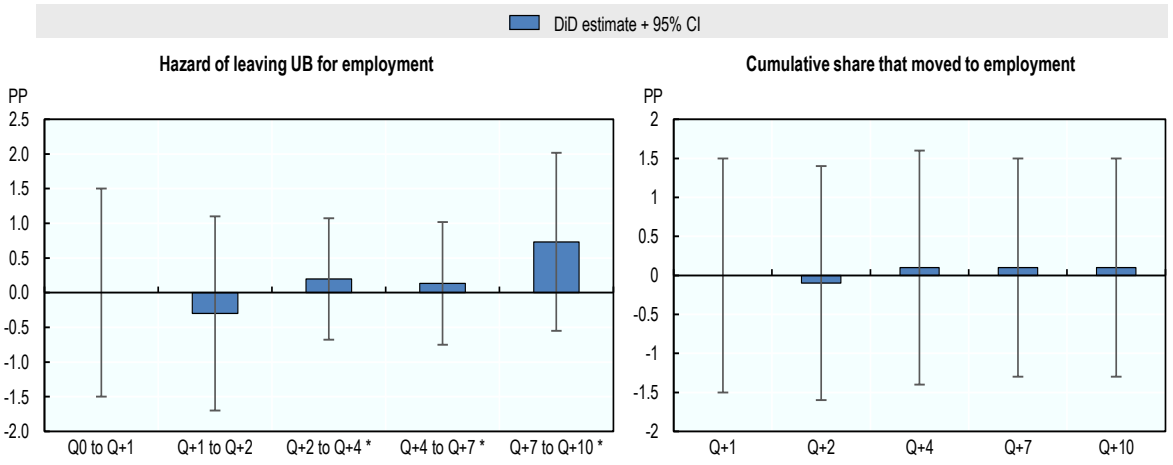
Difference-in-Differences estimates comparing 0-1 and 0-2 groups to 0-0 groups



Note: The 0-0 group includes workers with wage levels such that UB were flat both before and after the reform. The 0-1 and 0-2 groups include workers with wage levels such that that their UB went from flat to featuring one and two steps respectively (see Section 3). The estimates are obtained from separate OLS regressions using the econometric model described in section 7. Each regression includes around 600 observations which are groups defined by family type, age, gender, wage bands, and cohort (see Section 4 for more details on the data). Standard errors are clustered by family type, age, gender, wage bands. The results presented are weighted by group sized but the results remain the same if the regressions are not weighted.
* Estimates for hazards spanning more than one calendar quarters are normalised by number of quarters they span, e.g. the estimate for the hazard between Q+2 and Q+4 is divided by 2.

Figure 8. Workers who saw the introduction of 2 additional steps in their UB profile did not move to employment more quickly than workers who saw the introduction of a single additional steps

Difference-in-Differences estimates comparing groups with one additional step to groups with two additional steps.



Note: The 0-0 group includes workers with wage levels such that UB were flat both before and after the reform. The 0-1 and 0-2 groups include workers with wage levels such that that their UB went from flat to featuring one and two steps respectively (see Section 3). The estimates are obtained from separate OLS regressions using the econometric model described in section 7. Each regression includes around 600 observations which are groups defined by family type, age, gender, wage bands, and cohort (see Section 4 for more details on the data). Standard errors are clustered by family type, age, gender, wage bands. The results presented are weighted by group sized but the results remain the same if the regressions are not weighted.

* Estimates for hazards spanning more than one calendar quarters are normalised by number of quarters they span, e.g. the estimate for the hazard between Q+2 and Q+4 is divided by 2.

9 Conclusions

This paper finds no indication that the 2012 reform of the Belgian UB system led to an increase in flows towards employment either in the aggregate or by comparing groups of workers whose benefits were affected to different extents. There is also no indication that the reform increased flows towards inactivity or other benefits.

The reform aimed to increase the steepness of the time profile of the unemployment benefit by raising the initial benefit, lowering its long-term level and increasing the number of steps in between. In practice, however, due to their low previous wages, around 35% of previously full-time employed claimants saw no change in the long-term unemployment benefit and only a relatively small increase in the benefit for the first 3 months. Even those that saw more significant changes continued to face a more gradual decline of their UB than in most other OECD countries. Indeed, Belgium stands out among its neighbours as the only country where the benefits decline in a series of small successive steps and is the OECD country with the largest number of changes in UB over the spell and one of the countries with the smallest average size of these changes (Hijzen and Salvatori, 2020[15]).

On balance, however, the results of this paper and recent literature jointly provide little ground in favour of a further accentuation of the steepness of the time profile of UB in Belgium. In fact, while it is possible that the 2012 reform did not produce an appreciable effect because of its limited scope, the finding of this paper is broadly in line with the conclusion emerging from recent contributions that have called into question the social desirability of declining UB over the spell more generally. This literature – reviewed in section 2 – takes a broader approach that considers both the impact of UB on labour market flows and its insurance value to the unemployed. It finds that the response of job finding probability to variations in the level of UB are smaller for the long-term unemployed because they tend to face non-financial barriers to employment as well. In addition, the insurance value of UB is higher for those who remain unemployed longer and therefore progressively deplete any accumulated resources.

However, the Belgian UB system could likely benefit from a simplification that would enhance its readability for the workers and facilitate its administration and its evaluation. In the current system, the decline of the benefit over the spell is achieved through a complex interaction between gross replacement rates and benefit ceilings and floors. A possible alternative is to compute the benefits as the sum of a flat amount plus a fraction of the previous earnings, similarly to the system in force in France (Hijzen and Salvatori, 2020[15]). The decline of the benefit could then be achieved through constant reductions in the flat amount at specific intervals. Under a new and simpler set of rules, the overall time profile of UB could remain unchanged or be adjusted to ensure fewer but larger steps even while maintaining the initial and long-term benefit at their current levels. Indeed, as mentioned above, Belgium features one of the largest number of steps of smallest average size in the OECD and recent evidence suggests that in a system with declining benefits fewer but larger steps might increase job-search intensity and reduce unemployment (DellaVigna et al., 2017[3]).[11]

However, in the case of workers with lower wages, there is little scope for reducing the number of steps or increasing their size since they receive benefits that are very close (or equal) to the benefit floor from the start of the spell. Over 50% of previously full-time employed claimants in 2012 had previous gross wages below 1800 Euro and only 37% move to employment within Q+1 as opposed to almost 50% of those with

higher gross wages. In addition, in one of its most credible results, this paper finds no evidence that the introduction of one or two additional steps for workers with low wages led to any appreciable increase in flows to employment in 2012. This suggests that further interventions on the benefits levels are unlikely to improve the labour market prospects of this group of low skilled workers who are likely to face barriers to employment of a different nature that dampen the effectiveness of financial incentives. To support transitions back into employment for this group, other complementary activation policies are likely to be needed (Fernandez et al., 2020[5]).

References

Avram, S., M. Brewer and A. Salvatori (2018), "Can't work or won't work: Quasi-experimental evidence on work search requirements for single parents", *Labour Economics*, Vol. 51, https://doi.org/10.1016/j.labeco.2017.10.002. [23]

Baert, S. (2018), "Genereuze uitkeringen verlengen de duur van de werkloosheid. Daarom is het goed dat de werkloosheidsuitkeringen straks sneller dalen. Al is meer nodig om meer mensen aan het werk te krijgen.", *De Tijd*, https://www.tijd.be/opinie/algemeen/werklozen-meer-prikkelen-is-wel-verstandig/10039169.html. [22]

Cahuc, P., S. Carcillo and A. Zylberberg (2014), *Labor economics*, https://mitpress.mit.edu/books/labor-economics-second-edition (accessed on 29 June 2019). [8]

Campos, R., J. García-Pérez and I. Reggio (2017), "Moral Hazard versus Liquidity and the Optimal Timing of Unemployment Benefits", *Working Papers*, https://ideas.repec.org/p/fda/fdaddt/2017-10.html (accessed on 29 June 2019). [10]

Chetty, R. (2008), "Moral Hazard versus Liquidity and Optimal Unemployment Insurance", *Journal of Political Economy*, Vol. 116/2, pp. 173-234, https://doi.org/10.1086/588585. [6]

Cockx, B. et al. (2020), "Switching from an inclining to a zero-level unemployment benefit profile: Good for work incentives?", *Labour Economics*, Vol. 64, p. 101816, https://doi.org/10.1016/j.labeco.2020.101816. [11]

Cockx, B. and E. Van Belle (2019), "Waiting longer before claiming, and activating youth: no point?", *International Journal of Manpower*, Vol. 40/4, pp. 658-687, https://doi.org/10.1108/ijm-04-2017-0060. [12]

DellaVigna, S. et al. (2017), "Reference-Dependent Job Search: Evidence from Hungary*", *The Quarterly Journal of Economics*, Vol. 132/4, pp. 1969-2018, https://doi.org/10.1093/qje/qjx015. [3]

Fernandez, R. et al. (2020), "Identifying and addressing employment barriers in Belgium, Korea and Norway: Implementing the OECD Jobs Strategy", *OECD Social, Employment and Migration Working Papers*, No. 249, OECD Publishing, Paris, https://doi.org/10.1787/925b3c14-en. [5]

Hijzen, A. and A. Salvatori (2020), "Designing fair and work-oriented unemployment benefits: The case of Belgium", *OECD Social, Employment and Migration Working Papers*, No. 237, OECD Publishing, Paris, https://doi.org/10.1787/ac17d171-en. [15]

Hopenhayn, H. and J. Nicolini (1997), "Optimal Unemployment Insurance", *Journal of Political Economy*, Vol. 105/2, pp. 412-438, https://doi.org/10.1086/262078. [7]

Kolsrud, J. et al. (2018), "The Optimal Timing of Unemployment Benefits: Theory and Evidence from Sweden", *American Economic Review*, Vol. 108/4-5, pp. 985-1033, https://doi.org/10.1257/aer.20160816. [9]

Krueger, A. and B. Meyer (2002), "Chapter 33 Labor supply effects of social insurance", *Handbook of Public Economics*, Vol. 4, pp. 2327-2392, https://doi.org/10.1016/S1573-4420(02)80012-X. [17]

Le Soir (2018), *Une baisse plus rapide des allocations est-elle à recommander?*, https://plus.lesoir.be/180110/article/2018-09-24/une-baisse-plus-rapide-des-allocations-est-elle-recommander (accessed on 2 September 2019). [21]

Ministere de l'Emploi (2018), *Des allocations plus justes dans un régime de chômage plus actif*. [1]

Nevejan, H. and G. Van Camp (2014), *La dégressivité renforcée des allocations de chômage belges*, Conseil Central de l'Economie. [14]

OECD (2020), *OECD Economic Surveys: Belgium 2020*, OECD Publishing, Paris, https://doi.org/10.1787/1327040c-en. [2]

OECD (2020), *The Future for Low-Educated Workers in Belgium*, OECD Publishing, Paris, https://doi.org/10.1787/0140a728-en. [4]

OECD (2018), *Good jobs for all in a changing world of work: The OECD Jobs Strategy*, OECD Publishing, Paris. [20]

Petrongolo, B. (2009), "The long-term effects of job search requirements: Evidence from the UK JSA reform", *Journal of Public Economics*, Vol. 93/11–12, pp. 1234-1253, https://doi.org/10.1016/j.jpubeco.2009.09.001. [16]

Schmieder, J. and T. Von Wachter (2016), "The Effects of Unemployment Insurance Benefits: New Evidence and Interpretation", https://doi.org/10.1146/annurev-economics-080614-115758. [19]

Spinnewijn, J. (2015), "UNEMPLOYED BUT OPTIMISTIC: OPTIMAL INSURANCE DESIGN WITH BIASED BELIEFS", *Journal of the European Economic Association*, Vol. 13/1, pp. 130-167, https://doi.org/10.1111/jeea.12099. [13]

Tatsiramos, K. and J. van Ours (2014), "Labor Market Effects of Unemployment Insurance Design", *Journal of Economic Surveys*, Vol. 28/2, pp. 284-311, https://doi.org/10.1111/joes.12005. [18]

Notes

[1] This section draws heavily on the review in Hijzen and Salvatori (2020[15]).

[2] Optimality in the academic literature is based exclusively on risk-aversion (consumption smoothing) and does not take account of inequality aversion even though this does tend to be an important consideration for policy-makers.

[3] The optimal degree of unemployment insurance is likely to depend on several factors, including the duration of unemployment, the state of the business cycle and the broader institutional context. For comprehensive reviews on the design of unemployment insurance, see Krueger and Meyer (2002[17]), Tatsimiros and Van Ours (2014[18]), Schmieder and Von Wachter (2016[19]) and OECD (2018[20]).

[4] The Belgian system provides for a number of exception for particular group of UB recipients that are exempt from the digressivety of the benefit over the spell. This section, and the paper more generally, is only concerned with claimants who face the standard rules of the system. However, an implication of this is that when considering the total number of UB claimants, the share facing a non-declining UB benefit is actually larger than that reported in the descriptive sections of this paper. Note, however, that claimants who are exempt from the standard rules are excluded from the entire analysis of this paper.

[5] The simulations are obtained applying the parameters (i.e. policy rates, wage and benefit floors and ceilings) as reported in Nevejan and Van Camp (2014[14]). These refer to the parameters that were in place at the time of the implementation of the reform and all monetary amounts are expressed in prices of February 2012. Benefit floors and ceilings are subject to adjustments over time both as a result of indexation and, less frequently, due to discretionary adjustments. These changes – which have affected some of the cohorts of claimants included in this study – are not taken into account. In practice, their main implication is that the benefit floor is increased over time – implying a (slightly) smaller reduction in the long-term benefit than reported in the simulations of this section for at least some cohorts. For more details see https://www.ksz-bcss.fgov.be/fr/dwh/variabledetail/office-national-de-lemploi/Variables/categorie-dindemnisation-du-chomeur.html?filter=institution&institution=66597&sources=&themes=

[6] Given the absence of information on working history in the data used in this analysis (see Section **4)**, the simulations reported focus on the first 24 months during which working history matters less than in successive months. The simulation refers to a claimant with 3 years of working history who, under the reform, sees its benefit reach its long-term level at 20 months. More generally, for any worker with up to 5 years of working history, the benefit reaches its the long-term level in one final step somewhere between 12 and 24 months. For workers with more than 5 years of working history, the benefit is flat between 12 and 24 months and then falls towards the long-term level through a number of steps proportional to the working history of the recipient.

[7] https://stats.oecd.org/index.aspx?DataSetCode=AV_AN_WAGE

[8] An indirect effect could still take place through a selection mechanism: if the presence of new steps early in the spell induces more people to leave UB earlier, the composition of the long-term unemployed might change and leading to an apparent change in the exit rates later in the spell. However, it does not seem very plausible that the introduction of a new (modest) step at month 3 would have a significant impact on

the job finding probability of individuals who in the absence of such step become long-term unemployed (i.e. remain unemployed for well over 12 months).

[9] In general, this measure does not correspond with the share of claimants who are in employment at quarter *q* because claimants can actually move back and forth between different states. Essentially, the metrics used throughout the paper focuses on claimants who move to employment as their first destination after starting their UB claim. However, the results are substantively the same (i.e. no indication of an effect of the reform) if one uses the stock of a cohort of claimants who are in employment in a given quarter.

[10] The same conclusions are obtained in results no reported here comparing only the 0-2 group (which saw both an increase in the initial benefit and a decrease in the long-term one) vs the 0-0 group.

[11] The adoption of this model could also help enhance the fairness of the system addressing another issue which is not treated in this paper, namely the fact that net replacement rates can be regressive due to the interaction of the UB system with other elements of the tax and benefit system (Ministere de l'Emploi, 2018[1]; Hijzen and Salvatori, 2020[15])