Welfare Dynamics and Employment: Heterogeneous Paths Through Means-tested Basic Income in Germany

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Abstract

This study contributes to the international literature on welfare dynamics, by providing a differentiated picture of paths through the means-tested Basic Income for recipients who are capable of working, after the reorganisation of the basic income system in Germany in 2005. We analyse the employment and benefit trajectories of individuals who became recipients for the first time between 2007 and 2009 by methods of sequence and cluster analysis based on representative administrative individual data. We find a significant polarisation between long-term recipients and those with an early exit from benefit receipt via full-time employment. One in three new recipients remains in benefit receipt for the next years and shows almost no employment activities. Approximately 23 percent leave benefit receipt quickly and work in full-time employment. Several other different paths exist between these two poles. These heterogeneous trajectories should be characteristic for broad basic income systems and require a variety of policies that in part are beyond labour market policies.

Keywords: basic income; employment; sequence analysis; welfare state

JEL classification: H55; I38; J64

1. Introduction

Means-tested income programmes targeting working-age individuals and their families form a constituent element of the welfare state in most European countries. In view of changing social and economic conditions, it is a political challenge to adapt these systems to new developments in order to ensure effective and efficient risk coverage. Welfare systems have therefore been the subject of reforms in many countries in recent decades.

Under the pressure of high long-term unemployment and the associated fiscal burden, Germany has reformed its labour market policies through several reforms between 2002 and 2005. One consequence of the reforms is that the

means-tested basic income for persons capable of working and their families (*Unemployment Benefit II*, BI) has become the most important benefit system for the unemployed. About two-thirds of all registered unemployed receive BI benefits and only about one-third unemployment insurance benefits. Another consequence is that the reformed BI is comprehensive and the recipients are correspondingly very heterogeneous. Typical recipient groups are single parents, immigrants, low-paid marginally employed workers, working-poor families or older, often long-term unemployed individuals. Against this background, it is not surprising that, in the first decade after its introduction, the new BI is characterised by a high proportion of long-term recipients. The picture of long-term welfare dependency emerging from aggregated statistics has led to a growing interest in recipients' mobility patterns and their causes, as well as to a focus of labour market and social policies on long-term recipients.

The relevance of knowledge about the dynamic patterns of the welfare system for social policy measures has been known in the literature on welfare dynamics since the pioneering work of Bane and Ellwood (1986, 1994). Analysing benefit receipt in a longitudinal perspective helps to explain the heterogeneity of the recipients in both, individual and household composition as well as individual paths through the welfare system. Several more recent studies have provided a picture of the complex patterns of social assistance (SA) in the US (Blank, 1989; Hoynes, 2000) and Europe (Andrén and Gustafsson, 2004; Cappellari and Jenkins, 2014; Carpentier *et al.*, 2014; Dahl and Lorentzen, 2003; Gustafsson *et al.*, 2002; Königs, 2018). The analysis of welfare dynamics is mostly based on high-quality administrative data, which can provide the sample size necessary for examining heterogeneous recipient-groups. Administrative data also allow observation of recipients in continuous time, which is especially important for the measurement of benefit duration. With the exception of a few regional studies (Gustafsson *et al.*, 2002; Leisering and Leibfried, 1999; Buhr *et al.*, 2010), such analyses were not possible for the pre-reform benefit system in Germany due to a lack of national data.

With the availability of suitable longitudinal data after the reforms in 2005, a few studies emerged in this context. They focus on certain processes and/or subgroups of the recipient population: employment-related exits from benefit receipt (Achatz and Trappmann, 2011), labour market integration and BI-receipt of mothers (Lietzmann, 2014, 2017) and young adults (Schels, 2011, 2013) as well as employed recipients (Bruckmeier *et al.*, 2010). These studies indicate that there is a variety of possible ways within and through BI-receipt and that focusing on single transitions might only provide a partial picture of the processes of BI-receipt. The aim of this paper is the description of various typical trajectories through BI and their relative importance while taking into account several different labour market states in a dynamic perspective. In addition, we use a different methodological approach than has been used

in most of the studies on welfare dynamics, with the recently published study of Hansen and Lorentzen (2018) for Norway and the study of Seibert *et al.* (2017) for the German BI being notable exemptions. We employ methods of sequence data analysis, which are often used in life course research (Aisenbrey and Fasang, 2010), to detect distinct BI-trajectories. In contrast to Seibert *et al.* (2017), we focus on the working-age population aged 25–60 years only and differentiate between more labour market states. Therefore, our study provides the first detailed picture of the various paths of working-age recipients through BI in Germany. We distinguish between 15 different labour market states and BI-receipt and classify recipients by labour market status sequences using optimal matching and cluster analysis methods. Although the combination of different labour market states and benefit receipt results in a high complexity, sequence data analysis allows us to identify clear patterns of benefit-trajectories and their socio-demographic composition. As Germany's reformed means-tested basic income system is an example for transforming unemployment protection in post-industrial labour markets, our findings are characteristic for large benefit systems with broad concepts of eligibility. Policy implications can be drawn in light of differing requirements tackling heterogeneous recipient groups with distinct trajectories.

2. Theoretical discussion

This section presents the policy and theoretical context of our analysis. We discuss the implications of recent welfare and labour market reforms in Germany for the analysis of benefit-dynamics from a welfare state perspective.

From 2002 until 2005, the German means-tested benefit system was reorganised through a package of labour market reforms (Jacobi and Kluve, 2007). With the implementation of the latest reform package ('Hartz IV') in 2005, the former unemployment assistance ('Arbeitslosenhilfe') and social assistance ('Sozialhilfe') were combined to form the new basic income system (BI) for individuals who were capable of working and their families ('Grundsicherung für Arbeitsuchende', Unemployment Benefit II). The new system aims at labour market integration based on activation and workfare principles (Eichhorst *et al.*, 2010). It is also the last safety net for needy households of persons capable of working and should allow recipients to maintain a certain legally defined standard of living. With 6 million recipients in 2015, BI is by far the most important means-tested, tax-funded benefit programme.

The reforms marked a far-reaching step in German social policy and were regarded as a shift from a Bismarck to a Beveridge welfare regime (Eichhorst *et al.*, 2010). Other authors interpret them as a part of a long-lasting shift in institutions towards a dualism between labour market insiders and outsiders

(Palier and Thelen, 2010). As the emphasis of this 'New Welfare State' (Esping-Andersen *et al.*, 2002; Bonoli and Natali, 2012) policy is not mainly on income support, but on activating the potential workforce, the perspective on welfare dynamics, also changes. The ground-breaking work of Leibfried and Leisering in the 1990s on the dynamics of SA was mainly carried out from the perspective of poverty research with SA-receipt as an indicator for poverty (Leisering and Leibfried, 1999; Leibfried *et al.*, 1995). The analysis of SA-dynamics was a 'dynamic approach to poverty', embedded in a life-course framework. Their empirical analysis focused on the duration of social assistance receipt and the identification of longitudinal poverty patterns. One main finding was that the receipt of SA was often only temporary. The main causes were interactions of SA with other benefits and phases of unemployment, along with training phases or changes in household composition. Labour market integration in this context was perceived as a way out of poverty (Gangl, 1998).

It can be argued that the relationship between basic income benefits and the labour market has changed due to the new welfare state paradigm as well as changing labour markets. New welfare state approaches in the activation context are characterised by linking together income protection and labour market participation. Furthermore, in post-industrial labour markets the take-up of employment does not necessarily lead to an exit from the benefit system. Hence, the quality of employment is becoming an increasingly important dimension within activation policies, as low-quality employment poses a new social risk (Taylor-Gooby *et al.*, 2015; Palier and Thelen, 2010). Also within the reformed BI, reducing or avoiding benefit dependence is the main goal, which should be achieved by (better) employment. In a qualitative panel study, Grimm *et al.* (2013) show various forms of labour market participation of BI-recipients that are below stable employment. To assess BI-dynamics and to draw policy conclusions, the analysis of BI-dynamics must take into account the labour market participation of recipients. It should be noted that in comparison with studies on the old benefit-system, it is only now possible to analyse labour market participation and benefit receipt simultaneously due to the progress made in the provision of administrative research data.

3. Institutional background

In what follows, we discuss hypotheses about the mobility patterns of benefit recipients resulting from the design of the benefit system and its interaction with the labour market along the three principles of a 'triple integration' described by Clasen and Clegg (2012), which characterise the new German system: benefit homogenisation, risk re-categorisation and activation. We will argue that the first two principles 'benefit homogenisation' and 'risk re-categorisation' should lead to a heterogeneous population of recipients, which in turn should be

reflected in a variety of different trajectories. For the activation principle, we expect considerable dynamics between the different states of unemployment and employment.

Until 2004 long-term unemployed persons could either receive means-tested unemployment assistance (UA) or social assistance, depending on their working history. Although UA was tax-funded, it was partially based on an insurance principle. First, it was restricted to those, who contributed to the unemployment insurance previously, i.e. it was available after the exhaustion of unemployment insurance benefits. Second, the benefit level was calculated on the basis of previous earnings. Third, there was only a weak means-test. In contrast, the former SA was a minimum income flat-rate benefit available not only for unemployed people and based on strict means-testing. Eligibility for the new BI is present if a household's total needs exceed the allowable income and the household's wealth remains below the household specific maximum. Total needs are defined by a standard benefit for each member of the household. Housing costs are additionally paid up to a maximum that depends on the household size and the local housing price level. Own income of the household members is deducted from the total potential benefits, where almost all types of income are considered. The new flat-rate benefit and the strict means-test have obviously significantly weakened the status protection for the former recipients of UA. Therefore, this part of the reform can be seen as an expression of the first principle, unemployment benefit homogenisation, which means that the level of entitlements is less dependent on previous earnings and the individual work history. The reduction in benefit levels, which was experienced by most former recipients of UA, should increase labour supply incentives and lead to a higher dynamic among recipients compared to the former UA.

The possible impact on all new BI beneficiaries is more complex and cannot be summarised in a departure from the insurance principle (Clasen and Goerne, 2011). There has been little change in benefit level for recipients of the old SA, but the new BI is more generous in treating earned income in the means-test with significantly lower benefit reduction rates. For individual earnings above 100 Euro per month a proportion between 20 and 10 percent is exempted from the means-test. Due to these improvements for additional earnings, employed persons, especially from larger households, remain in benefit receipt with relatively large earnings. Therefore, the new system is also referred to as an in-work benefit (Dingeldey, 2012). We assume that high employment dynamics are also observable within and outside the benefit system as a consequence of increasing labour supply incentives. Regarding the dynamics of benefit receipt no clear conclusions can be drawn. On the one hand, increased employment dynamics should lead to increased dynamics in the receipt of benefits. On the other hand, benefits are no longer available for the unemployed only,

TABLE 1. Basic income recipients in Germany, 2015

	Total (in 1,000)	Share of all recipients capable of working (percent)
Households	3,288	
Recipients	6,000	
Recipients not capable of working	1,673	
Recipients capable of working	4,327	100.0
Unemployed	1,843	42.6
Not unemployed	2,484	57.4
Employed recipients	1,236	28.6
ALMP	437	10.1
In education	346	8.0
Care for relatives or children	290	6.7
Temp. not capable of working	298	6.9
Early retirement	164	3.8

Notes: ALMP stands for recipients participating in active labour market policies. Employed recipients could either be unemployed or not unemployed depending on their weekly working hours. Source: Statistik der Bundesagentur für Arbeit (2016)

but also for the employed. This means that taking up employment more often does not lead to an exit from BI, which could lead to longer benefit durations.

The new eligibility criteria not only opened up the system for working poor families; the reforms were in general accompanied by a broadening of the concept of unemployment, which is the second principle of the triple integration, risk re-categorisation (Clasen and Clegg, 2012). Therefore, new groups are coming into the focus of labour market policy. Apart from passing the means-test, eligibility for BI is conditional not on unemployment, but on the capability of working of at least one family member. This is defined for persons between 15 and 65 years by the capability of working for a minimum of three hours a day in the foreseeable future under the usual conditions of the labour market. In 2015, approximately 4.3 million out of the 6 million recipients were regarded as capable of working and 1.7 million recipients – mainly children under the age of 15 – as not capable of working (see Table 1).

Compared to other European countries, this broad definition of capability of working contributes to higher figures of unemployed BI-recipients in Germany, whereas individuals at the margin of capability of working often receive other benefits in other countries, e.g. pension or disability benefits (Konle-Seidl et al., 2014). Additionally, a large group of SA-recipients who were previously not registered as unemployed and only weakly attached to the labour market became subject to the labour market logic of the new system. This applies particularly to women living in benefit-receiving households. The integration of mothers in the benefit system with the duty to take up employment to end benefit receipt can be seen as a departure from the male

breadwinner model. This is in contrast to unemployment insurance and the former UA, where non-working spouses are/were not obliged to seek for work (Dingeldey, 2012: 69).

Taken together, the reform has led to a heterogeneous group of BI-recipients in terms of their labour market activities. Approximately 29 percent of all recipients capable of working in 2015 were already working (see Table 1). While full-time working recipients receive the benefit to account for insufficient earnings, the majority works only in marginal employment with monthly earnings below 450 Euro. Marginally employed recipients could also be registered as unemployed, if their weekly working hours did not exceed the maximum of 15 hours. In fact, in 2015, only approximately 43 percent of all working-age recipients were unemployed. Approximately 10 percent of working-age recipients participated in measures of active labour market policies and another 8 percent were in the education system or in vocational training. Others could not work because of child care obligations or sickness.

As a consequence of this new system of mass means-testing and the resulting heterogeneity, we expect to find very heterogeneous paths through BI ranging from people with major labour market problems to people who can find (new) employment quickly. We also expect to see a polarisation between paths out of BI and paths characterised by long-term benefit receipt and problematic employment paths.

The last principle of the triple integration is the activation principle (Clasen and Clegg, 2012). The shift towards activation has been recognised and analysed for many welfare states in Europe and in the U.S. (Eichhorst *et al.*, 2008; Pascual and Magnusson, 2007). Under the new BI the unemployed should be activated through various activation measures aimed at strengthening their sense of personal responsibility, with the primary goal being labour market integration. With respect to BI-dynamics, activation policies should lead to a higher dynamic among recipients. The focus of new activation measures introduced after 2004 was on work first measures (Oschmiansky and Ebach, 2009). Qualification measures, which support the take-up of stable employment and permanent exits from BI, played only a minor role. Therefore, we expect to observe a high labour market turnover among BI-recipients. In general and contrary to the pre-reform system, all BI-recipients have access to support measures and are required to reduce or end benefit receipt through employment. However, exemptions from the activation principle must be taken into account. For example, child-care obligations are recognised and reduce recipients' obligation to actively seek for employment when childcare cannot be organised in another way. This holds in particular when young children under the age of three are present. This rule might contribute to the finding that the age limit of three years for children in the household plays a significant role in maternal labour force participation (Zabel, 2016). The participation of mothers in the labour market is mainly

limited to part-time and marginal employment (Lietzmann, 2014). Furthermore, Kopf and Zabel (2017) find evidence that female benefit recipients with partners participate less often in activation programmes compared to those living without a partner in the household. Hence, we conclude that gender-specific paths through BI could be expected.

4. Data and methodology

To reconstruct individual trajectories that are as complete as possible, we combine different administrative data sources. The Administrative Panel SGB II (ADMINP) is a 10 percent sample of BI recipients in Germany in the period 2005 to 2012. It is based on benefit records from the German Federal Employment Agency and provides longitudinal information on BI-receipt including personal and household characteristics (Rudolph *et al.*, 2013). These data are enriched with information on time spent in marginal and regular employment subject to social security contributions along with time spent under measures of active labour market policy (ALMP) from the Integrated Employment Biographies (IEB) of the Institute for Employment Research (IAB) (Dorner *et al.*, 2010).

From these data, we choose three yearly entry cohorts into BI-receipt: that is, individuals between 25 and 60 years of age who start their first spell of benefit receipt between 2007 and 2009. We restrict our sample to this age group to exclude individuals in school and those transitioning into retirement. Because of data quality issues, we exclude recipients living in municipalities that did not provide complete data for the time between 2005 and 2012 and those moving to another household or region because, for those, we do not necessarily observe all spells in benefit receipt. Entry cohorts of 2005 and 2006 are excluded from the analysis to limit the probability that individuals entering BI have a recent history of benefit receipt in the old SA-system prior to 2005. All individuals are observed over a period of 36 months following their entry into benefit receipt. As the benefit unit of BI is the household, there could be more than one member of the household in the sample. The fact that individual benefit receipt is not independent of that of other household members is taken into account when estimating the determinants of cluster membership by applying robust standard errors. Because of the high computational requirements of sequence analysis we draw a 20 percent random sample of this population (13,000 individuals; for descriptive statistics of the complete and the reduced analysis sample see Table A1 in the Appendix).

To identify typical patterns we conduct a sequence analysis following the optimal matching approach (OM; Abbott and Tsay, 2000). This approach requires the following steps (see, e.g. Aisenbrey and Fasang, 2010; Anyadike-Danes and McVicar, 2010): defining the state space, calculating a distance

TABLE 2. State Space for Sequence Analysis Regarding Benefit Receipt and Labour Market Status

States *with* ongoing benefit receipt	States *without* ongoing benefit receipt
A1 Unemployed or inactive (benefit receipt only)	B1 Unemployed
A2 Participating in active labour market policies (ALMP)	B2 Participating in active labour market policies (ALMP)
A3 Full-time employment	B3 Full-time employment
A4 Part-time employment	B4 Part-time employment
A5 Marginal employment	B5 Marginal employment
A6 Vocational training	B6 Vocational training
A7 Employment and ALMP	B7 Employment and ALMP
	B8 Other[1] (i.e., self-employed or out of the labour force)

Note: [1]This state represents periods where there is no information in our data. In part, this can be interpreted, because we know that there is neither benefit receipt nor employment. However, we still do not know the exact status. Therefore, we treat it similar to a missing state, restrict the frequency of occurrence and exclude individuals who are in this state for more than 12 months (Dlouhy and Biemann, 2015).

matrix that identifies the (dis-)similarities of individual sequences and identifying typical sequences using cluster analysis. We define the state space as a combination of BI receipt (receipt/no receipt), employment (full-time, part-time, marginal or vocational training) and participation in measures of ALMP (yes/no). The German institutional framework allows for simultaneous occurrence of these states. The main differentiation is made between receipt and non-receipt, leading to 15 different labour market states (see Table 2).

The distribution of the different states over the observation period of 36 months is displayed in Figure A1 in the Appendix. We choose the OM method to calculate the distance matrix between each pair of individual sequences. (Dis-) Similarity is measured as the minimum number of operations (insertion, deletion or substitution) required to transform one sequence into the other. The costs for 'indel' operations (insertion and deletion) are set to 1 and for substitution to 2.[1] The resulting distance matrix is the base for the cluster analysis to identify homogeneous groups of sequences using the Ward algorithm (Ward, 1963). The aim is to create groups in a way that the within-group difference is minimised, whereas the between-group difference is maximised.

Based on several measures of the quality of a partition (Studer, 2013), which are displayed for different numbers of clusters in Figure A2 in the Appendix, we choose the 10-cluster solution. The average silhouette width (ASW) (Kaufman and Rousseeuw, 1990) of this solution is 0.32. This indicator ranges from 0 to 1, and values above 0.25 indicate a meaningful structure in the data (Kaufman and Rousseeuw, 1990; Studer, 2013).

The ASW-values for each cluster in Table A2 show that the clusters differ in the extent to which they are homogeneous within themselves and distinct from the others. There are some clusters that are particularly well defined (clusters 1, 3 and 10 with ASW values of close to or even above 0.5). Clusters 5 and 6 are particularly ill-defined, with negative values of the ASW. These two clusters seem to be residual groups that are either not very distinct from the other clusters or not very homogeneous.

Finally, we analyse the relationship between individuals' characteristics and their trajectories. Following an inspection of descriptive statistics of the different clusters, the association of cluster membership and individual characteristics is tested formally by estimating a multinomial logit model (MNL) with cluster membership as the dependent variable (Cameron and Trivedi, 2005). As explanatory variables, we use individuals' age, qualification level, citizenship, household context (living with a partner and/or children), the regional unemployment rate, and the local housing cost level on a scale of 1-6.

5. Results

Table 3 summarises the typical characteristics of the trajectories of the 10-cluster solution. The corresponding distribution of time spent in the 15 different states for each cluster is displayed in Table A3 in the Appendix. A more detailed picture of the different sequences is presented in Figures 1 to 3, which show the aggregated distribution of states per month for all clusters. Together with the description of the different paths, we consider observable correlates between clusters and individual characteristics measured at welfare entry, displayed in Table 4. Most associations we report here are confirmed to be statistically significant influences on cluster membership by a multinomial logit model (see Table A4).

5.1. Two poles of benefit receipt: Long-term inactive recipients versus full-time leavers

At first glance, the sharp contrast between the two largest clusters, cluster 1, described as 'Long-term inactive recipients' and cluster 3, described as 'Full-time leavers', becomes visible. While approximately 23 percent of all recipients succeed in overcoming BI and take up regular full-time employment (cluster 3), approximately one in three recipients is grouped into cluster 1 and remains in BI during the next three years, showing almost no labour market activity (see Table A3). Considering that our analysis is restricted to inflows into BI, the size of the cluster of inactive recipients is astonishing and raises the question how such a large share of inactive recipients goes together with activation policies and a variety of ALMPs designed for long-term recipients.

TABLE 3. Labour market trajectories after basic income (BI) entry

Cluster		Characteristics	N	Share of all recipients (p. c.)
1	Long-term inactive recipients	Permanent BI receipt, long-term unemployment/inactivity, some employment/ALMP	4,281	33.5
2	Part-time leavers	Early transition to part-time employment, some full-time employment, permanent BI exit	1,227	9.6
3	Full-time leavers	Early transition to full-time employment, permanent BI exit	2,873	22.5
4	Marginally employed leavers	Transitions to marginal employment, permanent BI exit, some full- and part-time employment	489	3.8
5	Activated full-time leavers	Late transition to full-time employment, ALMP	954	7.5
6	Activated recipients	Long-term SA receipt, some ALMP and various employment states	914	7.1
7	Part-time recipients	Long-term BI receipt, continuing part-time employment with BI, some part-time without BI	519	4.1
8	Marginally employed recipients	Long-term SA receipt, marginal employment with BI receipt, some other activities	904	7.1
9	Unemployed leavers	Transitions out of BI while being unemployed	368	2.9
10	Full-time recipients	Long-term BI receipt, continuing subsidized full-time employment, some full-time w/o BI receipt	261	2.0
Total			12,790	100.0

Source: Own calculations based on ADMINP and IEB 2012.

Individuals from the (successful) cluster 3 ('Full-time leavers') are significantly distinct from cluster 1 individuals. In the first month of BI-receipt approximately 50 percent were unemployed or inactive. After 12 months nearly 70 percent have left BI and work in full-time employment. The cluster is as homogenous as cluster 1, and most sequences are concentrated around one path; hence, there are very few other activities. The sharp contrast between both groups is confirmed by the comparison of personal and household characteristics (see Table 4). Individuals from cluster 1 tend to be older, which is often correlated with other factors that adversely affect labour market success, e.g. poor health. For example, four times more recipients in cluster 1 compared
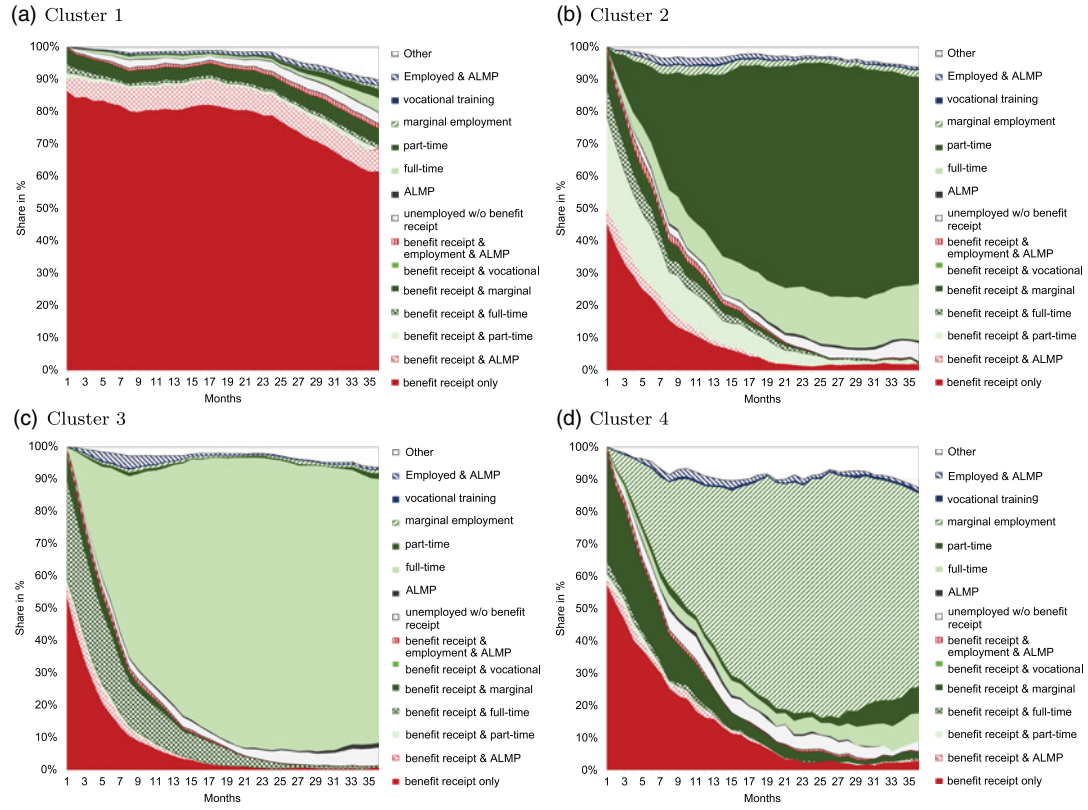
Figure 1. Monthly distribution of labour market states by cluster.
Source: Own calculations based on ADMINP and IEB 2012
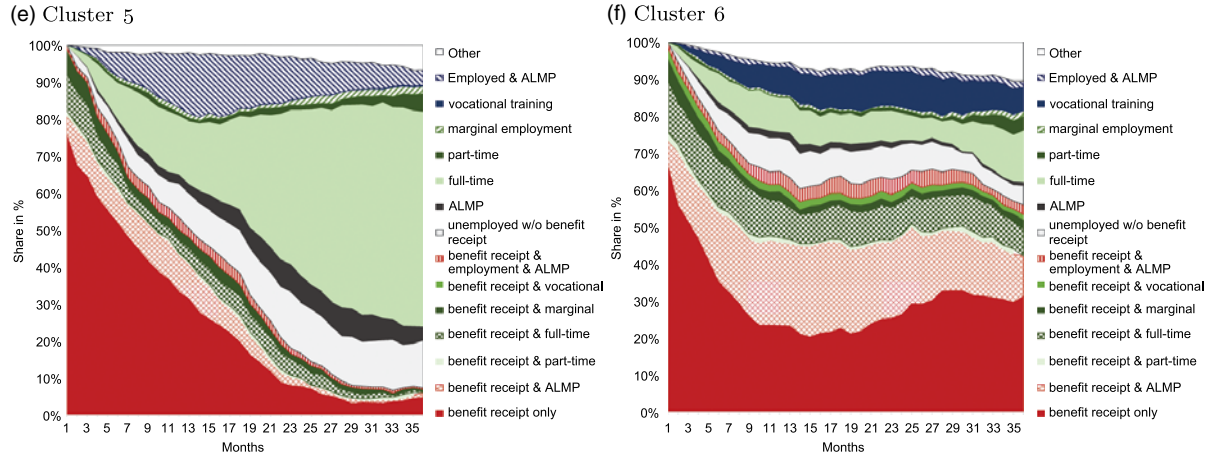
(e) Cluster 5

(f) Cluster 6

Figure 2. Monthly distribution of labour market states by cluster.
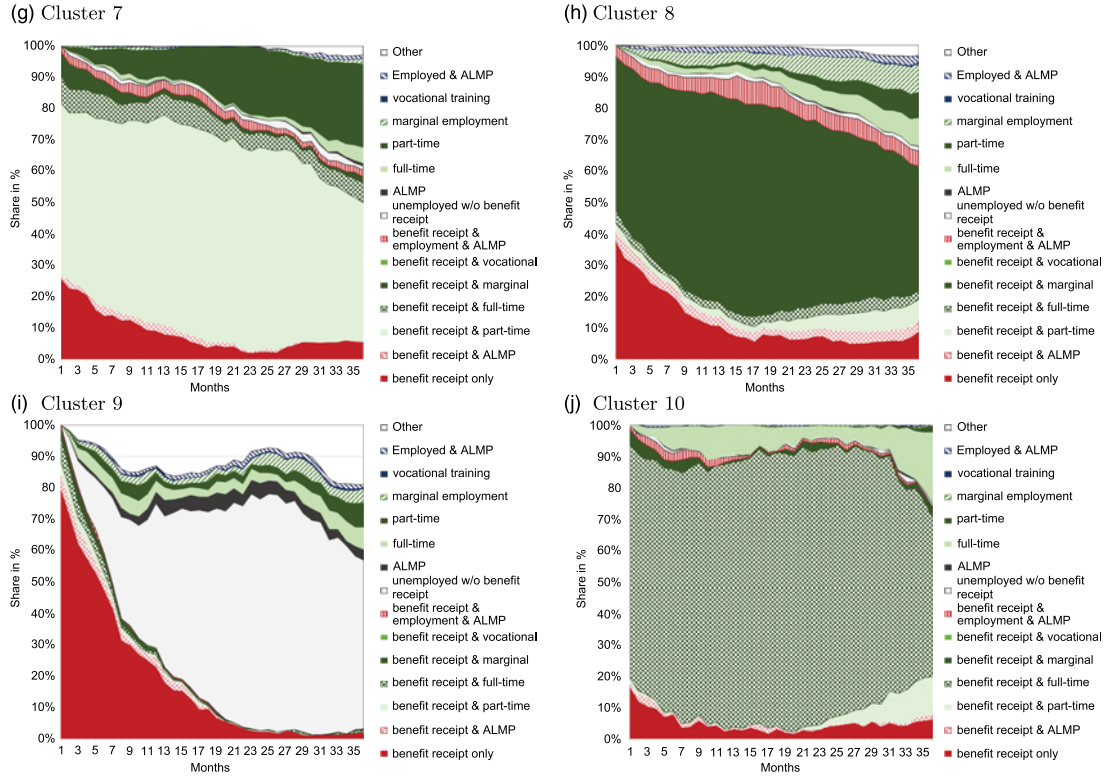Source: Own calculations based on ADMINP and IEB 2012

Figure 3. Monthly distribution of labour market states by cluster.
Source: Own calculations based on ADMINP and IEB 2012

to cluster 3 are older than 54 years. Approximately 34 percent of recipients in cluster 1 do not have a vocational qualification, while in cluster 3 this holds for only 9.1 percent. In contrast, 21.2 percent of the individuals in cluster 3 have a tertiary degree compared to 9.8 percent in cluster 1. More than twice as many recipients from cluster 1 have a foreign citizenship. To summarise, individuals in cluster 1 accumulate characteristics that make them a disadvantaged group on the labour market, and labour demand restrictions should be highly relevant for this group. We observe smaller differences in the household structure. The share of single-households is almost identical between both groups. In cluster 1, there are more single parents, which correlates with a higher share of women in this cluster. Conversely, we observe fewer couples with children in cluster 1 than in cluster 3.

5.2. Activated recipients: No clear path out of BI

The next two clusters that show the highest duration of welfare receipt while being unemployed or inactive are clusters 5 ('Activated full-time leavers') and 6 ('Activated recipients') with 8.8 and 11.0 months, respectively (Table A3). Together, the two clusters account for approximately 15 percent of all observations. Individuals in cluster 5 seem to be more successful in overcoming BI than individuals from cluster 6. More than 50 percent of the recipients in cluster 5 work full-time without benefit receipt at the end of the observation period (see Figure 2). However, there is no clear dominant pattern of leaving BI (cluster 5) or remaining in BI (cluster 6). Rather, there are various different activities, which was already indicated by the negative values of the ASW for these two clusters.

5.3. Leaving BI with part-time work: A path of female recipients

Comparable to cluster 3, cluster 2 ('Part-time leavers') and cluster 4 ('Marginally employed leavers') group together individuals moving out of BI while employed. The part-time-leavers contain almost 10 percent of all sequences. At the end of the observation period of 36 months, only 4.4 percent receive BI; 63 percent have part-time employment and 17 percent full-time employment and do not receive benefits. Note that approximately 50 percent of cluster members are already employed at the time of entry into BI, mainly in part-time employment. The marginal employed leavers cluster groups together only approximately 4 percent of all sequences. After 36 months only 3 percent of them receive BI and are unemployed or inactive, while 60 percent work in marginal employment without benefit receipt.

One notable difference between the members of the 'Leavers' in clusters 3 and 2 or 4 is the gender composition. As one would expect, part-time and marginal employment is mainly observed for women (75.0 percent in cluster 2, 70 percent in cluster 4), whereas they are underrepresented among the full-time leavers of cluster 3 (33.1 percent). This corresponds to differences in

the household structure. The share of single households amounts only to 30.9 percent among the marginal employed leavers in cluster 4, compared to 35.8 percent for cluster 2 and 47.9 percent for cluster 3. Mothers receiving BI predominantly work in part-time or marginal employment because of child-care responsibilities or labour demand restrictions resulting from low qualification levels (Lietzmann, 2014). Concerning age, education and citizenship, the part-time and marginal leavers are a more disadvantaged group than the full-time leavers.

At this point, the following fact should be noted. The cluster analysis uses a sample of inflows into BI, independent of the employment status. More than 40 percent of all individuals in clusters 2 to 4 were working when they received BI for the first time, either in full-time, part-time or marginal employment (see Figure 1). It can be argued, that the household structure as a determinant of benefit receipt is more important for recipients in these clusters in general because they became dependent on BI despite being employed. For the members of these clusters, changes in the household composition or in the employment status of family members should be at least as important for the opportunities to leave BI as their own labour market success.

5.4. Working recipients: BI as an in-work benefit

We find three clusters of recipients who typically stay in the welfare system while being employed (clusters 7, 8 and 10). These three clusters together account for only 13 percent of all sequences. This suggests that low (family) income workers are not a group of high priority among welfare recipients, especially as only 2 percent work in full-time employment (cluster 10, 'Full-time recipients'). Although cluster 10 is the smallest one, the comparison with cluster 3 'Full-time leavers' provides some interesting insights. A large difference between both clusters is the sequence of labour market activities: while recipients of cluster 3 often take up employment after entry into BI, the share of full-time workers in cluster 10 remains almost constant throughout the whole observation period (see Figure 3). This points to the fact that here BI-receipt is not caused by individual unemployment but rather by household size and/or an individual level of earnings, which is not high enough to meet the legally defined minimum income of the family. Consistently, this cluster has the lowest share of single households (16.9 percent) of all clusters and the share of households with children is twice as high as that in cluster 3 (Table 4). Another outstanding difference is the distribution of qualification levels with cluster 10 showing a higher share of recipients without a vocational qualification than in cluster 3.

Approximately 4 percent of all recipients are grouped together in cluster 7, described as 'Part-time recipients'. This cluster is characterised by continuing BI receipt while working in part-time, but some transitions into part-time employment without BI-receipt are also observable. Approximately 44/26 percent of all

TABLE 4. Distribution of individual and household characteristics measured at welfare entry by cluster

	1 Long-term inactive recip.	2 Part-time leavers	3 Full-time leavers	4 Marg. employed leavers	5 Activated full-time leavers	6 Activated recip.	7 Part-time recip.	8 Margin. employed recip.	9 Un-employed leavers	10 Full-time recip.	All
Age (average in years)	40.2	37.1	35.7	39.9	37.5	37.2	41.0	40.4	37.4	38.1	38.4
Age groups (shares in p. c.)											
>=25 and <35 years	36.1	46.1	53.0	36.2	46.8	47.1	28.7	33.2	49.7	41.0	42.4
>=35 and <45 years	27.5	31.5	27.8	29.2	26.6	26.5	33.1	29.8	23.6	32.2	28.2
>=45 and <55 years	24.0	18.3	16.1	23.7	20.9	21.3	29.9	27.0	17.1	22.6	21.5
>=55 years	12.5	4.1	3.1	10.8	5.8	5.1	8.3	10.1	9.5	4.2	7.9
Female (shares in p. c.)	49.7	75.0	33.1	69.7	32.6	35.9	72.1	61.7	45.4	37.2	48.3
Qualification (shares in p. c.)											
No vocational qualication	33.6	14.9	9.1	23.7	12.2	19.3	22.5	28.0	28.3	24.5	22.1
Vocational qualication	54.7	70.3	69.2	65.4	72.0	67.6	68.8	65.3	59.8	69.0	63.8
Tertiary degree	9.8	14.2	21.2	9.2	15.8	12.8	6.9	6.4	11.1	4.6	13.0
Household structure (shares in p. c.)											
Single person	47.4	35.8	47.9	30.9	56.2	52.3	30.6	42.4	50.0	16.9	45.2
Couple without children	15.2	15.3	17.5	19.0	13.4	15.3	16.4	15.3	16.0	23.4	16.0
Couple with children aged >=18 years)	2.3	2.9	3.1	6.3	2.0	1.3	2.9	1.8	2.7	0.4	2.5
Couple with 1 child	9.2	11.9	14.5	14.3	10.6	10.8	12.1	10.3	11.7	25.7	11.7
Couple with 2 children	7.1	7.3	7.6	12.9	7.9	6.9	8.7	7.6	7.1	13.8	7.7
Couple with 3 or more children	4.2	3.2	2.7	4.3	2.2	2.8	2.9	3.8	2.7	6.5	3.4
Single parent with 1 child	7.8	13.4	3.5	4.5	4.0	5.6	14.3	10.1	5.4	8.4	7.2
Single parent with 2 children	3.6	5.9	1.5	3.7	2.0	3.6	6.6	4.0	1.4	2.7	3.3
Single parent with 3 or more children	1.2	1.3	0.4	1.8	0.2	0.4	1.4	2.3	0.8	0.4	1.0
Other	2.2	3.1	1.4	2.3	1.6	0.9	4.2	2.5	2.2	1.9	2.1
German citizenship (shares in p. c.)	72.9	83.2	87.8	79.4	83.0	80.7	81.4	74.6	80.5	72.4	79.5
N	4,281	1,227	2,873	489	954	914	519	904	368	261	12,790

Source: Own calculations based on ADMINP and IEB 2012.

sequences end with part-time employment while receiving BI/without receiving BI. Again, this part-time cluster is also predominantly composed of female recipients (72.1 percent) and contrasts sharply with both full-time clusters in this aspect. Compared to their part-time counterparts in the leavers-cluster (cluster 2), individuals of cluster 7 accumulate more unfavourable characteristics concerning age and education.

Marginal employment bears the highest risk for employed recipients to stay in BI. As one would expect, cluster 8, labelled 'Marginally employed recipients', is the largest cluster among the working recipient clusters. It comprises 7.1 percent of all sequences. Recipients are often employed at the beginning of BI-receipt, and the share of marginally employed recipients remains almost constant between the beginning and the end of the observation period (see Figure 3). The group has the second highest share of recipients without a vocational qualification of all clusters (28 percent). They are also relatively old on average, and we can observe a higher share of recipients without German citizenship. The composition indicates labour demand restrictions resulting from the low qualification level and factors associated with a higher age and a foreign citizenship emerge more clearly for this group.

5.5. Unknown exits

The final cluster is cluster 9, 'Unemployed leavers', which stands out with an atypical path out of BI. The cluster members mainly become or stay unemployed, but leave BI without taking up employment. Another important way out of BI for the members of this cluster is the transition out of BI to the state 'Other', which absorbs various possible states we are not able to observe with our data, e.g. transitions into the pension system. At the end of the observation period, 54 percent of all sequences end with unemployment without BI-receipt and 19 percent with the state 'Other' without BI-receipt. The strong decrease in the share of BI-receipt of unemployed or inactive recipients during the first 6 months (see Figure 3) suggests that for some cluster members, BI-receipt is only temporary, and they potentially wait for other income, e.g. housing benefits or pensions. Because of the variety of potential reasons for these two dominant paths, no clear picture concerning the composition of the cluster members emerges.

6. Discussion and conclusion

This study analyses employment and benefit trajectories of Basic Income benefit (BI) recipients by methods of sequence analysis and contributes to the international literature on welfare dynamics by providing a differentiated picture of paths through the means-tested basic income system after the reorganisation of the welfare system in Germany in 2005.

We find ten typical employment trajectories, while two polarised groups dominate. One in three new recipients remains in BI for the next three years

and shows almost no employment activity or participation in ALMP measures. This is obviously the most problematic group in terms of labour market integration. Classical activation policies are not able to successfully address this more or less inactive group of older, low-qualified, long-term unemployed recipients. This result can be partly attributed to the broadening of the concept of unemployment, which means that people who are not able to take up work directly also enter the benefit system. For this group either an early intervention with qualification measures or programmes that secure their social participation through subsidized employment might be appropriate. This group may also be increasingly affected by social and health problems requiring non-classical labour market policies. The challenge is to offer these services in close cooperation with other organisations, such as local family institutions or health insurance companies.

However, we also find that approximately 23 percent of all new recipients leave BI soon after entry and work in regular full-time employment. These recipients are often well-qualified younger men, while among women exits from benefit receipt with part-time employment are more common. Between this dichotomy of labour-market insiders and outsiders, we find a variety of other different paths through BI that require different political strategies. One group between the two poles are those with rather long periods of benefit receipt accompanied by various labour market activities. They range from occasional participation in ALMPs and temporary employment via more stable marginal and part-time employment to full-time employment with parallel benefit receipt. For those who are cycling between benefit receipt, temporary ALMP or temporary employment, it might be more appropriate to invest in recipients' human capital to enable more stable and substantial labour market integration.

In the case of already employed recipients who receive benefits as a permanent in-work benefit other aspects have to be taken into account. First, one must recognise that benefit receipt while being employed might be a result of low wages, which cannot be influenced directly. One option is to provide further job-search assistance and offer in-work qualification to enable upward mobility. Second, part-time employment, which is overwhelmingly undertaken by women, might be a result of child-care obligations and time constraints. In this instance, further job-search assistance should be combined with advice and assistance to organise external child care in order to enable longer working hours. Whereas the provision of child care is beyond the scope of labour market policy and quality, quantity and affordability of care must be negotiated with national and local family policy institutions. The same applies for the activation of a second earner within the family. Third, if benefit receipt is caused by the partner's unemployment, caseworkers have to decide which partner they focus on. Ideally, they would consider both in order to avoid gender-stereotypical activation.

All in all, the German system is an example for recent trends in the provision of unemployment protection following the triple integration. Its

shortcomings can be highlighted from an 'active inclusion' perspective. This principle includes adequate income support, activation measures including both incentives as well as enabling policies and access to quality services (Marchal and Van Mechelen, 2017). Our results highlight that the heterogeneous groups of recipients in the German BI-system and their paths in and through BI require policies that go beyond activation and work-first policies. Activation should be accompanied by investments in human capital and future careers as well as upward mobility policies.

Our results also have implications for the organisation and quality of services. The organisation as a one-stop shop for different groups seems to be adequate to respond to heterogeneity (Heidenreich and Aurich-Beerheide, 2014; Van Berkel, 2009). Furthermore, close interaction and networks with local institutions providing social, health and family services are required. This has been identified as a weakness of the German system. There are deficits and a high variation in the coordination with local providers of services (Heidenreich et al., 2014; Künzel, 2012). In addition, private provision of services and marketisation as well as centralised new public management strategies might be a challenge of service provision (Van Berkel, 2009) and in Germany lead to a focus on recipients closer to the labour market (Heidenreich et al., 2014).

Notes

1 As a robustness check we also used sample specific substitution costs based on the frequency of transitions from one state to another in the given data set (Aisenbrey and Fasang, 2010). The main substantial clusters of trajectories are found in both specifications.

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Appendix

TABLE A1. Distribution of individual and household characteristics measured at welfare entry by subsample

	Original inflow sample	Subsample for sequence analysis	Subsample inflows 2007	Subsample inflows 2008	Subsample inflows 2009
Age (average in years)	38.4	38.4	38.9	38.4	37.8
Age groups (shares in p. c.)					
>=25 and <35 years	42.2	42.4	39.9	42.3	45.3
>=35 and <45 years	28.5	28.2	28.8	28.8	27.1
>=45 and <55 years	21.6	21.5	22.9	20.8	20.4
>=55 years	7.7	7.9	8.4	8.1	7.2
Female (shares in p. c.)	47.6	48.3	49.8	49.3	45.6
Qualification (shares in p. c.)					
No vocational qualification	22.8	22.1	21.2	23.3	22.1
Vocational qualification	63.0	63.8	64.4	63.2	63.8
Tertiary degree	13.2	13.0	12.3	12.9	13.7
Household structure (shares in p. c.)					
Single person	44.8	45.2	43.5	44.5	47.6
Couple without children	16.3	16.0	15.9	15.3	16.7
Couple with children aged >=18 years)	2.5	2.5	2.5	2.7	2.4
Couple with 1 child	11.7	11.7	11.4	12.2	11.5
Couple with 2 children	7.7	7.7	8.5	7.5	7.1
Couple with 3 and more children	3.7	3.4	3.7	3.5	3.2
Single parent with 1 child	7.0	7.2	7.5	8.0	6.0
Single parent with 2 children	3.3	3.3	3.7	3.1	3.0
Single parent with 3 and more children	1.0	1.0	1.0	1.2	0.8
Other	2.1	2.1	2.4	2.1	1.6
German citizenship (share in p. c.)	79.3	79.5	80.7	78.7	78.8
N	63,611	12,790	4,726	3,824	4,240

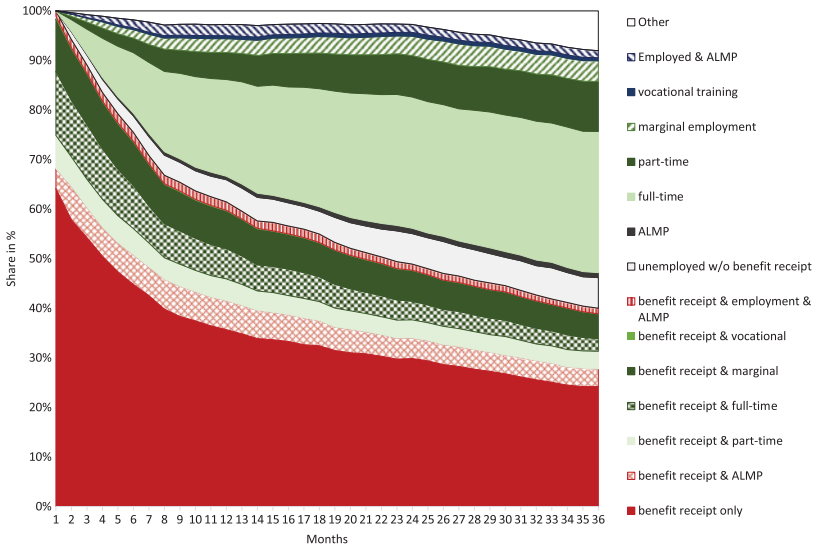Source: Own calculations based on ADMINP and IEB 2012.

Figure A1. Shares of labour market activities per month starting with the first BI spell. Source: Own calculations based on ADMINP and IEB 2012.
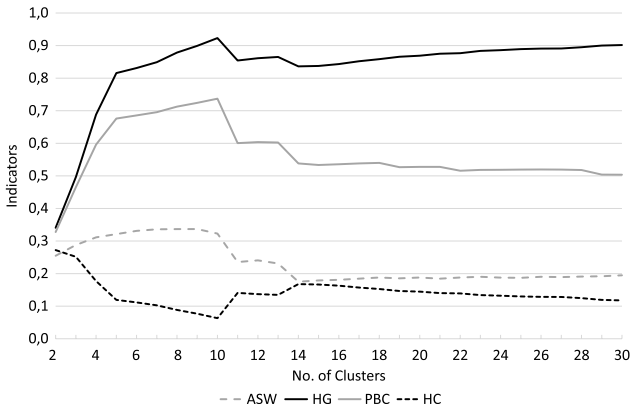
Figure A2. Cluster cut-off indicators.
Notes: ASW = Average Silhouette Width, HG = Hubert's Gamma, PBC = Point Biserial Correlation, HC = Hubert's C.
Source: Own calculations based on ADMINP and IEB 2012.

TABLE A2. Quality of partition – ASW by cluster

Cluster	ASW
1	0.4864
2	0.1825
3	0.4237
4	0.2712
5	−0.0375
6	−0.1327
7	0.2524
8	0.2528
9	0.3087
10	0.6233

Note: ASW stands for Average Silhouette Width.
Source: Own calculation based on ADMINP and IEB 2012.

TABLE A3. Distribution of total observation time (36 month) on different labour market states by cluster (in months)

Labour Market State		1	2	3	4	5	6	7	8	9	10	All
with benefit receipt	A1 Unemployed or inactive (benefit receipt only)	27.7	3.4	2.7	5.2	8.8	11.0	3.0	4.3	6.7	1.8	12.5
	A2 Participating in active labour market policies (ALMP)	2.5	0.6	0.5	0.4	1.9	6.8	0.5	1.2	0.6	0.4	1.8
	A3 Full-time employment	0.3	0.9	3.0	0.2	1.4	3.5	2.2	1.0	0.4	28.5	2.0
	A4 Part-time employment	0.4	2.9	0.2	0.2	0.2	0.4	21.5	1.3	0.3	1.0	1.5
	A5 Marginal employment	1.5	1.0	0.6	3.0	0.9	0.8	0.9	20.7	0.4	0.7	2.5
	A6 Vocational training	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.1
	A7 Employment and ALMP	0.4	0.3	0.2	0.2	0.7	1.2	0.9	1.8	0.1	0.5	0.5
without benefit receipt	B1 Unemployed	0.8	1.0	1.1	1.6	3.6	2.5	0.5	0.4	18.2	0.2	1.7
	B2 Participating in active labour market policies (ALMP)	0.1	0.2	0.2	0.2	1.6	0.5	0.1	0.1	1.2	0.1	0.3
	B3 Full-time employment	0.4	4.3	25.5	1.6	11.3	2.8	0.5	1.4	1.4	2.7	7.6
	B4 Part-time employment	0.3	19.0	0.2	1.0	0.5	0.4	5.3	0.9	1.1	0.1	2.4
	B5 Marginal employment	0.1	0.7	0.3	19.0	0.5	0.3	0.2	1.8	0.9	0.1	1.1
	B6 Vocational training	0.0	0.1	0.0	0.2	0.0	2.6	0.0	0.0	0.1	0.0	0.2
	B7 Employment and ALMP	0.3	0.4	0.4	0.5	3.4	0.5	0.1	0.6	0.4	0.0	0.5
	B8 Other	1.1	1.1	1.0	2.8	1.1	2.2	0.3	0.5	4.2	0.0	1.2

Source: Own calculations based on ADMINP and IEB 2012.

TABLE A4. Multinomial logit model, marginal effects

Variables	Cluster 1 Long-term inactive recipients	Cluster 2 Part-time leavers	Cluster 3 Full-time leavers	Cluster 4 Marginally employed leavers	Cluster 7 Part-time recipients	Cluster 8 Marginally employed recipients	Cluster 10 Full-time recipients
Personal characteristics							
Age (Ref.: 35-44 years)							
25-34 years	−0.051**	0.005	0.043***	−0.003	−0.015*	−0.014	−0.001
45-54 years	0.065***	−0.025**	−0.076***	0.000	0.009*	0.017**	0.003
>=55 years	0.209***	−0.052***	−0.194***	0.014*	0.006	0.026*	−0.008
Female (ref.: Male)	0.009	0.097***	−0.117***	0.035***	0.032***	0.036***	−0.012***
Foreign citizenship (ref.: German citizenship)	0.080***	−0.015	−0.079***	−0.000	−0.005	0.021***	0.003
Qualification (Ref.: No vocational qual.)							
Vocational qual.	−0.202***	0.040***	0.126***	0.002	0.002	−0.009	0.002
Tertiary degree	−0.241***	0.041***	0.243***	−0.004	−0.016*	−0.045***	−0.010*
Household structure							
Type of household (Ref.: Single)							
Couple w/o children	−0.096***	0.015*	0.075***	0.014*	0.008	−0.011	0.025***
Couple w/ children >17 years	−0.139***	0.040*	0.160***	0.049**	0.004	−0.035***	−0.004
Couple w/ children <18 years	−0.111***	0.019*	0.048***	0.029***	0.020***	−0.003	0.030***
Single parent	0.001	0.033***	−0.067***	−0.006	0.033***	0.017	0.021**
Other	−0.095***	0.042*	0.079*	−0.005	0.019	−0.011	0.011
Children < 4 years in hh. (Ref.: No children < 4 years in hh)	0.097***	−0.019*	−0.023	−0.010	−0.011*	−0.009	−0.001
Regional information							
Eastern Germany (Ref.: Western Germany)	−0.022	0.009	0.036	−0.008	0.004	−0.017*	0.013*
Unemployment rate	0.011***	−0.003*	−0.009***	−0.001	0.001	0.002*	−0.001
Rent index	0.011***	0.000	−0.008*	−0.004**	0.002	0.000	0.003*

Notes: Marginal effects based on regression results of a multinomial logit model for 10 cluster categories and 12,036 observations. The results for clusters 5, 6 and 9 are omitted in the table. Year dummies are included. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.
Source: Own calculations based on ADMINP and IEB 2012.