What drives the Welfare Agency Duration of Social Assistance Beneficiaries: Population Composition, Municipality Characteristics or Policy Choices?
A Multilevel Event History Analysis for Belgium

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Abstract

Minimum income schemes are traditionally the most decentralised schemes of the welfare state. It is a pivotal question in literature how much decentralisation is needed and how the trade-off between equity and efficacy in decentralised schemes should be solved. In this paper we examine, firstly, the magnitude of local welfare agency variation in the duration in social assistance for Belgium. Secondly, we investigate whether composition effects, municipality characteristics (i.e. the socio-economic context and the municipality size) or the welfare agency policy (i.e. the activation rate and the generosity level) account for this variation. We study the duration of the first episode on the basis of a unique representative sample of 14270 individuals in 574 welfare agencies. The individuals are aged 18 to 64 and entered social assistance in 2004. We follow their careers in social assistance over two years. We use multilevel discrete-time event history analysis to disentangle the impact of the individual and the welfare agency level characteristics. We find substantial variation in the median welfare agency duration ranging from 2 to more than 24 months. Of the total variability in the probability to leave social assistance 9% can be attributed to the welfare agency level. The variation in duration is predominantly due to the effects of the population composition, and the activation rate. The municipality size and the generosity level do matter, but are minor determinants of the variability in duration.

Introduction

In nearly all European states non-contributory minimum income schemes exist for the able bodied at working age (Eardley et al., 1996a; Frazer & Marlier, 2009), which play an important role in poverty reduction (Behrendt, 2000; Sainsbury & Morissens, 2002). Minimum income schemes are traditionally the most decentralised schemes of the welfare state, rooted in ancient poor relief (Ferrera, 2005).

A key question in literature is how much decentralisation is needed in minimum income schemes. How should policy responsibilities (legislation, administration and funding) be allocated between government levels (Kazepov, 2010; Van Berkel et al., 2011)? The theory of fiscal federalism (Oates, 1972; Oates, 1999; Boadway & Shah, 2006) states that schemes are optimally designed at a high level. This offers benefits of scale, spreads risks, prevents regional concentration of claimants, and a 'race to the bottom' in social spending (Tiebout, 1956; Oates, 1972; Peterson, 1995). The policy implementation is optimally done by (competitive) local governments (Inman & Rubinfeld, 1997), which are best informed on the local needs and motives. The funding power should be a shared. The central government can correct for inequalities in needs or costs between municipalities (Inman & Rubinfeld, 1997). Both the activation and the new public management literature argue stronger in favour of the (partial) decentralisation of legislative, administrative and funding power (Greffe, 2003; Van Berkel & Borghi, 2008). More decentralisation reflects better the local preferences, improves tailoring to the local labour market situation and the claimants (Lundin & Skedinger, 2006), allows stronger partnership building, stimulates innovation and policy learning, and advances resource targeting (Nativel et al., 2002; Giguère, 2003; Greffe, 2003; Pollitt, 2005). However, evidence on the welfare agency level outcomes of minimum income schemes with varying degrees of centralisation to assess the equality of outcomes in decentralised schemes lacks, as the local dimension of social policies has long been neglected (Meyers, 1998; Finn, 2000; Powell & Boyne, 2001; Saraceno, 2002; Sunley et al., 2005; Kazepov, 2010). The rare empirical evidence in other policy fields shows a trade-off between justice and local autonomy (Powell & Boyne, 2001): Decentralisation can lead to increased efficiency and responsiveness, but it involves also some loss of equity (Politt, 2005) (i.e. equality of treatment or of outcomes).

In this paper we study the variation by welfare agencies and its determinants regarding a major outcome of the Belgian social assistance scheme, namely the duration of the first episode on social assistance or the probability to leave social assistance over time. As transitions towards the labour market are the major way out of social assistance, when we study the variation in the probability to leave social assistance over time, we assess roughly the equality over welfare agencies in terms of labour market integration opportunities or upward social mobility. The duration of an episode is also intrinsically informative as longer episodes on social assistance may be more detrimental with regard to well-being and may have more scarring effects on future life chances. Furthermore, longitudinal research informs the thinking about and the development of anti-poverty strategies (Jenkins, 2011).

The paper follows a three-fold strategy. Firstly, we document the variation by welfare agencies in the duration on social assistance. Secondly, we examine how much of the total variability can be attributed to the welfare agency level. Thirdly, we investigate whether this variation is due to the population composition (i.e. the characteristics of the claimants), the municipality characteristics (i.e. the socio-economic context and the municipality size), or the welfare agency policy (i.e. the generosity and the activation policy). We study the probability

to leave social assistance over a period of two years for a representative sample of 14270 Belgian individuals who entered social assistance in the course of 2004. We use discrete-time multilevel event history analysis to assess the impact of the various individual and municipality-level drivers. Belgium is an interesting country to study the outcomes of a decentralised scheme for various reasons: the social assistance scheme is medium to highly decentralised with local variation in the generosity and the activation policy, the local entities vary in size, the country encompasses heterogeneous socio-economic contexts, and it disposes of rich longitudinal data to international standards on social assistance uptake.

The outline of the paper is as follows. The first section covers a review of the literature and sets out hypotheses which may account for local variation in duration. The second part describes the design of the social assistance scheme. In the third section we deal with the data and the methodology used. The fourth section presents the results. In the last chapter we summarize and discuss the findings and present the limitations of the study.

1. Literature Review and Hypotheses

The research tradition that studies social assistance dynamics[1] tests the duration dependency and the heterogeneity theses. The duration dependency theory predicts that the likelihood of beneficiaries to exit social assistance decreases as their episode becomes longer. The time on social assistance as such influences their probability of leaving due to the depreciation or stagnation of human and job-specific capital, and the negative signalling effect for employers of welfare recipiency. The heterogeneity hypothesis argues that claimants differ in their employability due to personal and household characteristics. Evidence for both statements is found (Bane & Ellwood, 1994; Dahl & Lorentzen, 2003). When studying local variation, the heterogeneity thesis considers the composition effect, i.e. the impact of differentiated social assistance populations. The duration dependency theory covers the effect of staying on the minimum income scheme, for which we expect no variation between welfare agencies.

This literature has been criticized for neglecting institutional determinants, namely the design and the governance of the scheme. Key design elements are the generosity level, the possible benefit duration, and the activation efforts. With regard to the generosity level, the standard job search theory (Cahuc & Zylberberg, 2004) states that a more generous benefit is likely to raise the reservation wage and to reduce the search effort, entailing a longer duration. This theory is empirically well established (Atkinson & Micklewright, 1991(for the unemployment insurance); Fortin, Lacroix & Drolet (2004); Lemieux & Milligan (2008) (for welfare in Canada); Moffit (2002) (for welfare in the USA)), although the magnitude of the effect is not always substantial. We contrast this hypothesis with the less popular assisted equilibrium thesis. A low benefit level may be insufficient to survive, so that beneficiaries start working in the informal economy and look for a precarious assisted equilibrium (Gustafson et al., 2002). Another argument for a higher chance to leave with more generosity is that economic deprivation hampers a claimant's probability to start working due to for example mental health difficulties (Hammer, 1999). Secondly, concerning the possible benefit duration, the job search theory expects a longer duration when the possible benefit duration is longer. Empirical evidence for the unemployment insurance (Lalive & Zweimüller, 2004; Van Ours & Vodopivec, 2006 confirms this thesis. However, possible benefit duration is unlimited in time for social assistance everywhere in Belgium. Finally, regarding the activation intensity, we expect a positive effect of counselling and monitoring of job search effort on the probability to leave (Boone et al., 2001; Engström et al., 2009).

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Regarding the governance, we contrast two types of arguments within the literature. Some authors within fiscal federalism predict that agencies in relatively small communities are more likely to provide services efficiently (Inman & Rubinfield, 1997). By contrast, others state that agencies in small municipalities may have less institutional capacity (De Vries, 2000; Prud'homme, 1995; Pollitt, 2005:379) to empower beneficiaries and to help them to find a suitable job than agencies in bigger communities. Dahl & Lorentzen (2003) do not find a significant effect of the municipality size when studying the exit to work for the 1995 entry cohort in Norway.

Furthermore, also the socio-economic context of the municipalities of the welfare agencies may have an effect on the probability of leaving social assistance. Hoynes (2000) and Van der Klauw & Van Ours (2001) report a substantial to important effect of the local labour market conditions and the economic cycle (Hoynes, 2000), and a differential effect for individuals in line with their characteristics (Hoynes, 2000; Hansen, 2008; Van der Klauw & Van Ours, 2001).

In summary, the welfare agency variation in the duration in social assistance in Belgium can be due to five types of determinants (see Table 1), namely the population composition, the municipality size, the socio-economic context, the generosity level, and the activation policy. We identify only five determinants as we do not expect the duration dependency to vary across welfare agencies, and the possible benefit duration presents no variation in Belgium.

Table 1: Hypotheses for welfare agency variation in duration

Entity	Thesis	Formulation
Individual characteristics	Heterogeneity	Probability to leave welfare depends on individual characteristics
Welfare agency policy	Activation intensity	Higher chance to leave if the activation effort is higher
	Generosity level	Job search theory: Less chance to leave if the generosity level is higher
		Assisted equilibrium and economic deprivation theses: Higher chance to leave if the generosity level is higher
Municipality characteristics	Municipality size	More chance to leave in small municipalities
		Institutional capacity: Less chance to leave in small municipalities
	Socio-economic context	Higher chance to leave if the socio-economic context is better

Source: Authors' compilation

2. The Belgian Social Assistance Scheme

In Belgium, the social assistance scheme is the last financial safety net for able-bodied persons at working age. The entitlement is regulated by a household-based means-test. The scheme exists in addition to other categorical social assistance schemes (e.g. for persons with a handicap or elderly). In Belgium the unemployment benefits are unlimited in time in principle. Consequently, the long-term unemployed are not found in social assistance, and the minimum income scheme fulfils a very residual role. Furthermore, school leavers can, after a waiting period, benefit from a flat-rate unemployment benefit. By contrast, needy full-time students who enhance their labour market chances, and are aged between 18 and 25, can also apply for the minimum income benefit. In June 2005 1.7 % of the population at working age

was entitled to the minimum income benefit. To European standards, this is a low percentage (Carcillo & Grubb, 2006).

The Belgian social assistance scheme is moderately to highly decentralized (Eardley, 1996b; Saraceno, 2002; Hölsch & Kraus, 2004; Van Mechelen & De Maesschalck, 2009; Kazepov, 2010), both in terms of minimum income protection and activation[2]. It is a shared competence of the federal state and the 589 local welfare agencies (one in each municipality). Welfare agencies are autonomous organizations under public law, governed by politically composed local councils. The federal government lays down the national statutory framework (Eardley et al., 1996b). Local welfare agencies administer the federal legislation and take supplementary initiatives on the local budget in line with the local needs to ensure human dignity for every citizen. Eligibility to the minimum income benefit is regulated by two Acts, namely the Social Integration Act and the Societal Help Act. These acts distinguish between beneficiaries in terms of a combination of nationality and residence status criteria[3]. Generally spoken, the Societal Help Act covers the more recent immigrants. The beneficiaries are supposed to be disposable for work under both acts, except when exempted from this condition due to health or equity reasons. The benefit amount is the same under both acts, but activation efforts are legally concentrated on those under the Social Integration Act with a more durable connection with Belgium. Both Acts are funded by selective matching grants (Bird et al., 2003) by the federal state, but the reimbursement percentage differs. The Social Integration Act benefit is paid 50% by both the federal state and the agencies. When the municipality has a high number of beneficiaries, the federal payment increases, with a maximum of 65% of reimbursement. The Societal Help Act benefit is fully funded by the federal state. The federal subsidies for the participation of claimants in seven active labour market programmes targeted to social assistance beneficiaries are the same for all welfare agencies. They cover mainly subsidies for private sector employment and direct job creation in the public and non-profit sector. Another cost equalising mechanism to balance varying needs (Blöchliger & Charbit, 2008) besides of the increased reimbursement for the social integration act benefit, is a subsidy for activation efforts in cities. It applies to municipalities with more than 40000 inhabitants, entitled to the heightened reimbursement for the social integration act benefit, and having an above average number of beneficiaries in active labour market programmes.

Local discretion regards especially the generosity and the activation policy. Variation in generosity covers both unconditional cash transfers and reimbursements for specific expenditures, for example health care costs. The variation in the activation policy encompasses counselling, monitoring of job search, sanctioning, and profiling towards training and active labour market programmes. We refer to Table 4 (see further) for an assessment of the range of variation in policy between agencies.

The municipality of the main residence according to the real living situation is responsible[4] for benefit entitlement. Consequently, beneficiaries cannot choose their welfare agency, and the competition between agencies is rather limited. If beneficiaries want to change agency, they need to move to another municipality.

3. Data and Methodology

We use administrative longitudinal individual-level data for a sample of 14270 Belgian social assistance beneficiaries within 574 welfare agencies. The beneficiaries entered the scheme in

the course of 2004, are aged 18 to 64, and did not receive any social assistance in the preceding period of one year and one quarter. Their careers in social assistance are followed over two years, starting from their personal entry time. The sample is a subpopulation of a proportionally stratified sample without replacement of the stock population on 1 January 2004 and the inflow in 2004 and 2005, stratified by sex, age, legislation, province, and municipality size[5] with a fixed sample fraction of one third. The data cover non-negative payment records between the federal administration and the welfare agencies from the Belgian Crossroads Bank for Social Security[6]. 11 persons with missing sex and 79 persons without nationality group have been dropped.

We examine a key outcome of the social assistance scheme, namely the duration of the first episode or the probability to leave over time. The duration is calculated including breaks of one month. Those breaks are the most frequent[7] and are likely to represent administrative realities.

With regard to defining mutually exclusive states regarding work and welfare (cf. Cappellari & Jenkins, 2008) we lack monthly data on work other than the federal activation programmes. As a result, if beneficiaries combine a federal activation programme for social assistance beneficiaries with a complementary minimum income benefit their episode is considered to be ended. By contrast, if someone works in another job and they still receive a complementary minimum income benefit, they are still counted as claimants as we cannot sort them out.

To gauge the magnitude of local variation in duration, we explore between-municipality variation for the municipalities having at least 20 beneficiaries in our sample. After that, we use two methods to unravel the drivers of variation. We inspect hazard functions by municipality characteristics, and we do discrete-time multilevel event history analysis[8] to estimate the effects of individual- and municipality-level characteristics on the exit probability over time. While the former procedure shows the raw scores, the latter sorts out the effect of a variable, controlling for other characteristics, while restraining the baseline hazard function. We use multilevel event history to account for right-censoring[9], the hierarchical structure of the data, and unobserved heterogeneity. Multilevel analysis enables to account for non-independency of observations (beneficiaries in the same municipality may have more similar outcomes), to investigate the nature of between-municipality variability and the effects of municipality-level characteristics on an individual outcome, and to account for unobserved heterogeneity at individual level by introducing a random effect[10]. The latter is important as not controlling for unobserved heterogeneity may overestimate negative duration dependency. It means that we account for unobserved characteristics such as e.g. motivation, personality or intrinsic beauty. The multilevel model covers three classifications, namely person-periods nested within individuals who are cross-classified in welfare agencies. The highest classification is cross-nested (Rasbash, 2008) as persons can belong to more than one welfare agency during their trajectory. We do event history analysis to analyse the timing of an event, namely leaving social assistance. We use a logit link function to model the hazard function. A sensitivity analysis, which covers the same analysis for beneficiaries without a change of welfare agency over time, and for all beneficiaries for the welfare agency at entry is done to check the robustness of the results of the cross-classified model. To identify the part of the variation in leaving probability which can be attributed to the welfare agency level, we calculate the variance partitioning coefficient (VPC).

The following individual-level variables are included to gauge the composition effect: sex, age, nationality at birth[11], naturalisation, being a full-time student[12], the work intensity in

Belgium since 1999, and having at least one change in welfare agency[13]. Age, naturalisation, and being a student are time-varying variables. Unfortunately, we lack data on the highest educational level obtained. Therefore, we include the labour market history. It is counted as the number of quarters beneficiaries have legally worked (not taking into account student jobs) in Belgium in their last five years divided by the number of quarters in five years. The calendar time quarter is a time-varying control variable. The continuous covariates are centred.

At welfare agency level, we investigate the impact of the municipal unemployment rate, the municipality size, the activation rate, and the generosity level. The unemployment rate, and the municipality size are time-varying. The agency level data are collected from various sources, calculated as shown in Table 2. All agency level data are categorical due to privacy restrictions. Inconveniences of the generosity indicator, the best available indicator, are that we do not take into account that welfare agencies spend a (variable) part of their budget on inhabitants which are not entitled to the minimum income benefit, the needs of the beneficiaries in different municipalities may vary, and the allocation of supplementary benefits can diverge strongly between beneficiaries within the same municipality. Regarding the activation policy, we test the effect of the welfare agency participation rate by all beneficiaries (not only entrants) in the course of the year in the seven federal active labour market programmes targeted at social assistance beneficiaries. We use this indicator as we do not dispose of both welfare agency level data on the presence and intensity of job search monitoring and counselling, on sanctioning, or the number of proposals to participate in the federal active labour market programmes, and individual level data on job search. Although beneficiaries can start to work by other means (e.g. interim work or a regular job)[14], and we cannot separate the policy from its outcomes, we use this measure as a proxy that captures the effort done by the agency to integrate beneficiaries into the labour market. The unemployment rate is used as a proxy for the socio-economic context. The welfare agency policy indicators are not time-varying due to reasons of data availability a   nd data consistency.

Table 2: Data sources and calculation of the municipality-level indicators

Indicator	Data Sources	Calculation
Number of inhabitants	Population Register January 2004-2006	Number of inhabitants in the municipality
Unemployment rate (%)	Local Employment Accounts 2004-2006	Yearly mean of the share of the workforce (aged 15-64) that is jobseeker and non-working
Generosity level (€) (average amount per beneficiary per year)	Dexia Survey – Welfare agency Accounts 2004, Flemish Agency for Interior Policy – Welfare Agency Accounts	Total budget for cash or in-kind supplementary benefits per agency divided by the total number of beneficiaries per year in the agency
Activation rate (%)	Social Integration Administration data 2004	The number of unique beneficiaries in the course of the year, participating in one of the federal activation measures in the agency, divided by the number of all unique beneficiaries in the course of the year in the agency

Source: Authors' compilation

Before moving on to the results, we sketch the characteristics of the beneficiaries and municipalities. As Table 3 shows, half of the beneficiaries are women, and half are men. Regarding age, nearly half of the beneficiaries are aged between 25 and 44. More than one third is younger than 25. Concerning the nationality at birth, less than 50% of the beneficiaries

are born in Belgium. For the non-natives, the non-EU born constitute the major group. One out of four is naturalised. Nearly 60% of the beneficiaries has never worked in Belgium during the last five years. 15% of the beneficiaries are students. One out of ten has changed welfare agency at least once during the observed period. Table 4 presents the characteristics of the 572 welfare agencies of the beneficiaries at entry[15]. Regarding the municipality size, nearly three out of four municipalities have less than 40000 inhabitants. Municipalities' size in the sample ranges between about 1000 and 450000 inhabitants. Two thirds have an unemployment rate under 10%. The same holds for the activation rate. Concerning the generosity, half of the agencies attribute on average less than 500€ per year per beneficiary. 23% allocates between 500 € and 1000€.

Table 3: Socio-economic characteristics of the beneficiaries at entry (N=14270)

Sex	Percentage
Man	49.8
Women	50.2
Age	
18 - 24	36.5
25 – 44	46.3
45 and more	17.2
Nationality at birth	
Belgian nationality	47.3
EU nationality	13.2
Non-EU nationality	38.3
Unknown nationality	1.2
Naturalisation	
No	75.5
Yes	24.5
Working intensity in Belgium over the last five years	
0%	57.2
1 - 50%	28.0
51 - 75%	6.4
75 - 100%	8.4
Student	
No student	85.4
Student	14.6
Welfare agency change over the observed period	
No agency change	90.5
At least one agency change	9.5

Source: Data Warehouse Labour Market and Social Security, own calculations

Table 4: Welfare agency characteristics at entry (N=572)

Municipality size	N (Beneficiaries)	N (Agencies)	% (Agencies)
<10000 inhabitants	1346	238	41.6
10000 - 19999 inhabitants	2729	199	34.8
20000 - 39999 inhabitants	3073	100	17.5
40000 - 99999 inhabitants	3432	27	4.7
10000 inhabitants and more	3690	8	1.4
Municipal unemployment rate (quintiles)			
< 5.7%	783	114	19.9
5.7 - 7.4 %	1525	116	20.3
7.5 - 10.3 %	1767	112	19.6
10.4 - 13.6 %	1856	115	20.1
> 13.6%	8839	115	20.1
Activation rate			
< 10%	7471	336	58.7
≥ 10% & < 20%	6146	191	33.4
≤ 20%	653	45	7.8
Generosity level (average amount per year per beneficiary)			
< 500 €	9968	283	49.5
≥ 500 & < 1000 €	2507	128	22.4
≥ 1000 & < 2000 €	551	54	9.4
> 2000 €	188	21	3.7
Unknown	1056	86	15.0

Source: Data Warehouse Labour Market and Social Security, own calculations
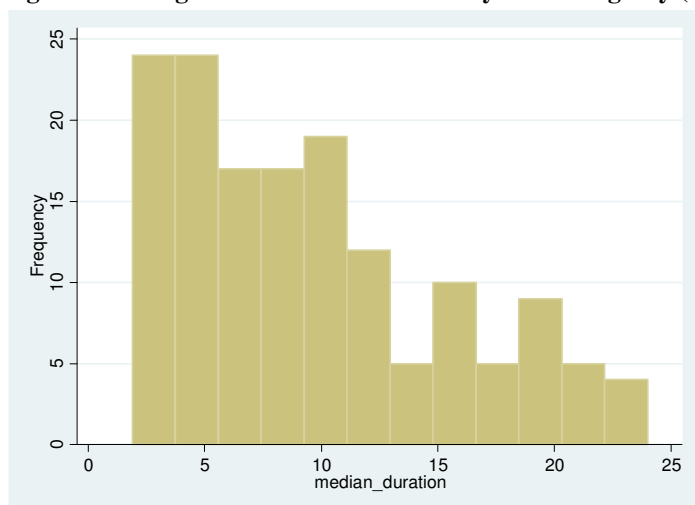
4. Results

Firstly, we present the raw scores of the variation in duration in the first episode on social assistance. Secondly, we look into the hazard functions by municipality characteristics. Thirdly, we make use of a more systematic approach to filter the effect of drivers, controlling for other variables, and we assess the relative importance of the drivers in explaining the variation.

4.1. Variation in the Duration by Welfare Agencies

The overall median duration of the first episode in social assistance for Belgian beneficiaries is 7.9 months, which is a medium turnover rate in an international perspective (Gustafson et al., 2002)[16]. 61% have left social assistance within one year. 22% continue to receive benefits for more than two years. We find a huge variation in the median duration of episodes in social assistance between welfare agencies[17]. The minimal median duration is two months while the maximum median duration is at least 24 months. Five municipalities have a median duration that is higher than 24 months, which could not be calculated as we only observe beneficiaries over 24 months. The standard deviation is 5.7 months, while the mean of the welfare agencies median durations is 9.7 months. The distribution of median durations is however skewed to short durations, as shown in Figure 1.

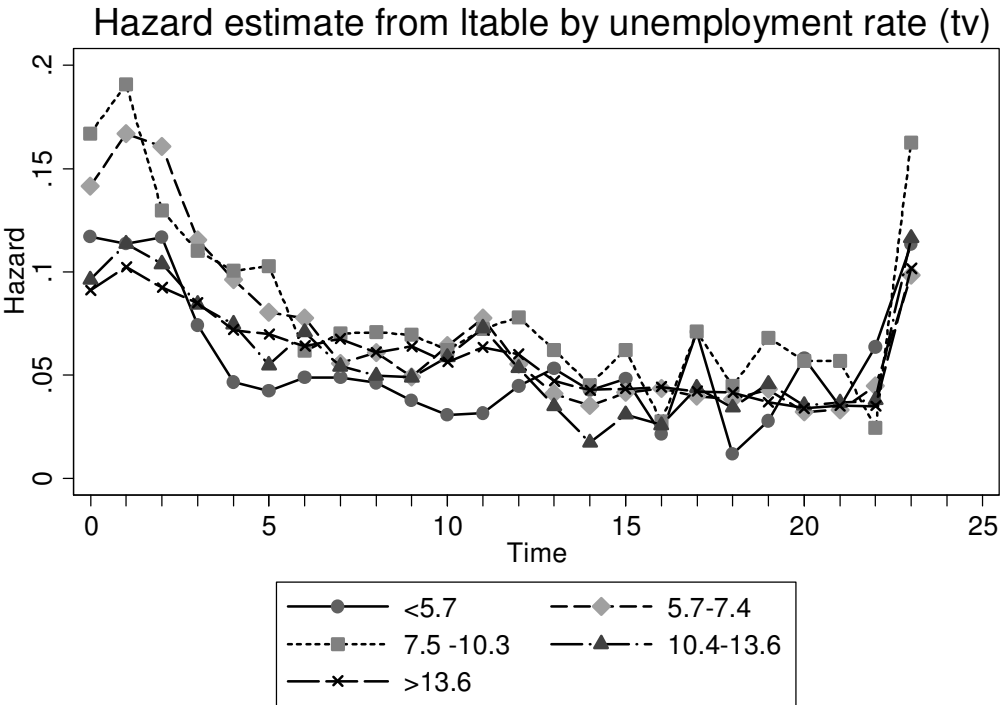**Figure 1: Histogram of median duration by welfare agency (N=151)**

Source: Data Warehouse Labour market and social security, own calculations

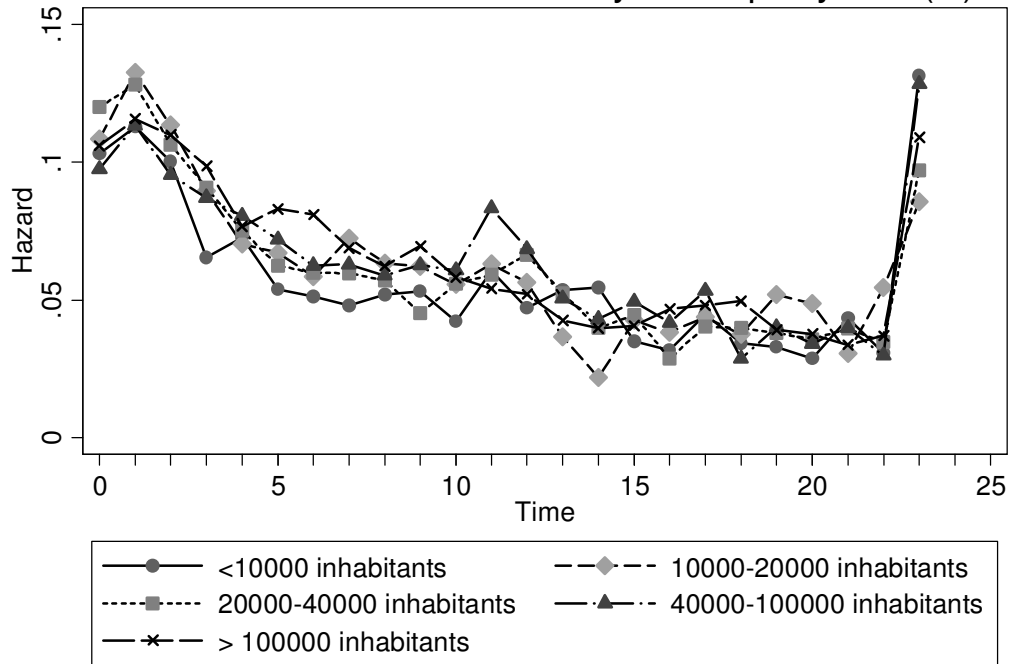### 4.2. Hazard functions by welfare agency characteristics

We find a huge variation in median duration at welfare agency level. We are now interested in finding out what drives this variation. Therefore, we inspect the hazard functions by welfare agency characteristics, which are displayed in Figure 2. The hazard rate shows the conditional probability of exit from social assistance at time t. This means the exit probability given that the individual has been on welfare for at least time t. All parts of Figure 2 show that the conditional probability to leave decreases over time, which suggests duration dependency, with the exception of the first months. In addition, we see in every figure an increase in the conditional probability of leaving during the last period under study, which is due to right-

censoring, and should not be interpreted in a meaningful way. Regarding the hazard functions by unemployment rate, the differences in the conditional exit rates are especially pronounced during the first months. The welfare agencies with a low to medium unemployment rate in the municipality present most often the best scores. The agencies with a very low unemployment rate do better in the beginning than those with (very) high unemployment rates, but after three months they do even worse. The hazards by varying municipality size all show more or less the same pattern (i.e. the same level and shape of the hazard). The conditional hazard rate is nearly at any time the lowest for the agencies in the smallest municipalities. During the first months, local agencies in municipalities with 10000 to 40000 inhabitants present the highest conditional probability to leave. The hazard curves by activation rate show a clear pattern during the first year. The higher the activation rate the higher conditional probability of leaving social assistance. After the first year the hazard curves show more similar hazard levels and they play leapfrog. Regarding the generosity level, we find a pattern which represents exactly the generosity levels during the first six months: the more generous, the higher the exit rate. However, there is one exception. After the first month, the hazard curve decreases steeply for the highest generosity level, and fluctuates heavily if time passes by due to the limited number of welfare agencies with this very high generosity level[18]. So, in general there is few variation in the hazard by welfare agency characteristics. The variation in the hazard of leaving is the most pronounced during the first year by varying activation rates, and to a lower extent by varying unemployment rates, and generosity levels.
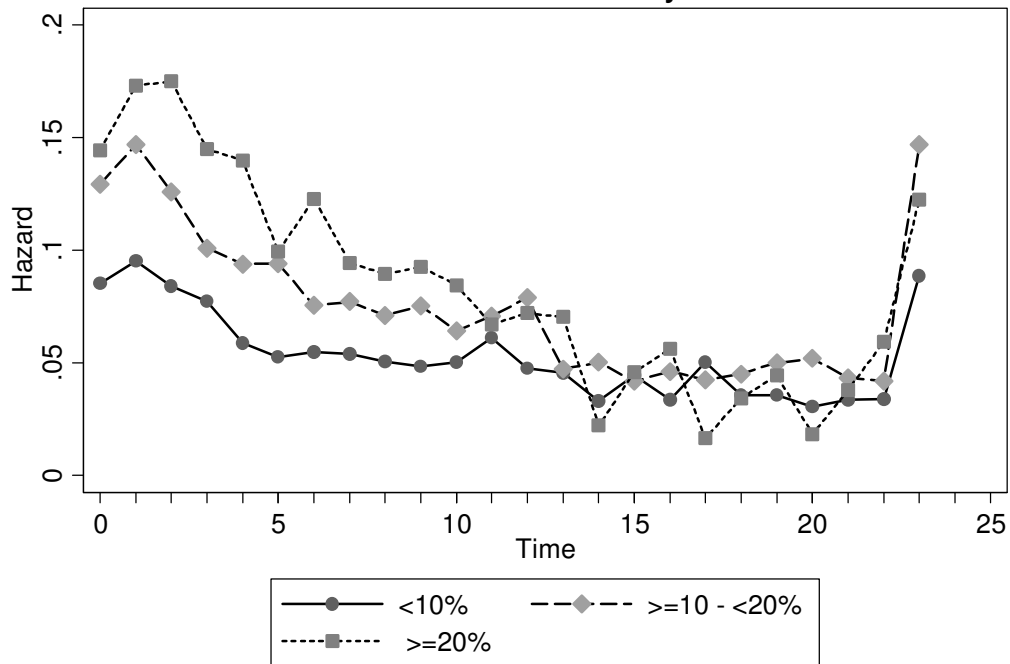
Figure 2: Hazard functions by unemployment rate, municipality size, activation rate, and generosity level
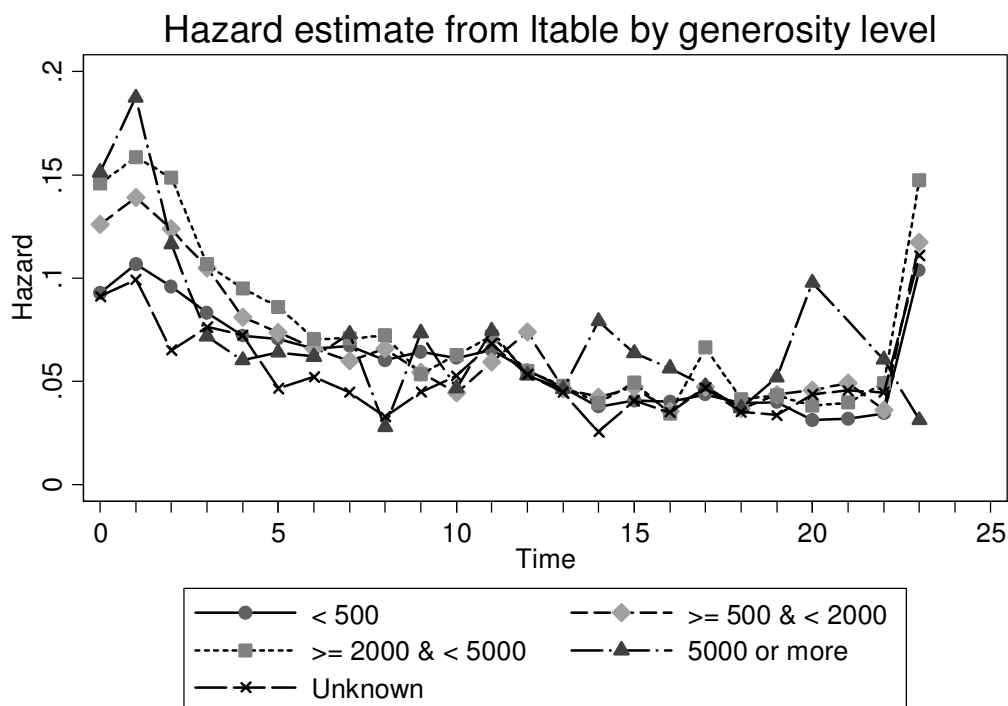
Hazard estimate from ltable by municipality size (tv)

Hazard estimate from ltable by activation rate

Hazard estimate from ltable by generosity level

4.3. The Variation situated at Agency Level

To estimates the part of the total variance which is attributable to the welfare agency level, we calculate he variance partitioning coefficient (VPC)[19] (Steele, 2009). We calculate it for the empty random intercept model (Model 1 in Table 5) and find that 9% of the variability in duration is situated at the municipality level. This coefficient can also be interpreted as the correlation between the durations of two randomly selected individuals from the same agency (Steele, 2008).We evaluate this correlation as rather substantial[20].

4.4. On the Drivers of the Variability

Now, we want to study in a more systematic way what is the impact of the various possible drivers of the variability in the probability of leaving over time. The impact of individual and agency level covariates on the probability of leaving welfare is assessed by several nested models, which are shown in Table 5. We interpret only the results of the final model (model seven), which explains 64% of the variability in duration at the welfare agency level. In addition, the 'pure effect' of the agency level variables is shown in Table 5. We show them controlling for the personal time effect only, and controlling for the personal time and the individual heterogeneity effects.

We interpret the antilogs of the estimated coefficients for the final model in terms of the odds of the hazards. The odds is the ratio of the probability of experiencing the event (i.e. leaving social assistance) to the probability of surviving (i.e. staying in social assistance). The intercept represents the value of the odds of the hazard for the reference beneficiary in the model. This is a man of age 32 with the Belgian nationality, and a working intensity of 18%. He is not a student, and did not change welfare agency. The reference period is the first

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quarter of 2004 for and the personal moment of entry of the beneficiary. He lives in a municipality with less than 10000 inhabitants with a very low unemployment and beneficiary rate, a the welfare agency that serves him has a low generosity level and a low activation rate. Concerning the duration, measured in terms of personal time, the raw parameters expressed on a logit hazard scale are used (Singer & Willett, 2003:418). The fifth order polynomial specification of time[21] specifies a function with four stationary points (Singer & Willett, 2003), a curve with two peaks and troughs. The positive sign of time linear indicates that the hazard is firstly increasing over time. Similarly, the negative sign of time quadratic designates the decrease of the hazard until the second stationary point of the curve, and so on. Controlling for other characteristics, no significant difference exists in the odds between women and men. The increasing effect of age on the odds of leaving lessens with increasing age. With regard to nationality, having a non-EU-nationality at birth lowers the odds of leaving social assistance substantially in comparison to similar persons with a Belgian nationality. However, the initial gap in the transition probability is reduced if the beneficiary stays longer on welfare (which is demonstrated by the linear interaction with time). For those born with a EU-nationality the odds to leave is 0.4 times lower in comparison to similar natives. For the naturalised claimants the odds of leaving are more than two times as high as for beneficiaries alike not naturalised. This is a substantial effect. The working history also matters. An increase by 10% of the work intensity (6 months of work experience) improves the odds of leaving by 0.15[22]. Furthermore, we find that being a student is a very important determinant of lower odds for leaving. The odds to leave of a full-time student in comparison to similar persons who do not study is 18 times lower. This finding is in line with the fact that full-time students are exempted from activation requirements[23]. Finally, changing welfare agency, also substantially reduces the odds of leaving welfare (by nearly 8 times) in comparison to stayers alike in the same agency.

Concerning the agency level characteristics, the chance to leave the minimum income scheme does not differ significantly as a function of the socio-economic context (when controlling for other agency level variables). The municipality size matters as expected according to the institutional capacity perspective. The odds of leaving in big cities is nearly 0.7 times higher than the odds in municipalities with less than 20000 inhabitants. In cities and towns with 20000 up to 39999 inhabitants the odds of leaving is 0.3 times higher than in small municipalities alike. The leaving probability in cities with 40000 to 99999 inhabitants does not differ from those in small municipalities, when controlling for the generosity level. Bigger cities tend to have shorter durations for similar beneficiaries in comparable contexts. Regarding the activation rate, the expected effect is found. Beneficiaries in municipalities with high and middle activation rates have respectively 3.1 and 1.7 times the odds of leaving of beneficiaries in similar agencies with low activation rates. A generosity effect as proposed by the job search theory is not found. By contrast, a higher generosity level increases the odds of leaving, with the exception of medium high generosity levels.

So, if the reference beneficiary at the reference time would have been served by a welfare agency in a big city, with a very high activation rate and a low generosity level (between 500€ and 1000€ per beneficiary per year), then his odds of leaving would be six times higher than the odds of the reference beneficiary in the reference welfare agency (i.e. a welfare agency in a very small municipality with a low unemployment rate, a low activation rate, and a low generosity level). If the same beneficiary would have been accompanied by a welfare agency in a medium municipality with a low activation rate, and a very high generosity level, his odds of leaving would be 3.1 times higher than those of a similar beneficiary in the reference agency.

Table 5: Estimated means and standard deviations of the (log) odds of the hazard of leaving[24]

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		
	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.	Antilog
Fixed part															
Constant	-2.439***	(0.036)	-2.620***	(0.112)	-3.251***	(0.136)	-3.382***	(0.168)	-3.605***	(0.187)	-3.719***	(0.204)	-3.814***	(0.196)	0.0221***
Time															
Time linear			0.287***	(0.064)	0.933***	(0.082)	0.941***	(0.083)	0.967***	(0.083)	0.970***	(0.090)	0.963***	(0.086)	
Time quadratic			-0.086***	(0.015)	-0.183***	(0.018)	-0.184***	(0.018)	-0.187***	(0.018)	-0.188***	(0.019)	-0.187***	(0.019)	
Time cubic			0.010***	(0.002)	0.017***	(0.002)	0.018***	(0.002)	0.018***	(0.002)	0.018***	(0.002)	0.018***	(0.002)	
Time 4th order polynomial			-0.000***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)	
Time 5th order polynomial			0.000***	(0.000)	0.000***	(0.000)	0.000***	(0.000)	0.000***	(0.000)	0.000***	(0.000)	0.000***	(0.000)	
Individual characteristics															
Quarter (20041= ref. category)															
20042					-0.067	(0.062)	-0.067	(0.063)	-0.068	(0.064)	-0.067	(0.064)	-0.066	(0.063)	0.9361
20043					-0.160**	(0.066)	-0.163*	(0.066)	-0.164*	(0.067)	-0.161*	(0.067)	-0.158*	(0.067)	0.8538*
20044					0.007	(0.068)	0.005	(0.068)	0.004	(0.069)	0.009	(0.069)	0.013	(0.069)	1.0131
20051					-0.245**	(0.078)	-0.248**	(0.079)	-0.252**	(0.080)	-0.245**	(0.081)	-0.241**	(0.080)	0.7858**
20052					-0.162*	(0.090)	-0.164	(0.090)	-0.171	(0.093)	-0.162	(0.092)	-0.156	(0.092)	0.8556
20053					-0.285**	(0.103)	-0.286**	(0.104)	-0.292**	(0.106)	-0.283**	(0.106)	-0.277**	(0.106)	0.7581**
20054					-0.378**	(0.119)	-0.379**	(0.118)	-0.386**	(0.121)	-0.376**	(0.122)	-0.366**	(0.121)	0.6935**
20061					-0.498***	(0.137)	-0.493***	(0.137)	-0.504***	(0.140)	-0.495***	(0.139)	-0.481***	(0.139)	0.6182***
20062					-0.263*	(0.154)	-0.255	(0.155)	-0.269	(0.156)	-0.258	(0.159)	-0.242	(0.156)	0.7851
20063					-0.366*	(0.183)	-0.358*	(0.180)	-0.373*	(0.184)	-0.360*	(0.184)	-0.340	(0.182)	0.7118
20064					-0.388	(0.248)	-0.383	(0.251)	-0.397	(0.249)	-0.388	(0.253)	-0.360	(0.252)	0.6977
Sex (Man=ref. category)															
Woman					-0.058	(0.037)	-0.055	(0.037)	-0.057	(0.038)	-0.053	(0.038)	-0.054	(0.038)	0.9474
Age (tv)															
Age					0.072***	(0.010)	0.072***	(0.011)	0.075***	(0.011)	0.076***	(0.011)	0.075***	(0.011)	1.0779***
Age squared					-0.001***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)	0.9990***
Nationality at birth (Belgian= ref. category)															
EU Nationality					-0.829***	(0.080)	-0.832***	(0.080)	-0.845***	(0.083)	-0.834***	(0.083)	-0.822***	(0.082)	0.4396***
Non-EU nationality					-1.590***	(0.076)	-1.598***	(0.075)	-1.626***	(0.079)	-1.603***	(0.081)	-1.589***	(0.079)	0.2041***
Unknown nationality					-1.122***	(0.227)	-1.141***	(0.226)	-1.166***	(0.234)	-1.142***	(0.233)	-1.131***	(0.231)	0.3227***
EU Nationality*time linear					-0.004	(0.007)	-0.005	(0.007)	-0.005	(0.007)	-0.005	(0.007)	-0.005	(0.007)	0.9950
Non-EU nationality*time linear					0.016***	(0.005)	0.015**	(0.005)	0.015**	(0.005)	0.015**	(0.005)	0.016**	(0.005)	1.0161**
Unknown nationality*time linear					-0.006	(0.019)	-0.006	(0.020)	-0.006	(0.020)	-0.006	(0.020)	-0.007	(0.020)	0.9930
Naturalisation (No=ref. category, tv)															
Yes					0.742***	(0.056)	0.752***	(0.056)	0.754***	(0.057)	0.747***	(0.059)	0.740***	(0.058)	2.0959***
Working intensity															
Working intensity					0.014***	(0.001)	0.014***	(0.001)	0.014***	(0.001)	0.014***	(0.001)	0.014***	(0.001)	1.0141***
Student (No student= ref. category, tv)															
Student					-2.876***	(0.089)	-2.877***	(0.088)	-2.892***	(0.091)	-2.902***	(0.096)	-2.894***	(0.093)	0.0554***
Welfare agency change (No change= ref. category)															
Change					-1.987***	(0.093)	-1.994***	(0.092)	-2.028***	(0.095)	-2.040***	(0.105)	-2.024***	(0.100)	0.1321***
Municipality characteristics															
Unemployment rate (< 5.7%=ref. category, tv) ouden unemployment rate															
5.7 -7.4 %							0.286*	(0.121)	0.217	(0.122)	0.119	(0.118)	0.138	(0.117)	1.1480
7.5 - 10.3 %							0.377**	(0.125)	0.318*	(0.127)	0.154	(0.123)	0.206	(0.120)	1.2288
10.4 - 13.6 %							-0.022	(0.124)	-0.053	(0.129)	-0.270*	(0.120)	-0.101	(0.123)	0.9039
> 13.6%							-0.018	(0.119)	-0.123	(0.124)	-0.349**	(0.115)	-0.140	(0.124)	0.8694
Municipality size (<10000 inhabitants=ref. category, tv)															
10000 - 19999 inhabitants									0.184	(0.099)	0.123	(0.091)	0.067	(0.092)	1.0693
20000 - 39999 inhabitants									0.400***	(0.105)	0.366***	(0.098)	0.278**	(0.098)	1.3205**
40000 - 99999 inhabitants									0.473***	(0.142)	0.334**	(0.128)	0.236	(0.125)	1.2662
100000 or more inhabitants									0.488*	(0.245)	0.598**	(0.185)	0.517**	(0.195)	1.6770**
Activation rate (<10% =ref. category)															
>=10% & < 20%											0.546***	(0.076)	0.522***	(0.076)	1.6854***
>=20%											1.126***	(0.135)	1.121***	(0.133)	3.0679***
Generosity (< 500€/year=ref. category)															
>= 500 € & < 1000 €													0.250**	(0.095)	1.2840**
>= 1000 € & < 2000 €													0.167	(0.141)	1.1818
>= 2000 €													0.597**	(0.203)	1.8167**
Unknown													-0.195	(0.108)	0.8228
Random part															
Welfare agency level	0.409***	(0.042)	0.351***	(0.048)	0.361***	(0.049)	0.325***	(0.047)	0.317***	(0.047)	0.205***	(0.036)	0.192***	(0.034)	
Individual level	0.914***	(0.041)	0.593***	(0.157)	2.381***	(0.228)	2.418***	(0.233)	2.533***	(0.248)	2.560***	(0.291)	2.521***	(0.264)	
Deviance Information Criterion (DIC)	75392.98		76064.84		67829.44		67780.36		67594.13		67543.91		67593.73		
VPC (welfare agency level)	0.0887		0.0829		0.0598		0.0539		0.0516		0.0339		0.0320		

Significance levels: * if p < 0.050, ** if p < 0.010 and *** if p < 0.001. Tv=time-varying.
Source: Data Warehouse Labour Market and Social security

Table 6: Estimated means and standard deviations of the (log) odds of the hazard of leaving°

	Model a		Model b		Model c		Model d		Model e		Model f		Model g		Model h	
	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.
Fixed part																
Constant	-2.681***	(0.127)	-2.850***	(0.125)	-2.869***	(0.140)	-2.800***	(0.130)	-3.382***	(0.168)	-3.539***	(0.156)	-3.565***	(0.159)	-3.404***	(0.152)
Time																
Time linear	0.297***	(0.063)	0.296***	(0.063)	0.291***	(0.068)	0.302***	(0.067)	0.941***	(0.083)	0.958***	(0.081)	0.948***	(0.086)	0.959***	(0.084)
Time quadratic	-0.087***	(0.015)	-0.087***	(0.015)	-0.087***	(0.015)	-0.088***	(0.015)	-0.184***	(0.018)	-0.186***	(0.018)	-0.185***	(0.019)	-0.186***	(0.018)
Time cubic	0.010***	(0.002)	0.010***	(0.002)	0.010***	(0.002)	0.010***	(0.002)	0.018***	(0.002)	0.018***	(0.002)	0.018***	(0.002)	0.018***	(0.002)
Time 4th order polynomial	-0.000***	(0.000)	-0.000***	(0.000)	-0.000***	(0.000)	-0.000***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)
Time 5th order polynomial	0.000***	(0.000)	0.000***	(0.000)	0.000***	(0.000)	0.000***	(0.000)	0.000***	(0.000)	0.000***	(0.000)	0.000***	(0.000)	0.000***	(0.000)
Individual characteristics																
Quarter (20041= ref. category)																
20042									-0.067	(0.063)	-0.067	(0.063)	-0.067	(0.063)	-0.066	(0.064)
20043									-0.163*	(0.066)	-0.162*	(0.066)	-0.160*	(0.066)	-0.162*	(0.067)
20044									0.005	(0.068)	0.006	(0.068)	0.008	(0.068)	0.007	(0.069)
20051									-0.248**	(0.079)	-0.250**	(0.079)	-0.244**	(0.079)	-0.248**	(0.080)
20052									-0.164	(0.090)	-0.168	(0.090)	-0.163	(0.091)	-0.165	(0.091)
20053									-0.286**	(0.104)	-0.290**	(0.104)	-0.286**	(0.105)	-0.288**	(0.104)
20054									-0.379**	(0.118)	-0.385**	(0.119)	-0.379**	(0.121)	-0.382**	(0.119)
20061									-0.493***	(0.137)	-0.507***	(0.137)	-0.500***	(0.138)	-0.501***	(0.138)
20062									-0.255	(0.155)	-0.273	(0.154)	-0.263	(0.157)	-0.267	(0.156)
20063									-0.358*	(0.180)	-0.377*	(0.180)	-0.362*	(0.181)	-0.368*	(0.182)
20064									-0.383	(0.251)	-0.403	(0.250)	-0.388	(0.248)	-0.395	(0.250)
Sex (Man=ref. category)																
Woman									-0.055	(0.037)	-0.058	(0.037)	-0.056	(0.037)	-0.056	(0.037)
Age (tv)																
Age									0.072***	(0.011)	0.074***	(0.011)	0.074***	(0.011)	0.074***	(0.011)
Age squared									-0.001***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)
Nationality at birth (Belgian= ref. category)																
EU Nationality									-0.832***	(0.080)	-0.838***	(0.082)	-0.826***	(0.082)	-0.829***	(0.083)
Non-EU nationality									-1.598***	(0.075)	-1.614***	(0.079)	-1.581***	(0.081)	-1.607***	(0.078)
Unknown nationality									-1.141***	(0.226)	-1.151***	(0.229)	-1.111***	(0.233)	-1.139***	(0.230)
EU Nationality *time linear									-0.005	(0.007)	-0.005	(0.007)	-0.005	(0.007)	-0.005	(0.007)
Non-EU nationality*time linear									0.015**	(0.005)	0.016***	(0.005)	0.016***	(0.005)	0.016**	(0.005)
Unknown nationality*time linear									-0.006	(0.020)	-0.006	(0.020)	-0.006	(0.020)	-0.006	(0.020)
Naturalisation (No=ref. category, tv)																
Yes									0.752***	(0.056)	0.744***	(0.057)	0.732***	(0.058)	0.753***	(0.057)
Working intensity																
Working intensity									0.014***	(0.001)	0.014***	(0.001)	0.014***	(0.001)	0.014***	(0.001)
Student (No student= ref. category, tv)																
Student									-2.877***	(0.088)	-2.898***	(0.087)	-2.896***	(0.093)	-2.891***	(0.092)
Welfare agency change (No change= ref. category)																
Change									-1.994***	(0.092)	-2.022***	(0.094)	-2.016***	(0.101)	-2.016***	(0.096)
Municipality characteristics																
Unemployment rate (< 5.7%=ref. category, tv)																
5.7 -7.4 %	0.262**	(0.101)							0.286*	(0.121)						
7.5 - 10.3 %	0.277**	(0.104)							0.377**	(0.125)						
10.4 - 13.6 %	-0.131	(0.104)							-0.022	(0.124)						
> 13.6 %	-0.160	(0.098)							-0.018	(0.119)						
Municipality size (<10000 inhabitants=ref. category, tv)																
10000 - 19999 inhabitants			0.227**	(0.083)							0.191	(0.098)				
20000 - 39999 inhabitants			0.386***	(0.092)							0.441***	(0.107)				
40000 - 99999 inhabitants			0.297*	(0.125)							0.414**	(0.145)				
100000 or more inhabitants			0.164	(0.214)							0.358	(0.224)				
Activation rate (<10% =ref. category)																
>=10% & < 20%					0.480***	(0.069)							0.532***	(0.076)		
>=20%					0.740***	(0.124)							1.000***	(0.139)		
Generosity (< 500€/year=ref. category)																
>= 500 € & < 1000 €							0.401***	(0.082)							0.362***	(0.096)
>= 1000 € & < 5000 €							0.637***	(0.121)							0.419**	(0.146)
>= 2000 €							0.841***	(0.182)							0.695**	(0.218)
Unknown							-0.215*	(0.096)							-0.282*	(0.115)
Random part																
Welfare agency level	0.318***	(0.041)	0.345***	(0.045)	0.273***	(0.041)	0.289***	(0.042)	0.325***	(0.047)	0.356***	(0.049)	0.254***	(0.041)	0.326***	(0.046)
Individual level	0.641***	(0.139)	0.637***	(0.146)	0.627***	(0.192)	0.667***	(0.183)	2.418***	(0.233)	2.495***	(0.226)	2.461***	(0.262)	2.499***	(0.251)
Deviance Information Criterion (DIC)	75948.45		75957.63		76001.45		75895.90		67780.36		67647.32		67704.10		67641.90	

Significance levels: * if p < 0.050, ** if p < 0.010 and *** if p < 0.001. Tv=time-varying.
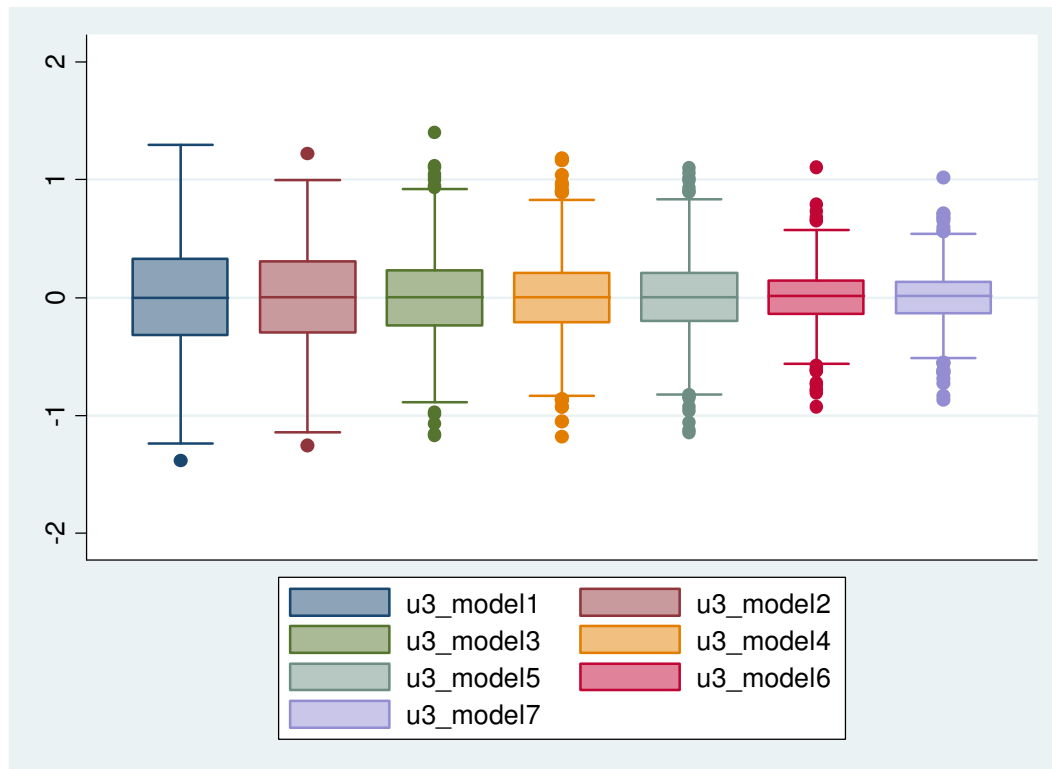
Source: Data Warehouse Labour Market and Social security

Regarding Table 6, we find that the order of the effects of the municipality characteristics is similar, when we control for the time, the time and the composition, and the time, the composition and the other municipality level characteristics. However, the magnitude of the coefficients changes slightly. In addition, where we find no significantly different odds of leaving for the agencies in big cities in comparison to the very small municipalities, this effect is cancelled out when including other agency level variables. The sensitivity analysis (not shown) replicated Table 5 for both the beneficiaries without welfare agency change, and for all beneficiaries for their agency at entry. The estimated coefficients are for both types of sensitivity analysis very similar in terms of the size and the significance of the effects. Though, the estimated changes in the goodness-of-fit of the model show more variation, especially when we include the unemployment rate, and the generosity level. Consequently, the results seems to be rather robust.

We find evidence for both the individual heterogeneity and the duration dependency theses. Especially the effects of age, nationality group, naturalisation, being a student and changing welfare agency are substantial. Regarding welfare agency characteristics, we report no significant effect for the socio-economic context, when controlling for the generosity level. We find a positive effect of the municipality size, the activation rate, and the generosity level on the odds of leaving.

Which are now the main drivers of the local variation in the leaving probability over time? Major reductions in the variance partitioning coefficient are realised by including the individual characteristics, and the activation rate (see Table 5). Including the personal time and the unemployment rate present less important falls in the VPC. An analogous overall pattern is found for the distribution of the welfare agency level residuals for the subsequent models as portrayed in Figure 3. Though, the inclusion of the time represents a more substantial reduction in the residuals[25]. Figure 3 represents the distribution of the agency residuals of various models by boxplots. The boxplot is bordered by the 25th and the 75th percentile of the residuals. The median of the residuals is zero as the residuals follow a normal distribution with mean zero. When including extra variables in the model, the distribution of the residuals of the estimated models is more centred around the mean. We trace the biggest reductions in the welfare agency residuals for model three (including individual heterogeneity), and model six (including the agency activation rate).

Figure 3: Box-and-whisker boxplot of the welfare agency level residuals for the seven models, logit scale

5. Conclusion and Discussion

The Belgian minimum income scheme is medium to highly decentralised. Local welfare agencies administer the federal statutory framework with a lot of discretionary power, while the funding of the benefit is shared. In this paper we study the outcomes of such a decentralised scheme to gain insight in the equality of chances to social mobility in different welfare agencies. We examine the welfare agency variation in the duration of the first episode on the minimum income scheme and its determinants for Belgian social assistance beneficiaries. We examined the probability to leave social assistance over a time period of two years for a representative sample of 14270 entrants in the course of 2004 in 574 welfare agencies by descriptives and discrete-time multilevel event history analysis.

We find that the median duration varies substantially at local level from two to more than 24 months. The overall median duration is eight months. The magnitude of this within-country variation is nearly as important as the variation between the eight cities in various countries in the study of Gustafson et al. (2002:191)[26]. We find that 9% of the total variability in the duration between beneficiaries can be attributed to the local level in a medium to highly decentralised social assistance scheme within a country which presents rather high variation regarding population composition, socio-economic context, municipality size, and welfare agency policy. This is rather substantial. These findings should also be interpreted in the light of the existing cost equalising mechanisms and national statutory framework. Concerning the drivers of the variability in the probability of leaving over time, we summarize the results for the formulated hypotheses in Table 7. Fully confirmed hypotheses (++) are contrasted with some evidence for confirmation (+) and rejected hypotheses (-). We find strong evidence for the heterogeneity thesis. Regarding the effect of the municipality size of the welfare agency, we report some support for the institutional capacity theory (i.e. less chance to leave in small

municipalities). This result contrasts with the findings of Dahl & Lorentzen (2003) for Norway that the municipality size does not matter. Regarding the unemployment rate, we find no effect if we control for other welfare agency level characteristics. This finding contrasts the studies by Hoynes (2000) and Van der Klauw & Van Ours (2001). It can be due to the huge labour market distance (cf. Table 3) of Belgian social assistance claimants. The effect of the local activation rate is substantial and in line with the expectations in literature. Regarding the generosity level, we find some indications for the assisted equilibrium thesis. By contrast, the job search theory cannot be confirmed. We remind however the limitations of the indicators on the policy of the agency. The main determinants of the local variability in the probability to leave over time are individual heterogeneity, duration dependency, and the welfare agency activation rate. The municipality size and the generosity level play a minor role. The effect of the socio-economic context is not significant any more, when controlling for the generosity level.

Table 7: Confirmation and rejection of hypotheses

Entity	Thesis	Formulation	Confirmation or Rejection
Individual characteristics	Heterogeneity	Probability to leave welfare depends on individual characteristics	++
Municipality characteristics	Municipality size	More chance to leave in small municipalities	-
		Institutional capacity: Less chance to leave in small municipalities	+
	Socio-economic context	Higher chance to leave if the unemployment rate is lower	+
Welfare agency policy	Activation intensity	Higher chance to leave if the activation rate is higher	++
	Generosity level	Job search theory: Less chance to leave if higher generosity level	-
		Assisted equilibrium or Economic deprivation: Higher chance to leave if higher generosity level	+

Source: Authors' compilation

The findings suggest the existence of discursive rights (Cox, 1998), rather than universal rights. Consequently, they pose ethical questions. An assessment of this equity issue needs to consider four questions. Firstly, which conception of equity is desirable (for example equality of outcomes (i.e. equal chances to social mobility) or formal equality (i.e. alike outcomes for alike persons in alike contexts) (Hay, 1995)). Secondly, are inequalities in outcomes between welfare agencies something to correct for as beneficiaries can choose their place of living? Thirdly, which inequalities are the task of the last safety net to correct for (e.g. those related to the design and governance of the scheme or any inequality)? Finally, how to evaluate the trade-off between local autonomy, which favours efficiency and responsiveness to the local context and preferences, and equity?

We like to mention some methodological and content related limitations with the aim of the correct interpretation of the findings, which may be scrutinized by further research. Firstly, we do not examine durable labour market integration or upward social mobility, as we do not distinguish between the reasons why beneficiaries leave social assistance. The unspecified exit covers a variety of situations: it can result from varying types of policies (e.g. sanctioning or durable labour market integration), it does not necessarily mean the end of a poverty situation (Kazepov, 1999; Gustafson et al., 2002; Hansen, 2008), and subsequent benefit episodes may occur (Walker & Shaw, 1998; Hershey & Pavetti, 1997; Gustafson et al., 2002). Consequently, a short duration of the first episode cannot be seen as an indication of a good policy (Kazepov, 1999; Gustafson et al., 2002). Though, the most common exit is towards

work. For the June 2005 stock population sample, we find that 86% of all first exits over a period of three years are towards the labour market. And sanctioning rates are estimated to be low in Belgium. 1.8% of the beneficiaries was sanctioned in the Walloon region in the course of 2007 (Cherenti, 2008). By contrast, cycling or re-entry requires further study. 26.1% of the sample has more than one episode in social assistance during the 24 months observed (including breaks of one month). The maximum number of episodes is six. 20.5% has two spells, while 4.8% has three episodes. A second limitation is that we should be cautious with not to interpretation the estimated coefficients causally, as we do not have an experimental set-up of the study. We make only use of the existing variation in population composition, policy and context between welfare agencies. Thirdly, we do not take into account behavioural effects of beneficiaries due to the differences in the activation or generosity policy of the welfare agency. Fourthly, there may be a problem of endogeneity with the activation indicator. Fifthly, we are not always able to separate clearly the effect of the behaviour from individuals from the behaviour of the welfare agencies with regard to labour market integration, which may entail a rather passive view of the action undertaken by social assistance beneficiaries.

Despite these limitations, this study is to our knowledge the first European study on minimum income schemes that explicitly models the decentralised governance of social assistance schemes, assesses its outcomes and the relative importance of various determinants of variation in leaving probability over time, and raises the question on how to assess equity in chances to social mobility between welfare agencies.

Biography of authors

Sarah Carpentier is a PhD Researcher at the Herman Deleeck Centre for Social Policy at the University of Antwerp. She graduated in Sociology at the Catholic University of Leuven. In her PhD thesis she treats two research questions for social assistance beneficiaries in Belgium. Firstly, she studies the determinants of the social mobility of social assistance beneficiaries. Secondly, she examines how to design optimally a minimum income scheme to maximise social mobility chances for all beneficiaries.

Karel Neels is Professor at the Centre for Longitudinal and Life Course Research of the University of Antwerp. He graduated in Sociology at the Catholic University of Leuven, and obtained a master in 'Quantitative Applications in the Social Sciences' at the Catholic University of Leuven. He did his Phd in the Social Sciences at the Free University of Brussels on 'Reproductive Strategies in Belgian Fertility: 1930-1990'. Karel Neels teaches 'Event History Analysis' at the 'Master of Statistics: Quantitative Analysis in the Social Sciences' of the Catholic University of Leuven. Since 2011 Karel Neels is professor at the University of Antwerp.

Bibliography

Atkinson, A. & J., Micklewright (1991), Unemployment Compensation and Labor Market Transitions: A Critical Review, *Journal of Economic Literature*, 29, 4, 1679-1727.

Bane, M. & D., Ellwood (1986), Slipping in and out of poverty, *Journal of Human Resources*, 21, 1-23.

Bane, M. & D., Ellwood (1994), *Welfare Realities. From Rhetoric to Reform*. Cambridge: Harvard University Press.

Behrendt, C. (2000), Do means-tested benefits alleviate poverty?: Evidence on Germany, Sweden and the United Kingdom from the Luxembourg Income Study, *Journal of European Social Policy*, 10, 23-41.

Bird, R., Dafflon, B., Jeanrenaud, C. & G., Kirchgässner (2003), Assignment of Responsibilities and Fiscal Federalism, Blindenbacher, R. & A., Koller (eds.), *Federalism in a Changing World: Learning from Each Other, Scientific Background, Proceedings and Plenary Speeches of the International Conference on Federalism 2002*, Montreal: McGill-Queen's University Press, 351-372.

Blank, R. (1989), Analyzing the length of welfare spells. *Journal of Public Economics*, 39, 245-273.

Blöchliger, H. & C., Charbit (2008), *Fiscal Equalisation*. OECD: OECD Economic Studies, 44, 1, 1-22.

Blossfeld, H., Golsch, K. & G., Rohwer (2007), *Event history analysis with Stata*. New Jersey: Lawrence Erlbaum Associates.

Boadway, R. & Shah, A. (2006), *Intergovernmental fiscal transfers. Practices and Principles*. Washington: The World Bank.

Boone, J., Frederiksson, P., Holmlund, B. & J., Van Ours (2001), Optimal Unemployment Insurance with Monitoring and Sanctions, *IZA Discussion Paper 401*, 30 p.

Cantillon, B., Van Mechelen, N., Marx, I. & K., Van den Bosch (2004), De evolutie van de bodembescherming in 15 Europese landen van 1992 tot 2001. *CSB-Bericht*, juli, p. 33.

Cappelari, L. & S., Jenkins (2008), The Dynamics of Social Assistance Receipt: Measurement and Modelling Issues, with an Application to Britain. *IZA Discussion Paper*, 3765, p. 69.

Carcillo, S. & D., Grubb (2006), From Inactivity to Work: The Role of Active Labour Market Policies, *OECD Social, Employment and Migration Working Paper*, 36, OECD: OECD Publishing.

Cahuc, P. & A., Zylberberg (2004), *Labor Economics*. Cambridge, Massachusetts: Massachusetts Institute of Technology.

Cherenti, R. (2008), *Radioscopie des politiques d'insertion socioprofessionelle dans les CPAS wallons*, Namur: Fédération des CPAS.

Cox, R. (1998), The Consequences of Welfare Reform: How Conceptions of Social Rights are Changing, *Journal of Social Policy*, 27, 1, 1-16.

Cockx, B. (1997), Analysis of transition data by the minimum chi-square method. An application to welfare spells in Belgium. *The Review of Economics and Statistics,* 79,

Dahl, E. & T., Lorentzen (2003), Explaining the Exit to Work among Social Assistance Recipienst in Norway. Heterogeneity or Dependency? *European Sociological Review*, 19, 519-536.

Dahl, E. & T., Lorentzen (2005), What works for whom? An analysis of active labour market programmes in Norway, *International Journal of Social Welfare*, 14, 2, 86-98.

De Vries, M. (2000). The rise and fall of decentralization: A comparative analysis of arguments and practices in European countries. *European Journal of Political Research, 38*(193-224).

Dewilde, M., Hermans, K., De Groof, M., Carpentier, S., Cuypers, D., Torfs, D., Cantillon, B. (2011), *Studenten en het Recht op Maatschappelijke Integratie of het Recht op Maatschappelijke Hulp*. Brussel: POD Maatschappelijke Integratie.

Dubois, H. & Fattore, G. (2009), Definitions and Typologies in Public Administration Research: The Case of Decentralization, *International Journal of Public Administration*, 32, 8, 704-727.

Eardley, T., Bradshaw, J., Ditch, J., Gough, I., Whiteford, P. (1996a), *Social Assistance in OECD Countries: Synthesis Report*. Research Report. London: HSMO.

Eardley, T., Bradshaw, J., Ditch, J., Gough, I., Whiteford, P. (1996b), *Social Assistance in OECD Countries: Country Reports*. Research Report. London: HSMO.

Engström, P. (2009), Vacancy Referrals, Job Search, and the Duration of Unemployment: A Randomized Experiment, *IZA Discussion Paper* 3991, 25 p.

Ferrera, M. (2005), *The Boundaries of Welfare. European Integration and the New Spatial Politics of Social Solidarity*. Oxford: Oxford University Press.

Finn, D. (2000), Welfare to work: the local dimension. *Journal of European Social Policy*, 10,1, 43-57.

Fortin, B., Lacroix, G. & S., Drolet (2004), Welfare Benefits and the Duration of Welfare Spells: Evidence from a natural experiment in Canada, *Journal of Public Economics*, 88, 1495-1520.

Frazer, H. & E., Marlier (2009), *Minimum Income Schemes across EU Member States. Synthesis Report,* Brussels: European Commission, DG Employment, Social Affairs and Equal Opportunities, EU Network of National Independent Experts on Social Inclusion.

Garcia, M. & Y., Kazepov (2002), Why some people are more likely to be on social assistance than others. Saraceno, C. (ed.), *Social Assistance Dynamics in Europe. National and local poverty-regimes*. Bristol: The Policy Press, 127-171.

Giguère, S. (2003), Managing Decentralisation and New Forms of Governance, OECD, *Decentralisation. A New Role for Labour Market Policy*, Paris: OECD Publications Service.

Greffe, X. (2003), Decentralisation: What Difference Does it Make? A Synthesis, OECD, *Decentralisation. A New Role for Labour Market Policy*, Paris: OECD Publications Service.

Gustafsson, B., Müller, R., Negri, N. & W., Voges (2002), Paths through (and out of) social assistance. Saraceno, C. (ed.), *Social Assistance Dynamics in Europe. National and local poverty regimes*. Bristol: The Policy Press, 173-233.

Hammer, T. (1999), The Influence of Different Compensation Levels of Unemployment Benefits on Job Chances among Unemployed Youth. A Comparative Study of the Nordic Countries, *Acta Sociologica*, 42, 123-134.

Hansen, H. (2008), The dynamics of social assistance receipt: Empirical Evidence from Norway. *European Sociological Review*, 1-17.

Hershey, A. & Pavetti, L.(1997), Turning job finders into job keepers, *The Future of Children*, 7, 1, 74-86.

Hölsch, K. & M., Kraus (2004), Poverty Alleviaton and the Degree of Centralization in European Schemes of Social Assistance, *Journal of European Social Policy*, 14, 143-164.

Hoynes, H. (2000), Local Labor Markets and Welfare Spells: Do Demand Conditions Matter? *The Review of Economics and Statistics*, 82, 3, 351-386.

Inman, R., & Rubinfeld, D. (1997). Rethinking Federalism. *The Journal of Economic Perspectives, 11*(4), 43-64.

Jenkins, S. (2007), *Survival Analysis with Stata. Module EC968 Part II: Introduction to the analysis of spell duration data*. Essex, Institute for Social and Economic Research.

Jenkins, S. (2011), *Changing Fortunes: Income Mobility and Poverty Dynamics in Britain,* Oxford: Oxford University Press.

Hay, A. (1995), Concepts of Equity, Fairness and Justice in Geographical Studies, *Transactions of the Institute of British Geographers, New Series*, 20, 4, 500-508.

Kazepov, Y. (1999), At the edge of longitudinal analysis. Welfare institutions and social assistance dynamics. *Quality and Quantity*, 33, 3, 305-332.

Kazepov, Y. (2010), *Rescaling Social Policies: Towards Multilevel Governance in Europe*. Farnham: Ashgate.

Kesteloot, C., De Decker, P. & M., Loopmans (2009), Space in Sociology: an Exploration of a difficult conception, De Boyser, K., Dewilde, C., Dierckx, D. & J., Friedrichs, J. (eds.), *Between the Social and the Spatial, Exploring the Multiple Dimensions of Poverty and Social Exclusion*, London: Ashgate, 113-132.

Knuth, M. (2009), Path Shifting and Path Dependence: Labor Market Policy Reforms Under German Federalism, *International Journal of Public Administration*, 32, 1048-1069.

Lalive, R. & J.,Zweimüller, (2004), Benefit entitlement and unemployment duration: The role of policy endogeneity, *Journal of Public Economics*, 88, 12, 2587-2616.

Leckie, G. & Charlton, C. (2011), Runmlwin: Stata module for fitting multilevel models in the MlwiN software package. Bristol: Centre for Multilevel Modelling, University of Bristol.

Leisering, L. & R. Walker (eds.) (1998), *The dynamics of modern Society. Poverty, policy and welfare*. Bristol: The Policy Press.

Leisering, L. & L., Leibfried (2000). *Time and poverty in Western Welfare States: United Germany in Perspective*. Cambridge: Cambridge University Press.

Lemieux, T. & K., Milligan (2008), Incentive effects of social assistance. A Regression Discontinuity Approach, *Journal of Econometrics*, 142, 2, 807-828.

Lundin, M. & P., Skedinger (2006), Decentralisation of active labour market policy: The case of Swedish local employment committees, *Journal of Public Economics*, 90, 775-798.

Meyers, M., Glaser, B. & K., Donald (1998), On the Front Lines of Welfare Delivery: Are Workers Implementing Policy Reforms? Journal of Policy Analysis and Management, 17, 1, 1-22.

Moffitt, R. (2002), Welfare Programs and Labor Supply, Auerbach, A. & M., Feldstein (eds.), *Handbook of Public Economics*, 4, chapter 34, 2394-2430.

Nativel, C., Sunley, P. & R., Martin (2002), Localising welfare-to-work? Territorial flexibility and the New Deal for young people, *Environment and Planning C: Government and Policy*, 20, 911-932.

Oates, W. (1972), *Fiscal federalism*, New York: Harcourt Brace Jovanovich.

Oates, W. (1999), An Essay on Fiscal Federalism, *Journal of Economic Literature*, 37, 3, 1120-1149.

Peterson, P. (1995), *The price of federalism*. Washington: The Brookings Institution.

Pollitt, C. (2005), Decentralization: A central concept in contemporary public management, Ferlie, E., Lynn, L. & C., Pollitt (eds.), *The Oxford Handbook of Public Management*, Oxford: Oxford University Press, 371-397.

Powell, M. & G., Boyle (2001), The Spatial Strategy of Equality and the Spatial Division of Welfare, *Social Policy and Administration*, 35, 2, 181-194.

Prud'homme, R. (1995), The Dangers of Decentralization, *The World Bank Research Observer*, 10, 2, 201-220.

Rasbash, J. (2008), *Module 4: Multilevel structures and classifications*, LEMMA, Bristol: Centre for Multilevel Modelling, 40 p.

Rasbash, J., Charlton, C., Browne, W., Healy, M. & Cameron, B. (2009), MlwiN Version 2.1., Bristol: Centre for Multilevel Modelling, University of Bristol.

Sainsbury, D. & Morissens, A. (2002), Poverty in Europe in the mid-1990s: the effectiveness of means-tested benefits, *Journal of European Social Policy*, 12, 307-328.

Saraceno, C. (ed.) (2002), *Social Assistance Dynamics in Europe. National and local poverty regimes*. Bristol: The Policy Press.

Steele, F. (2008), *Module 5: Introduction to Multilevel Modelling Concepts*, LEMMA, Bristol: Centre for Multilevel Modelling, 45 p.

Steele, F. (2009), *Module 7: Multilevel Models for Binary Responses. Concepts*, LEMMA, Bristol: Centre for Multilevel Modelling, 41 p.

Sunley, P., Martin, R. & C., Nativel, (2001), Mapping the New Deal: local disparities in the performance of Welfare-to-Work, *Transactions of the Institute of British Geographers*, 26, (4), 484-512.

Tiebout, C. (1956), A Pure Theory of Local Expenditure, *Journal of Political Economy*, 64, 5, 416-424.

Van der Klauw, B. & J., Van Ours (2001), From welfare to work: Does neighbourhood matter? *Journal of Public Economics*, 87, 957-985.

Van Berkel, R. & V., Borghi (2008), Review Article: The governance of Activation, *Social Policy and Society*, 7, 3, 393-402.

Van Berkel, R., de Graaf, W., Sirovatka, T. (2011), *The Governance of Active Welfare States in Europe,* Basingstoke: Palgrave Macmillan.

Van Mechelen, N. & V., De Maesschalck, (2009), Devolution of social protection arrangements, Cerami, A. & P., Vanhuysse (eds.), *Post-Communist Welfare Pathways. Theorizing Social Policy Transformations in Central and Eastern Europe*. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan.

Van Ours, J. & M., Vodopivec (2006), How Shortening the Potential Duration of Unemloyment Benefits Affects the Duration of Unemployment: Evidence from a Natural Experiment, *Journal of Labour Economics*, 24, 2, 351-378.

Walker, R. & A., Shaw (1998), Escaping from social assistance in Great Britain, Leisering, L. & R., Walker (eds.), *The Dynamics of Modern Society*, 221-242.

Endnotes

[1] Research into social assistance dynamics took shape in the 1970s and 80s in the United States (incl. Bane & Ellwood, 1986; Blank, 1989), and since the 1990s in European countries (e.g. Leisering & Walker, 1998 (UK, Germany); Leisering & Leibfried, 2001 (Germany); Cockx, 1997 (Belgium); Saraceno, 2002 (European comparative); Dahl & Lorentzen, 2003; Dahl & Lorentzen, 2005 (Norway); Hansen, 2008 (Norway)).

[2] Decentralisation with regard to activation is the result of a process of silent decentralisation (Dubois & Fattore, 2009: 717). It is due to the ambiguity in the 2002 Social Integration Act in combination with the absence of federal targets, and control mechanisms. As a result, agencies have a lot of discretionary power.

[3] In 2004 the following persons can claim the minimum income benefit under the Social Integration Act: Belgians, EU-citizens and their family members who have the right to stay in Belgium for more than three months and who are enrolled in the Foreign register or Population register (including the waiting register), foreigners enrolled in the Population register (e.g. students, persons reunifying their family and regularised persons after five years of residence), recognized refugees enrolled in the Population or Foreigners' register, and recognised stateless enrolled in the Population or Foreigners' register.

[4] This municipality may differ from the municipality of the domicile address. For students the municipality of the main residence according to the National Register at the moment of the application for the benefit counts, which may differ from their real living place. However, in practice more than three quarters of the students has their main residence in the municipality of the welfare agency responsible (Dewilde et al., 2011:96).

[5] Persons recorded by several agencies during a month are attributed to the agency with the highest payment amount.

[6] The payments do not cover advances on social security contributions by the welfare agencies, except when advances are not regularised within 15 months.

[7] 37.3% of the breaks between subsequent episodes takes one month, 15.1% two months, and 10.0 % three months. 37.6% takes longer than three months.

[8] Estimation is done by Stata SE 11 using the command Runmlwin (Leckie & Carlton, 2011), which invokes MLwiN version 2.25. The model uses Markov Chain Monte Carlo (MCMC) estimation (Browne, 2012; Rasbash, 2009) and Metropolis-Hastings sampling. The IGLS estimations (first-order marginal quasi-likelihood linearization) for the nested model are used as priors. The MCMC estimation has run for 50000 chains. We use the Deviance Information Criterion (=DIC), which is a Bayesian equivalent of the AIC or BIC criterion, to compare the goodness-of-fit of models. The lower the DIC, the better.

[9] Right-censoring means that we do not observe the end of the episode. If a person dies, we consider his spell also as right-censored. We assume that censoring is independent of the event under study.

[10] The residuals are assumed to be normally distributed.

[11] EU-nationality includes also Switzerland and Norway.

[12] Students are identified by the fact that they receive the child allowance.

[13] We tested also whether including the type of act and the household type improve the goodness-of-fit of the model, but we find no evidence for this.

[14] For the June 2005 stock sample 33% of all first exits to work in the course of three years are participations in the federal active labour market programmes for social assistance beneficiaries.

[15] The agencies at entry cover 572 of the 574 local agencies.

[16] Our findings are in line with the results of Cockx (1997) for Belgium. For a sample of entrants in the period of June 1987 to November 1990, Cockx reports a median duration for women and men of respectively 4.5 and 6 months (considering claimants who move to another municipality as exiting).

[17] Calculations are done only for the 151 municipalities with at least 20 beneficiaries. The dropped municipalities are rural. They may differ in their policy and context.

[18] It concerns 196 beneficiaries in 21 municipalities.

[19] We calculated the variance partitioning coefficient according to the theoretical approach, which assumes that the variance at level 1 for a logit model equals $\pi^2/3$. The variance partitioning coefficient is calculated as the agency level variance divided by the sum of the agency-level variance, the individual-level variance and $\pi^2/3$.

[20] Neighbourhood effect studies find generally that around 5% of the variability is attributable to the neighbourhood, while school result studies report that 30% of the variability is situated at school level.

[21] We tested also a random slope for the linear effect of time on the probability of leaving, but we found no evidence that a baseline hazard that varies across agencies fits better the data.

[22] For a 10% increase in working intensity the odds is $e^{(0.014*10)} = 1.150$.

[23] However, students are expected to do a student job.

[24] All the welfare agency level characteristics improve significantly the deviance information criteria, except the generosity level. However, the latter is retained due to theoretical considerations.

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[25] Including time reduces also the intercept variance at local level from 0.409 to 0.351, which means that agencies differ substantially in terms of the duration composition of their population.

[26] The duration of the first episode ranges from three (Gothenburg) to 34 months (Barcelona)). Unfortunately, we are unaware of previous studies on within-country variation in duration. In Gustafson et al. (2002) within-country variation is only based on two cities within a country. Gothenburg and Helsingborg in Sweden present similar scores (respectively three and four months), and also Milan and Turin present the same pattern (5 and 6 months). By contrast, in Spain the results for Barcelona (27 months) and Vitoria (12 months) diverge.