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## **The segmentation potential of non-standard employment – a four-country comparison of mobility patterns**

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## **Abstract**

The promotion of flexible employment forms (part-time employment, temporary employment) is seen as a possible solution to persistent unemployment, underemployment and also to requirements to better reconcile work and family life. While there is evidence that non-standard employment can act as a bridge towards more stable employment (full-time, permanent, dependent) some studies have also shown that these employment forms are more strongly associated with exclusionary transitions to unemployment or inactivity than standard employment forms. This paper tests the segmentation hypothesis: transitions are compared between part-time and full-time workers and temporary and permanent workers in four countries (Denmark, Germany, Spain and the United Kingdom). The assumption is that downward transitions to unemployment, inactivity or household activities are more common among non-standard than among standard workers. After discussing segmentation theory, the extent of upward, downward and sideward (education) transitions is shown by displaying year-to-year transitions and cumulated failure rates making use of the European Community Household Panel data (ECHP). In a further step, maximum likelihood multinomial regression models are calculated in order to compare competing exit risks (unemployment, inactivity, household/carer and education) between non-standard and standard workers while at the same time controlling for demographic, household and job characteristics. A special focus is put on transitions to education because education or training measures could in the longer run level out some of the disadvantages connected with non-standard employment by supporting upward transitions to standard employment.

## Table of content

1. Introduction .....	4
2. Segmented labour markets .....	5
3. Analysis of mobility .....	6
3.1 Mobility patterns of non-standard workers: risk of unemployment and inactivity....	7
3.2 Assumptions .....	8
3.3 Year to year upward, downward and sideward transitions .....	10
3.4 Exits from employment taking into account censoring, the timing of events and multiple exits .....	13
3.4.1 The method.....	13
3.4.2 Comparative exit patterns.....	14
3.4.3 Multivariate models on transitions from employment .....	19
3.4.3.1 Method .....	19
3.4.3.2 Choice of variables.....	20
3.4.3.3 Interpretation of results from multivariate models.....	21
4. Conclusion.....	25
Annex 1 .....	28
Annex 2 .....	29
Bibliography.....	30

## Tables

Table 1: Summary indicators of the strictness of employment protection legislation, late 1990s .....	9
Table 2: Upward, downward, and sideward transitions from and to full-time and part-time employment (%).....	11
Table 3: Upward, downward, and sideward transitions from and to permanent and temporary employment (%).....	12
Table 4: Odds of different exit types compared between countries.....	22
Table 5: Odds of different exit patterns for part-time workers as compared to full-time workers (reference) .....	23
Table 6: Odds of different exits for fixed-term/short-term (casual) workers compared to workers with permanent contracts (reference).....	24
Table 7: Multinomial logit models for single countries (reference category: remaining in employment), beta coefficients .....	28

## Figures

Figure 1: Comparison of importance of exit types by country (cumulated failure).....	16
Figure 2: Exits from employment to non-employment (excluding education/training) for full-time and part-time workers .....	17
Figure 3: Exits from employment to non-employment (excluding education/training) for workers with permanent and fixed- or short-term and casual* contracts .....	18

## 1. Introduction

Part-time employment and temporary employment have been gaining more importance in western European countries from the 1980s onwards with the growing labour market participation of women and continuing mass unemployment. Such forms of non-standard employment have often been promoted deliberately in order to fight persistent unemployment and underemployment and to fulfil the requirement to better reconcile work and family life.

There have been a number of studies that pointed out negative side effects of non-standard employment such as higher volatility and less employment and social security. Following this line of research this paper compares mobility patterns – especially downward mobility – of part-time and temporary workers with those of full-time workers and workers with indefinite contracts in a number of European countries. The aim is to assess if non-standard employment carries the same negative implications on mobility in different institutional contexts or if some countries are doing better in avoiding segmentation caused by non-standard employment. In order to capture mobility patterns over longer time periods the European Community Household Panel data (ECHP) is used which allows tracing non-standard workers over several years and comparing them to workers with regular contracts who dispose of similar individual, household and job characteristics.

Part-time and temporary employment both create flexibility for employers; part-time work also caters to the flexibility needs of employees. Part-time employment is usually seen to create internal-numerical flexibility while temporary employment is used to create external-numerical flexibility. On the demand side part-time employment is used to meet organisational or economic needs (peaks in service requirements or regular variations of workload). It is especially attractive to employers if it is exempted from contributions (marginal employment). On the other hand, it often also caters to (female) employees' needs if they want to or have to combine wage-employment with other activities such as child or elderly care. Temporary employment creates external-numerical flexibility by allowing employers to adjust the number of workers according to requirements. It thus mainly meets the employers' demands for a more flexible workforce that can be hired and fired according to need and at low cost (employment protection legislation (EPL) is usually lower than for workers with indefinite contracts). Fixed-term or short-term contracts are typically used for specific activities of limited duration and in order to replace workers who are temporarily absent due to maternity leave, education and the like. In a number of countries temporary employment contracts are also used in order to screen employees who do not yet have a sufficient work record. It allows testing occupational qualifications, abilities, and social competences of potential employees before they are 'permanently' recruited.

This paper tests the hypothesis that non-standard workers more often than standard workers experience transitions out of employment and that non-standard employment therefore strengthens segmentation. Especially among workers with temporary contracts as compared to workers with indefinite contracts more changes between employment and unemployment are expected. Part-time workers are thought to make more frequent transitions out of employment into household and care activities. It is expected that countries will differ in this regard because they vary in the regulation of non-standard employment and also in the reasons for using part-time and temporary employment. The following countries are regarded here: Denmark, Germany, the United Kingdom and Spain. The first three countries have high part-time employment rates (above 20% of total employment) coupled with medium or low (UK) temporary employment rates. Spain, on the other hand, has by far the highest share of temporary employment in Europe amounting to more than 30% of total employees while part-time employment remains comparatively low.

The following theoretical section focuses on segmented labour markets. Section three looks at mobility patterns of non-standard workers. In a first step, year-to-year upward, downward and sideward transitions are compared between standard and non-standard workers. If upward transitions are common and non-standard employment thus serves as a bridge to regular employment or if times out of employment are spent in education measures that potentially strengthen employability (sideward transitions) the segmentation potential of non-standard employment can be termed low. If, on the other hand, non-standard employment is persistent and associated with more frequent downward transitions than standard employment segmentation is evident. In a second descriptive step, downward transitions are analysed in detail, longer time periods are regarded and, by making use of event history methods, censoring and timing of events is taken into account. In a last step, maximum likelihood multinomial regression models are calculated on the event history data. They allow comparing standard and non-standard workers while looking at competing risks (unemployment, inactivity, household/carer and education) and at the same time taking into account individual, household and job characteristics as well as the timing of events. If the hypothesis proves true downward transitions will occur more frequently among non-standard workers than among standard workers even if we control for individual and job characteristics. Some of the disadvantages of non-standard employment may be absorbed by more frequent transitions to education and training measures which can potentially increase employability and in the long run support upward transitions. Transitions into education and training will therefore receive special attention.

## 2. Segmented labour markets

In the late 1960s, the dual labour market theory was simultaneously developed by different American groups of scholars (Boston, Chicago, Michigan, and Detroit) who studied local labour markets especially in regard to racial labour market segregation in order to explain urban poverty and underemployment (Gordon, 1972). The researchers emerged with a theory on the dichotomisation of the labour market into a 'primary' and a 'secondary' segment characterised by diverging features. While the primary labour market segment offers high wages, good working conditions, employment stability, advancement possibilities and greater equity, the secondary segment is characterised by low wages, low fringe benefits, poor working conditions, high labour turnover, low upward mobility and generally unstable employment (Doeringer and Piore, 1971: 165ff). Most empirical studies reviewed in Dickens *et al.* (1984) and Huguet Roig (1999: 296, 297) affirm the existence of distinct labour markets. According to dual labour market theorists, access to the primary segment is especially restricted in the cases of women, ethnic minorities, migrant workers, disabled, and young persons. Labour market segmentation does not result only from employer's discriminatory practice but also from union-imposed constraints on labour supply, information shortages, and the working of feed-back mechanisms (Peck, 1996). The existence of a secondary labour market segment is of advantage to employers and the economy due to its relative flexibility that can be exploited by way of adapting supply and demand through this channel.

Initially the segmentation approach focused mainly on job characteristics and not on the special features of individuals. It thus predominantly pointed to the demand side of the labour market. Recent developments – 'third-generation approaches' – pursue a more multidimensional approach and, amongst other things, also take into account labour supply as well as state actions and institutional features. Peck (1996) and Holst *et al.* (1998), among others, emphasise the labour market segmentation imposed by the household division of labour between the male 'breadwinner' and the female care-taker with a marginal labour market role at the most. This 'gendered division of labour' does not apply only to women in this specific

household constellation but, by way of employer's discrimination or anticipation, to all potential mothers. In this context, part-time employment and especially marginal employment can be seen as a component of the secondary labour market segment. Empirical accounts of wage and insurance discrimination of part-time workers confirm this assessment (O'Connell and Gash, 2003 for Ireland; Fagan et al., 1998 for the Netherlands, Germany and the UK).

The association of non-standard employment forms with the secondary segment is also supported by Atkinson's 'flexible firm' model. Pressures for flexibility and market adaptation are met through functional flexibility within the relatively secure core sector of the firm (full-time permanent career employees with firm-specific skills) and, on the other hand, through numerical flexibility (sometimes also serving functional flexibility) in the form of peripheral employer-employee relations by way of using part-time, temporary and self-employed workers with more general skills (Atkinson, 1984). The peripheral group of workers helps maximise flexibility by minimising the firm's commitment to the workers' job security and career development.

Early theoretical studies already recognised that primary-sector work is sometimes shifted to the secondary sector by making use of subcontracting or temporary contracts (Gordon, 1972). Spain, especially, is associated with segmented labour markets that consist of very well protected permanent jobs and, on the other hand, high segments of unemployment and insecure temporary employment with relatively low wages (OECD, 2003). Similarly, Esping-Andersen (1995) points out that evidence for Spain and France indicates that temporary contracts serve to fuel dual segmentation while hardly generating any additional net employment growth. Not only may flexibilisation deepen the cleavage between the core and peripheral workforce but the wage and job-security privileges of permanent workers or 'insiders' might be strengthened precisely because firms can regulate their labour force needs at the margin through temporary workers that can be easily dismissed (compare *ibid.*). A similar assessment is given by Bentolila *et al.* (1994) who point out that flexibility at the margin has been created in Spain in a manner that leads to a dual segmentation within firms which strengthens the position of insiders.

### **3. Analysis of mobility**

The following section will explore mobility patterns in order to test the hypothesis that non-standard workers more often make transitions to unemployment or inactivity than standard workers. Within the inactivity category it is important to distinguish between employability-enhancing inactivity in the form of training or education measures which will be termed sideward transitions and other categories of inactivity (household/carer, inactivity, other/retirement) which will be termed downward transitions.

The first part of this section resumes a range of studies on non-standard employment and mobility. In a next step, assumptions for our groups of interest and the four different countries are formulated. Following this, year-to-year transitions are looked at and compared between standard- and non-standard workers in the four countries. Downward transitions (from employment to unemployment or inactivity), sideward or employability-transitions (from employment to education), as well as upward transitions (from non-standard employment to standard employment) are displayed in order to give a better approximation on what is happening in the single countries. The remainder of the chapter focuses on sideward and downward transitions making use of event history analysis that takes into account some of the problems inherent in the data. In the descriptive part monthly transitions from employment to non-employment are compared using information from all eight – in the case of temporary employment seven – survey years. The multivariate models look at competing exits from em-

ployment. By controlling for individual, household and job characteristics they expand the dichotomous comparison between part-time and full-time employment and, on the other hand, temporary and permanent employment. The information on the yearly and monthly status in the ECHP data is based on self-assessment of the interviewees.<sup>1</sup>

### **3.1 Mobility patterns of non-standard workers: risk of unemployment and inactivity**

A range of recent empirical studies focuses on mobility patterns of non-standard workers. Among the data sources used for transition studies focussing on the countries under observation are the ECHP (European Commission, 2004; European Commission, 2003; OECD, 2002a; Debels, 2005; Debels, 2004; Gash, 2003; Golsch, 2004; Muffels and Luijkx, 2005), labour force surveys of single countries (Amuedo-Dorantes, 2000; Smith et al., 2000), the British Household Panel Survey (BHPS) and the German Socio-Economic Panel (SOEP) (Bothfeld and O'Reilly, 2000; McGinnity, 2004; O'Reilly and Bothfeld, 2002).

Most studies on temporary employment test the stepping-stone theory, the segmentation theory, or both. Studies following the assumption that temporary contracts might act as stepping stones into regular jobs usually look at transition patterns from temporary to permanent jobs. Studies that follow the segmentation theory typically take into account downward transitions to unemployment and inactivity and maintenance transitions (remaining in temporary employment). In studies that compare transition patterns in multiple countries, Denmark and the United Kingdom are usually among the countries with comparatively high (short-term) upward mobility whereas Spain is located at the other end, Germany normally takes a hybrid position (OECD, 2002a; European Commission, 2004; Muffels and Luijkx, 2005; Debels, 2004).<sup>2</sup> The stepping stone function of temporary jobs in the United Kingdom is also confirmed by a single country study (Booth et al., 2002) while the function of temporary jobs as a trap is manifested for Spain (Amuedo-Dorantes, 2000). At least for young employees temporary jobs in Germany seem to act as stepping stones rather than traps (Golsch, 2004; McGinnity et al., 2004). A longer-term perspective (a five year period) reveals considerable downward transitions from temporary employment in all four countries: unemployment or inactivity affected each more than ten percent in Spain and Germany whereas in Denmark and in the United Kingdom considerable shares (about 15 and 20 percent, respectively) of temporary workers in 1995 were inactive in 2000 (European Commission, 2003: 133).

Studies on transitions to and from part-time employment usually test alternative assumptions according to which part-time employment either acts as a bridge to regular full-time employment or leads to further segmentation of the labour market. In the latter case, part-time employment only provides transitory employment integration with higher propensities for part-time workers than for full-time employees to return to non-employment. The focus of these studies is clearly on women and their household context. Most studies conclude that employment (re)integration of women often takes place via part-time contracts but that part-time employment is also more volatile than full-time employment in leading more often to exclusionary transitions (compare for example Gash, 2003; O'Reilly and Bothfeld, 2002; OECD, 2002b; Smith et al., 2000). Based on ECHP data, Chaupain-Guillot et al. (2004) show that short-term (t+1 and t+2) downward transitions to non-employment from all persons who

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<sup>1</sup> The interviewees are asked for their main status and can only choose one status per month.

<sup>2</sup> A good comparative overview on transitions from temporary into permanent jobs is given in *Employment in Europe 2004* (European Commission, 2004: 160, 161).

took up part-time employment in year  $t$  are considerably more frequent in Spain and Germany than upward transitions to full-time employment. In Denmark they are somewhat more frequent; in the United Kingdom the shares are more or less equal. In longer term trends (four years) and based on individuals between 20 and 50 who had been part-time employed in year  $t$ , the above results only prove true for Spain. In addition to these results, transitions from part-time to full-time employment are in most countries more likely for men than for women (Smith et al., 2000). According to Chaupain-Guillot et al. (2004) the gap between men and women is especially large in the United Kingdom but non-existent in Denmark.

The household composition plays an important role in explaining downward transitions of part-time workers. Bothfeld et al. (2000: 151-157) demonstrate that in Germany and the United Kingdom child-care responsibilities push part-time employed women into non-employment. Chaupain-Guillot et al. (2004) confirm the strong influence of children on the probability of non-employment in Germany and the United Kingdom but according to their analysis this is not a major factor in Denmark and Spain. The trends for the United Kingdom and Denmark are also supported by Gash (2003).

The methods that are used in the above studies include simple transition matrices for different reference groups (European Commission, 2003), descriptive event-history techniques such as Kaplan-Meier survival estimates and sophisticated multivariate models that take into account covariates. Most studies make use of multinomial logistic regression in order to model competing events such as upward and downward transitions or transitions into different states (compare for example Muffels and Luijkx, 2005; Golsch, 2004; European Commission, 2004; Amuedo-Dorantes, 2000; Smith et al., 2000; Chaupain-Guillot et al., 2004). Some studies use event history models (some also in combination with multinomial regression models) that take account of specific problems such as right-censoring<sup>3</sup> and time-varying covariates (compare for example Amuedo-Dorantes, 2000; Booth et al., 2002; Debels, 2005; Bothfeld and O'Reilly, 2000; Lauterbach, 1994; McGinnity, 2004).

## 3.2 Assumptions

The fact that by definition employment protection legislation (EPL) is weaker for temporary workers than for workers with indefinite contracts and the transitory nature of these contracts suggest more frequent movements to unemployment among temporary than among permanent workers. We also assume that movements to inactivity are more frequent among temporary workers who are more likely to not fulfil the eligibility criteria for unemployment benefit receipt (Leschke, 2006) and might therefore assess their status as inactive rather than unemployed. The degree of differences between permanent and temporary workers in making transitions from employment to unemployment or inactivity is expected to be influenced by the strictness of EPL for both permanent and temporary jobs in the specific country. Countries that have lax EPL for both contract forms are expected to generate higher general (upward as well as downward) mobility than countries with strict EPL for both permanent and temporary contracts. In both constellations temporary workers are expected to exit employment more often than permanent workers but differences between both types of workers are expected to be smaller than in the following situation: Strict EPL for permanent jobs coupled with lax EPL for temporary jobs is expected to bring about a situation where temporary workers are exiting employment much more frequently than permanent workers. The reverse situation, rela-

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<sup>3</sup> Right censoring is used to describe the case in which a subject participates in a study for a certain time and thereafter is no longer observed. This is the case if the event or transition has not occurred for some subjects at the end of the study or if subjects withdraw prematurely from the study (Cleves et al., 2002: 31).

tively strict EPL for temporary contracts coupled with lax EPL for permanent contracts should weaken the differences in exit frequencies between both employment forms.

Based on comparative data collected by Grubb et al. (1993) the OECD has developed indicators for the strictness of employment protection legislation which are regularly updated (OECD, 2004; OECD, 1999). There are 18 basic items that make up three main areas: EPL for permanent workers, requirements for collective dismissal and EPL for temporary workers, both fixed-term and temporary agency workers. Based on these indicators the countries are accorded summary scores – the higher the scores the stricter the legislation.

The indicator for permanent contracts takes into account the procedure of notification and the length of the notice period. Furthermore information on severance pay, reasons for justified or unfair dismissal, length of the initial trial period before eligibility to EPL arises, and compensation or possible reinstatement following unfair dismissal is used. The indicator for fixed-term contracts is composed of information on valid reasons for the use of this contract type, and on the maximum number and cumulated duration of successive fixed-term contracts. The temporary work agency indicator is made up of the types of work for which temporary work agency employment is legal, the possible number of renewals, and the maximum cumulated duration of temporary work agency contracts (for more information refer to OECD, 2004). Table 1 shows the OECD indicators on EPL for Denmark, Germany, Spain and the United Kingdom for the late 1990s<sup>4</sup>; the last row (range) takes into account all OECD countries and therefore allows a rough assessment on the overall position of the countries under observation.

**Table 1: Summary indicators of the strictness of employment protection legislation, late 1990s**

	regular employment	temporary employment*	overall EPL**
<b>Denmark</b>	1.5	1.4	1.8
<b>Germany</b>	2.7	2.3	2.6
<b>Spain</b>	2.6	3.3	3.0
<b>UK</b>	0.9	0.3	1.0
<b>range</b>	0.2-4.3	0.3-4.9	0-7-3.7

\*Summary indicator of fixed-term contracts and temporary work agencies.

\*\*Includes information on the regulation of collective dismissal, this information is only weighted with 40 percent of the other indicators.

Source: OECD (2004: 112-117 (excerpt)).

The United Kingdom has very low EPL for both types of contract, Denmark has somewhat higher EPL but it's still low in the overall comparison. Germany and especially Spain have comparatively strict EPL for both temporary and permanent jobs. Between the late 1980s and the late 1990s Spain has considerably relaxed EPL especially for workers with permanent contracts while Germany has strongly relaxed EPL for temporary workers (compare OECD 2004: annex 2.A). The assumptions therefore are the following: generally higher mobility in Denmark and in the UK but also less difference between permanent and temporary workers than in Germany and Spain. The fact that EPL on regular employment has been strongly relaxed in Spain during the observation period whereas in Germany EPL on temporary employment has been relaxed, leads to the assumption that differences in mobility patterns between permanent and temporary workers may be somewhat smaller in Spain.

Besides EPL, the country's unemployment rate is expected to influence the frequencies of transitions to unemployment and thereby the inter-country comparison. For the period that

<sup>4</sup> The indicator of the late 1990s is used because the data period is 1994 (1995) to 2001. In general, the ranking of the countries has not changed a lot between the early 1990s and 2003, currently the latest available data.

data is available unemployment was highest in Spain, followed by Germany, the United Kingdom and Denmark. Downward transitions are generally assumed to happen more often in countries with higher unemployment rates than in countries with lower unemployment rates.

The same employment protection legislation applies to regular part-time workers and full-time workers in all four countries.<sup>5</sup> Part-time workers are therefore not expected to make more frequent transitions to unemployment than full-time workers. On the other hand, part-time employment is in a number of countries connected to household and care activities, we therefore expect more frequent transitions to inactivity among part-time workers at least in some countries. Part-time employment is a clear domain of women in all four countries. In Denmark it is for the largest part exercised voluntarily and due to high coverage with affordable and good-quality child-care facilities also for very young children the presence of children does neither have an influence on the part-time employment rate nor, in contrast to the other three countries, on the employment rate of women (Eurostat, 2006). In the UK and Germany, on the other hand, the majority of female prime age workers use part-time work to combine work with familiar or personal responsibilities; there is thus a clear relationship between part-time employment and the presence of children (OECD, 2002b). In Spain part-time contracts often are of a temporary nature. It is still relatively common for women to permanently withdraw from the labour market after marriage or child birth which to some extent explains why the relationship between part-time employment and the presence of children is weak (OECD, 2002b: 70-73). Our country-specific assumptions are therefore that transitions from part-time employment to household/carer activities will be more important in Germany and in the United Kingdom (extended male bread-winner model) than in Spain (traditional male bread-winner model) and especially Denmark (dual bread-winner model) especially so when children live in the household and no child care facilities are used.

### **3.3 Year to year upward, downward and sideward transitions**

Year to year transition matrices are intuitive and frequently displayed in studies on labour market mobility. They will allow us to compare mobility patterns among standard and non-standard workers in the four countries and give preliminary answers to the above hypothesis.

Tables 2 and 3 reveal that full-time workers or workers with permanent jobs in year  $t$  are in all countries more likely than part-time workers or temporary workers to still be employed one year later ( $t+1$ ).<sup>6</sup> Part-time employment with more than 15 hours is rather persistent (compare Table 2).<sup>7</sup> In Denmark, Germany, and the United Kingdom more than 60% of part-time workers are still in this state one year later. Consistently, only around one fifth of part-time workers make upward transitions to full-time employment in these three countries. In Spain, on the other hand, transitions from part-time to full-time employment are more common. Part-time employment in Spain actually plays a different role than in the other three

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<sup>5</sup> In the 1980s and the 1990s regular part-time employment has in all four countries been put on a par with full-time employment as concerns specific rights such as EPL, rights to maternity leave and the like. These rights often do not apply to part-time workers that work less than a specific number of hours (often 15 hours a week).

<sup>6</sup> Here, we do not differentiate between combinations of full-time/part-time employment and permanent/temporary employment. The multivariate models in the last part of this section will do so.

<sup>7</sup> We exclusively look at regular part-time employment with more than 15 hours and thus do not take into account marginal employment. This is due to the fact that in the ECHP a large number of job-related questions – for example the type of contract (indefinite/temporary) – have only been asked to people who work more than 15 hours.

countries, insofar as it is more often exercised involuntarily and less often used to combine work with childcare responsibilities.

Downward transitions are considerably more important among part-time than among full-time workers in all four countries. Contrary to our expectations – EPL being the same for regular part-time and for full-time workers, except for Germany where there are hardly any differences, part-time workers more often make transitions to unemployment than full-time workers. As expected in the assumptions, movements to inactivity are especially prevalent among part-time workers – the share of workers who move from part-time work to inactivity from one year to the next is 3 to 4 times larger than the share of full-time workers. The inactivity category explicitly contains ‘housework and caring’ and at least in Germany and in the United Kingdom part-time employment is often combined with care activities (OECD, 2002b: 78; Eurostat, 2006). Although the inactivity category generally plays a less important role in Denmark (for both part-time and full-time workers) there remain differences between both groups of workers – we will test later on which kind of characteristics (individual, household or job) contribute to this.

Sideward transitions (to education) are more frequent among part-time workers in all four countries, most particularly in Denmark and Spain. Especially in Denmark we can assume that this result is in part due to the large share of students among part-time workers. Additionally, the table shows that in Denmark transitions between unemployment and education play an important role; further education and activation are, indeed, integral parts of the Danish welfare system (compare Madsen, 2002b; Braun, 2001).

**Table 2: Upward, downward, and sideward transitions from and to full-time and part-time employment (%)**

t		t+1				
		full-time	part-time	education	unemployment	inactivity
full-time	DK	91.43	2.17	1.58	2.88	1.94
	DE	90.40	1.84	0.86	3.92	2.98
	SP	88.36	2.28	0.40	5.64	3.33
	UK	90.82	3.10	0.46	1.97	3.65
part-time	DK	20.23	62.41	6.26	5.14	5.96
	DE	17.35	66.18	2.01	3.18	11.29
	SP	31.81	42.61	2.75	10.46	12.37
	UK	18.42	64.87	1.09	2.70	12.92
education	DK	26.69	7.44	56.55	6.96	2.36
	DE	17.88	5.19	61.89	6.17	8.89
	SP	10.00	3.34	73.75	10.20	2.71
	UK	24.13	9.13	45.11	11.55	10.08
unemployment	DK	32.19	6.29	9.38	38.38	13.76
	DE	25.26	3.16	4.30	49.77	17.51
	SP	30.16	4.81	3.31	46.68	15.05
	UK	16.46	4.24	2.08	59.03	18.19
inactivity	DK	4.77	2.59	1.69	3.15	87.80
	DE	4.33	3.87	1.37	2.66	87.76
	SP	4.71	2.69	0.49	5.51	86.60
	UK	6.87	7.62	1.20	7.05	77.26

Source: own calculation, weighted data, 8 waves (1994-2001); age: 18-64.

Only employment with more than 15 hours is taken into account.

Upward transitions from temporary to permanent employment are most common in the United Kingdom where some 45% of temporary workers have an indefinite contract one year later (compare Table 3). In Spain, on the other hand, only one quarter of temporary workers move into permanent employment from one year to the next; the majority of workers remain in temporary employment. In Denmark and in Germany about 40% and in the United King-

dom about 30% of temporary workers remain in this situation from one year to the next.

As expected in the hypothesis, temporary workers are more likely than permanent workers to enter either unemployment or inactivity. The shares of temporary (permanent) workers who are unemployed or inactive one year later lie between 13 (3)% in Denmark and 20 (5)% in Spain. In Denmark, Germany and Spain movements of temporary workers to self-assessed unemployment (with or without benefit receipt) are more important than movements to inactivity. In the United Kingdom, on the other hand, standard as well as non-standard workers are more likely to enter inactivity than unemployment. One explanation is that the overall inadequacy of unemployment insurance coverage in the United Kingdom might lead to different self-assessment behaviour in this country.

Sideward transitions are in all four countries considerably more frequent among temporary than among permanent workers. Permanent workers seldom make transitions to education while temporary workers more frequently enter education especially in Denmark (about 9%) and in the United Kingdom (about 6%). Very high shares of transition to education among temporary workers occur mainly among young employees but in all age groups are temporary workers more likely than permanent workers to move to education.

**Table 3: Upward, downward, and sideward transitions from and to permanent and temporary employment (%)**

t		t+1				
		permanent	temporary	education	unemployment	inactivity
permanent	DK	92.01	2.92	1.08	2.20	1.79
	DE	89.47	3.63	0.50	3.05	3.34
	SP	89.70	5.45	0.13	2.51	2.21
	UK	91.35	1.89	0.35	1.79	4.62
temporary	DK	39.00	38.96	9.09	7.53	5.42
	DE	38.54	38.55	3.93	13.55	5.43
	SP	24.94	53.62	1.38	15.46	4.59
	UK	45.82	30.62	6.21	7.40	9.95
education	DK	15.22	14.45	59.81	7.93	2.60
	DE	9.40	6.66	67.93	6.81	9.21
	SP	2.25	8.14	76.70	10.47	2.45
	UK	19.15	13.19	45.54	11.66	10.46
unemployment	DK	20.13	12.78	11.45	38.78	16.86
	DE	15.52	9.39	4.48	53.70	16.91
	SP	5.76	24.10	3.67	49.95	16.51
	UK	12.38	4.20	2.11	63.40	17.92
inactivity	DK	3.36	1.86	1.82	3.14	89.82
	DE	4.73	1.81	1.39	2.75	89.31
	SP	0.75	2.92	0.47	5.08	90.78
	UK	10.22	2.32	1.27	8.17	78.02

Source: own calculation, weighted data, 7 waves (1995-2001); age: 18-64. Only employment with more than 15 hours is taken into account.

The above year-to-year transitions confirm the hypothesis of higher downward transitions among non-standard workers. On the other hand, we also observe more sideward transitions to education which in the longer run could contribute to improving not only reemployment opportunities but also job characteristics such as wages.

If longer-term transitions (t+4) are assessed, standard employment forms (full-time as well as permanent employment) are very stable in all countries. Between 80% (Germany) and 84% (Denmark) of full-time employees in t were still (or again) in this state four years later. This is also true for between 77% (Spain) and 86% (Denmark) of workers with permanent contracts. Between 27% (Germany) and 43% (Spain) of part-time workers were full-time employed four years later while considerable shares had moved to inactivity (between 17% in

Denmark and Spain and 23% in the United Kingdom). Longer-term persistency in part-time employment is greatest in Germany (47%). Longer-term persistency of temporary employment is considerably lower than that of part-time employment. This can be explained by the strong involuntary character of this employment form and also the rules governing it (limit of prolongation). Persistence is by far highest in Spain where about 34% of temporary workers in t still (or again) have a temporary contract four years later. Movements to permanent jobs are most common in the United Kingdom where almost 70% of temporary workers have an indefinite contract four years later. This is only the case for about 45% of Spanish temporary workers.<sup>8</sup>

### **3.4 Exits from employment taking into account censoring, the timing of events and multiple exits**

While the above tables were restricted to two time-periods the following section will broaden the analysis by providing results based on longer time periods. Event history analysis techniques are used in order to correct for certain problems inherent in the data and take into account the timing of events.

#### **3.4.1 The method**

Event history analysis techniques are designed to describe and predict the occurrence of events at particular time points. Survival times are modelled indirectly via so-called hazard rates. This concept is related to chances of making a transition out of a current state (here employment) at each time period (here month) conditional on survival up to that point (Jenkins, 18 July 2005: 10). Depending on the underlying process, the hazard rate can take on different functional forms. Over time, the hazard rate or risk can remain constant, increase, decrease or it can be a combination of all three possibilities (serpentine shapes) (Cleves et al., 2002: 7ff).<sup>9</sup>

The survivor function is directly related to the hazard rate, it reports the probability of surviving beyond time t, or put differently, the proportion of units not having experienced the event up to time t.  $H(t)$  being the cumulative hazard function – the total amount of risk that has been accumulated up to time t – and  $S(t)$  being the survivor function, the relationship between both functions can be described as

$$S(t) = \exp\{-H(t)\}.^{10}$$

Below, the failure function – the inverse of the survivor function – is used because we are less interested in illustrating “survival” in employment but rather in illustrating what share of people is leaving employment.

Two other important concepts in event history analysis are censoring and truncation. A survival time is said to be censored if all we know is that it began or ended within some particular time interval but we do not know the total spell length. Two types are distinguished:

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<sup>8</sup> The results are based on the ECHP data and calculated in the same manner as tables 1 and 2. The tables can be provided on request.

<sup>9</sup> An example for a combination of all three possibilities is human mortality related to aging. For some time after birth the hazard of dying is falling then a long flat plateau sets in, thereafter it is constantly rising (Cleves et al., 2002: 8).

<sup>10</sup> For a formal discussion of the concepts underlying survival analysis refer to Cleves et al. (2002: 7-11), Jenkins (18 July 2005: 13-24) and Box-Steffensmeier et al. (2004: 12-15).

right censoring and left censoring. Right censoring means that at the time of the last observation of the person the event under study (here exit from employment) has not yet occurred. Left censoring means that the start date or the start interval of the spell has not been observed (the person has already been employed when the survey started).<sup>11</sup> It is assumed that the process giving rise to censoring of survival times is independent of the survival time process (compare Jenkins, 18 July 2005: 4, 5). The basic problem with disregarding right censoring is that if censored and uncensored cases are treated equally, then parameter estimates from a model that treats the duration time as a function of covariates may be misleading – the relationship between the covariates and the duration times may be under- or over-stated (Box-Steffensmeier and Jones, 2004: 16-19). While right censoring can be dealt with in a straight forward way in event history analysis, most event history methods are not designed to handle left censoring. Left truncation means late entry to the risk set: a person is not observed during the first time period because it enters the study later or a person has not been in the specific state (here employment) during the first observation period. Left truncation can be dealt with relatively easy in event history modelling. Right truncation is not relevant for the data that is used here.<sup>12</sup>

In order to use event history methods the data has to be reorganised into a longitudinal record that contains information on the length of a spell, the time when the event occurred to an individual or a group of individuals and information on the type of event. In the following models the time to event is the length of employment (spell) and the event (exit) is non-employment. The descriptive methods used below for the most part do not differentiate between different exit types. The discrete time multivariate models, on the other hand, will look at competing exits: unemployment, inactivity, housework/carer, education, and retirement/other. They are thus constructed as competing risk models.

The data used does not contain information on the exact timing of events; only month to month transitions (grouped or interval censored data) are observed. Standard methods for continuous event history data such as Weibull models, exponential parametric models or Cox's proportional hazard models are therefore not appropriate. Instead, discrete time multivariate models are used. The basic idea of discrete time multivariate models is to create one record for each time unit that an individual is observed in employment. For every single one of these records a dependent variable is generated that is coded 0 in every record but the last. The last record is coded 1 (in the case of multiple events 1 to n) if an event occurred and 0 otherwise (censored). Furthermore a time variable is created that is introduced into the models as a covariate in order to assess time dependence. Time varying covariates can be matched to the data. The ECHP data only provides yearly information on covariates. They are assigned to every corresponding month of the specific year. On the reorganised data standard logistic regression methods can be used. One thereby obtains maximum-likelihood estimators of models that are analogues to those for continuous-time data (compare Allison, 1982: 94).

### 3.4.2 Comparative exit patterns

The failure functions that are displayed below provide maximum likelihood estimates of the probability that an individual randomly selected from the population will fail (exit from

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<sup>11</sup> This definition of left censoring is most commonly used in economics; biostatisticians usually use another definition, to them left censoring means that the event occurred already before the observation date.

<sup>12</sup> Only people who have experienced the event at a particular time point are included in the sample (for example outflow sample from the unemployment register). Long survival times are therefore systematically excluded.

employment).<sup>13</sup> There will be a difference between the percentage of workers that is still employed (not necessarily at the same employer) at the end of the data collection and the estimate of the percentage of workers that is still employed – this is exactly because censoring is adjusted for (estimation is done indirectly via the individuals who remain in the risk set). Under the assumption of independent censoring, one can thus use the risk set to estimate what would have happened to the entire remaining population had there been no censoring.<sup>14</sup> The results might be somewhat distorted by the fact that many interviewed people were already employed at the start of the survey and we do not know the real length of their employment spell (left censoring). Analogous to the later multivariate models multiple spells per person instead of only the last spell are taken into account.<sup>15</sup>

Figure 1 shows the importance of downward and sideward transitions in the four countries. Exits from employment are displayed as the cumulated failure rate which assesses the extent of exits at particular time points. Exits from employment to any non-employment category are most frequent in Spain and least frequent in Germany. If different exit types are regarded, exits to unemployment are by far most important; they make up about two thirds of all exits. Transitions to unemployment are by far most pronounced in Spain followed by Denmark. Whereas the high overall frequencies of exits to unemployment in Spain can be explained by very high shares of temporary workers in overall employment Denmark is known for its high levels of job mobility that are supported by low EPL (compare Madsen 2002b). Exits to inactivity, household/carer activities, and education (side-ward transitions) are all of similar importance. Exits to household/carer activities are most pronounced in the United Kingdom and least pronounced in Denmark. Denmark with its welfare system that focuses strongly on employability, indeed, exhibits the largest frequencies of exits to education.

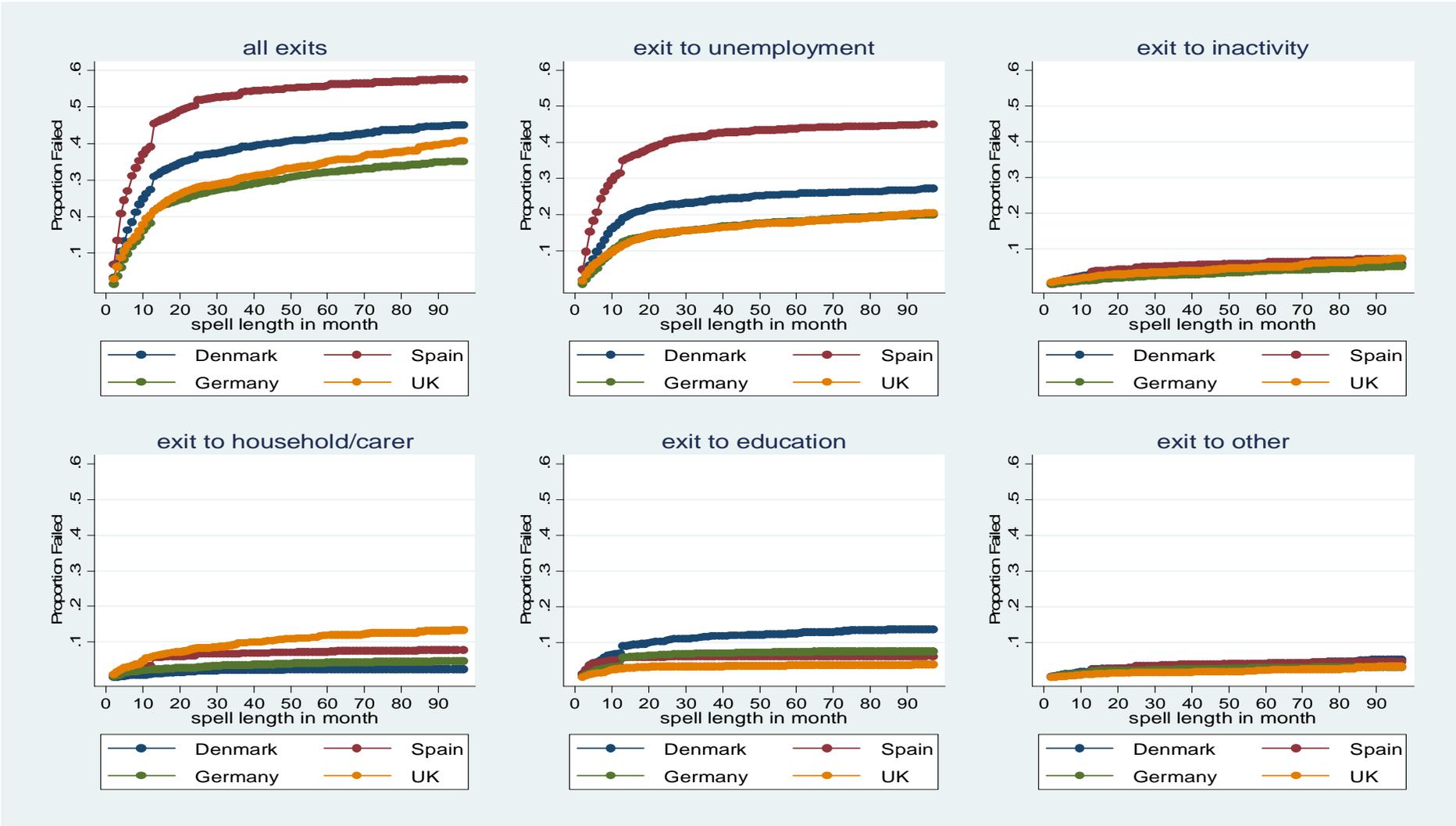
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<sup>13</sup> The failure functions are based on life tables which include information on people who are eligible to experience the event (risk set), on people who experience the event and on people who were censored at the end of the interval (one month in this case) (Singer and Willett, 2003: 326ff).

<sup>14</sup> In Denmark, for example, 3619 persons enter as full-time workers but at month 96 only 801 remain – they are then taken as the basis for making assumptions about those who have already left.

<sup>15</sup> Taking only the last spell per person into account leads to considerably lower cumulated failure rates especially among non-standard workers. This indicates that a non-negligible part of employees and especially of those with non-standard contracts is faced with repeated transitions from and to employment.

Figure 1: Comparison of importance of exit types by country (cumulated failure)

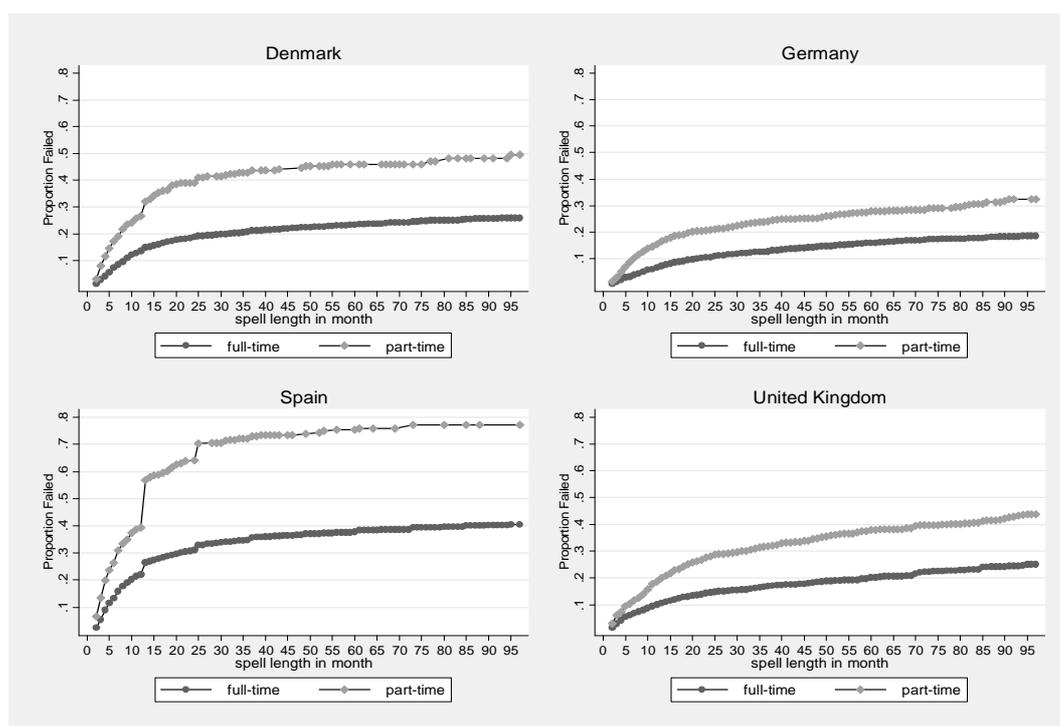


Source: Own calculation based on ECHP data (8 waves), multiple spells per individual are possible, age: 18-64. The category other combines exits to other and exits to retirement.

Figures 2 and 3 display the cumulated failure rates for standard and non-standard workers all downward transition types combined (excluding education). In order to be able to directly contrast transitions to non-employment for part-time and full-time workers and for workers with temporary and permanent contracts, respectively, for the descriptive analysis individuals are treated as censored as soon as they make a transition from temporary employment (part-time employment) to permanent employment (full-time employment) and vice versa. As soon as missing values appear in the covariate the individual is also treated as censored.<sup>16</sup>

In all countries, non-standard workers leave employment more frequently than standard workers but countries vary markedly in the extent of these differences.<sup>17</sup> Failure rates of full-time and part-time workers are closest in Germany, followed by the United Kingdom and Denmark whereas part-time workers show much higher exit rates than full-time workers in Spain (compare Figure 2). After two years about 65 percent of part-time workers in Spain have made downward transitions at least for a short period, the hazard of exit then flattens. The shares for Germany, the UK and Denmark are 20, 27 and 40 percent, respectively. The results for Spain are thought to be at least in part due to the fact that the majority of part-time contracts are of a temporary nature (Cebrián et al., 2000).

**Figure 2: Exits from employment to non-employment (excluding education/training) for full-time and part-time workers**



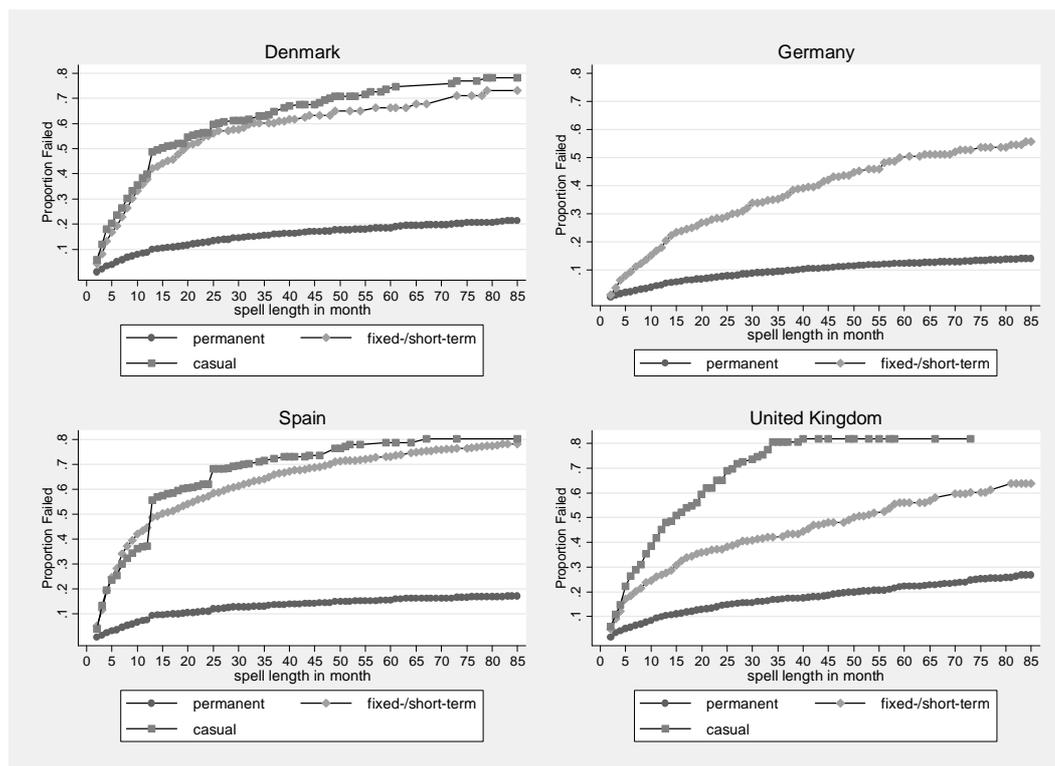
Source: Own calculation based on ECHP (8 waves), multiple spells per individual, age: 18-64.

<sup>16</sup> Specifying changes in the covariates of interest as censoring seems to provoke somewhat higher failure rates for non-standard workers during the first two years and an assimilation of both failure rates thereafter. The general tendencies and pronounced differences between countries as well as between standard and non-standard workers are very similar independent of model specification.

<sup>17</sup> The differences between countries are supported by the log-rank test for equality of survivor function. In all cases, the probability that subgroup differences occur by chance is 0.000. The null hypothesis of no subgroup differences in survivor functions can be rejected (compare StataCorp, 2005).

Temporary workers are in all countries considerably more likely to make downward transitions from employment than workers with permanent contracts (Figure 3). In fact, permanent employment is very stable in all four countries. Differences are especially large in Spain and Denmark and fixed-term/short-term workers are about as bad off as workers with casual contracts. In the United Kingdom, on the other hand, workers with casual contracts are much more likely to exit employment than workers with fixed- or short-term contracts. Case numbers of casual workers in Germany are too small to display the results.

**Figure 3: Exits from employment to non-employment (excluding education/training) for workers with permanent and fixed- or short-term and casual\* contracts**



Source: Own calculation based on ECHP data (7 waves), multiple spells per individual, age: 18-64.

\*Case numbers for casual contracts are too small for Germany; therefore only exits from fixed- or short-term employment are displayed.

The above tables only show one side of the picture, we have information on how long employment lasted before unemployment or inactivity set in but we do not know how long the subsequent non-employment period lasts. Exit profiles in Denmark and Spain might be similar but considerably lower unemployment rates in Denmark suggest very different re-entry profiles (much faster in Denmark than in Spain).

In line with the year to year transition matrices the above results confirm our hypothesis that non-standard workers are more likely than standard workers to make exits from employment but they do not yet control for other influencing factors. Differences in exit rates between standard- and non-standard workers and between different countries may for example be driven by different age or occupational profiles. Furthermore, the interrelation between working time and contract type is also believed to play a role.

Below, competing risk models will be used to look at different exit patterns -

(unemployment, inactivity, household/carer activities (downward transitions) and education (sideward transition)) between standard and non-standard workers under control of individual, household and job characteristics. These models not only allow taking into account time-varying covariates and censored observations but through including time as additional covariate duration dependence in exit patterns can also be assessed.<sup>18</sup>

### 3.4.3 Multivariate models on transitions from employment

Five different exit types or competing risks, unemployment, inactivity, household/carer, education, and other are regarded in the following section in order to test the assumption that exit patterns vary between workers with non-standard and workers with standard contracts. Competing risk models allow assessing the influence of covariates on different exits: different types of events may potentially have different causes, a certain covariate might influence exits to one state but not to another one. Competing risk models are thus useful to shed light on the assumption that exit types may vary for different groups of non-standard workers. The assumption here is that exits to household/carer activities are more common among part-time workers than among persons with temporary contracts who rather exit to self-assessed unemployment. High exit probabilities to education in a specific country could point to activation or employability strategies during non-employment periods. The following multivariate models allow multiple employment spells and exits per person, possible dependence of events is controlled for via a person identifier.<sup>19</sup>

#### 3.4.3.1 Method

Following Allison (1982) and Jenkins (18 July 2005: 93 ff), a maximum likelihood multinomial logistic regression model (MNL) is calculated on data that is reorganised in a person-month form in order to calculate competing events. The MNL model is essentially a series of 'linked' logit models and the parameters are interpretable as logit coefficients (Box-Steffensmeier and Jones, 2004: 173ff). The model can only be calculated if one of the sets of parameters is set equal to zero and used as the reference category. The other coefficients then measure changes in probabilities relative to the censored or no event outcome. Risk is thus measured as the risk of a specific category (exit to unemployment for example) relative to the base category (remaining in employment for example). Covariates in event history analysis are hence directly interpretable in terms of risk.<sup>20</sup> If there are  $k$  possible events that an observa-

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<sup>18</sup> Time is included into the model as duration-interval-specific dummy variable. Choosing a non-parametric baseline and thus non-linear duration dependence seems reasonable because not least due to legislative rules on firing that often get stricter with time spent in a specific firm, firms are expected to be more likely to fire employees during their initial period of employment as compared to later periods.

<sup>19</sup> Box-Steffensmeier et al. (2004) strongly suggest using all possible spells and events of a subject in order to avoid a loss of potentially important information.

<sup>20</sup> One potential disadvantage of estimating the model using standard software multinomial logit programmes is that these typically require that the same set of covariates appears in each equation even though it can easily be imagined that assumptions about the type of influencing factors vary with exit type (Jenkins, 18 July 2005: 96, 97).

tion is at risk of experiencing, the MNL model estimates  $k - 1$  logit models to obtain parameter estimates on the destination-specific hazards (ibid). The hazard probability for the MNL model is

$$\lambda_{(ik)} \frac{\exp \beta'_k x}{\sum_k^K \exp(\beta'_k x_i)}$$

The intuition behind using standard logistic regression analysis techniques on a person-period data set is that the hazard function describes the conditional probability of event occurrence where the conditioning depends upon the individual surviving until each particular time period and the values of the predictors in each time period (Singer and Willett, 2003: 381-384). Each person thus contributes as many records as he or she is at risk of experiencing the event.

### 3.4.3.2 Choice of variables

In MNL models a range of dependent variables can be specified, here, the competing exits from employment are the dependent variables. As to the explaining variables, the main interest lies in the effects of non-standard employment on exits from employment, the interpretation of the results thus will focus on part-time employment and temporary employment (fixed-term and casual employment). The other independent variables are used to control for heterogeneous profiles of individuals who hold these contracts. Higher exit rates, as observed in the descriptive analysis above, and differences between countries might not be due to non-standard employment contracts as such but could be due to a specific age profile or the concentration of non-standard workers in particular sectors that are more unstable than others.

The first group of independent variables includes gender, age, marital status and a variable that captures the presence of children in the household and the use of child-care among those who have children. Strong relationships between part-time employment and the household situation (presence of children, marital status) have been shown at least for some countries (OECD, 2002b). It is assumed that mothers who are part-time workers are more likely to exit employment than fathers and men and women without children – especially so in Germany and the United Kingdom. They are expected to mostly exit to household/carer activities. The marital status is to capture hypothesis on the influence of the male breadwinner model on exits from employment. Age is taken into account because the importance of non-standard employment especially of temporary employment varies between age groups. The second group of explanatory variables captures human capital and job related aspects such as qualification levels and occupational groups. Qualification levels and job characteristics are known to vary between standard and non-standard workers (Leschke, 2006). Since it is assumed that previous unemployment periods have a positive effect on exits from employment especially to unemployment (repeated unemployment spells) a variable is included that captures previous unemployment spells.

While individual and household characteristics are assumed to have a stronger influence on the exit patterns of part-time workers, job related aspects are assumed to be more important for temporary workers. Most of the above specified variables are time-varying and thus take on different values in different time periods. Only gender is invariant, qualification levels can increase over the duration of the spell but in most

cases remain at the same level over the whole period.

### 3.4.3.3 Interpretation of results from multivariate models

The following interpretation will focus on differences between standard and non-standard workers. The full regression table is shown in annex 1, Table 7.<sup>21</sup> Below, only the effects of interest are displayed. In order to structure the tables the results are presented under three headings:

- *types of exit* (as compared to remaining in employment): unemployment, inactivity and household activities are distinguished;
- *security dimension* (exits to unemployment versus exits to inactivity): we expect that transitions to unemployment are connected with greater income security and are of a more short-term nature than transitions to inactivity;
- *employability* (exits to education versus remaining employed and becoming unemployed).

#### Country comparisons

In a first step a general comparison between the four countries takes place by calculating one model for all countries and introducing country dummies. Germany is chosen as the reference category. The descriptive analysis already showed that general exit probabilities are lowest in Germany this also proves true when accounting for individual, household, and job characteristics. Danish, Spanish and British workers are between 1.4 and 1.9 times more likely than German workers to make a transition from employment to unemployment relative to staying in employment (compare Table 4). Concerning transitions to inactivity only the effect for the United Kingdom is significant, British citizens are 1.6 times more likely than Germans to exit to inactivity as compared to remaining in employment. Exits to household activities relative to staying in employment are considerably more likely in Spain and especially in the United Kingdom. As expected, the effect is not significant for Denmark. In line with the importance of employability strategies in the Danish welfare model, the odds to make transitions to education relative to staying in employment are about four times greater in Denmark than in Germany. The effect is not significant for the other two countries.

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<sup>21</sup> In order to compare the effect of the main variables of interest between different pairs of outcomes (not only between unemployment and remaining in employment but also between unemployment and inactivity, for example), the 'listcoef' option implemented as Stata ado-file by Long and Freese (2006: 261) is used. Instead of beta coefficients, odds ratios are displayed and used for interpretation. They are the exponential of the coefficient and can be interpreted in the following way: "For a unit change in x the odds are expected to change by a factor of  $\exp(b)$ , holding all other variables constant." For  $\exp(b) > 1$  the odds are  $\exp(b)$  times larger. For  $\exp(b) < 1$  the odds are  $\exp(b)$  smaller.

**Table 4: Odds of different exit types compared between countries<sup>22</sup>**

odds ratios	DK	SP	UK
<b>REFERENCE: GERMANY</b>			
<b>types of exit</b>			
<b>unemployed - remaining employed</b>	1.47***	1.42***	1.91***
<b>inactive - remaining employed</b>	1.03	0.88	1.63***
<b>household - remaining employed</b>	0.95	2.82***	7.08***
<b>security dimension</b>			
<b>unemployed - inactive</b>	1.43*	1.61***	1.17
<b>employability</b>			
<b>education - remaining employed</b>	4.28***	1.04	1.24
<b>p<sup>2</sup><sub>MF</sub><sup>23</sup></b>	0.19		
Significance levels: *= $p < 0.05$ , **= $p < 0.01$ , ***= $p < 0.001$			
Additional independent variables: type of contract, gender, marital status, age, qualification, occupation, unemployed before, children in the household and if yes, childcare or not.			

Source: Own calculation based on ECHP data; one model with country dummies. An example of the full model is given in Table 7 (annex 1).

It is worth to shortly consider duration dependence. For all countries and all exit types, the odds to exit employment decrease with time in employment. In all countries, for exits to unemployment, time dummies are significant for most time periods. This is also the case for exits to inactivity and household/care activities in the United Kingdom and Spain. Furthermore, in all countries, exits to unemployment relative to remaining in employment are strongly and significantly related to former unemployment periods whereas exits to education relative to remaining in employment are negatively related to former unemployment periods (not significant in Germany) (compare Table 7, annex 1).

### **Part-time versus full-time employment**

Due to employment protection legislation (EPL) that does not differ between regular part-time workers and full-time workers, it was expected that there would be no difference in exit behaviour to unemployment. This is true for Germany and Spain but not for the UK and Spain (compare Table 4). In the United Kingdom part-time workers are somewhat more likely than full-time workers to make transitions to unemployment whereas in Spain there are somewhat less likely. A tentative explanation for the positive and significant effect in the UK is that part-time jobs in this country are known to be comparatively bad. Dissatisfaction with earnings or working conditions could lead to a situation where (voluntary) transitions to unemployment among part-time workers happen more frequent. In Spain, on the other hand, part-time workers are less likely than full-time workers to exit to unemployment but two times more likely to exit to inactivity. This self-assessment behaviour could hint to lacking unemployment benefit coverage of part-time workers. In line with our expectations odds to make transitions to household/carer activities relative to remaining in employment are significantly positive for part-time workers in Germany and in the UK. Interestingly

<sup>22</sup> Multinomial logit model on event history data: dependent variable: exit to unemployment, inactivity, household/carer, education, other inactivity. Independent variables: part-time employment, type of contract, gender, marital status, age, qualification level, occupation, unemployed before, children in the household and if yes, childcare or not. The data is not weighted; the results are displayed as odds ratios.

<sup>23</sup> Pseudo  $r^2$  ( $p^2_{MF}$ ) cannot be interpreted analogous to  $r^2$  from linear regression. In practice,  $p^2_{MF}$  values are lower than  $r^2$  values, all one can say is the higher  $p^2_{MF}$  the better the model fits (Kohler and Kreuter, 2001: 272-273).

this is also the case for Denmark where we had expected fewer differences in the importance of household activities. In Denmark, part-time workers are not only more likely to make transitions to household/care activities but also to inactivity. The part-time coefficient on exits to household/care is not significant for Spain, supporting previous findings that part-time employment exercises a different function in Spain than in the other countries.

**Table 5: Odds of different exit patterns for part-time workers as compared to full-time workers (reference)**

odds ratios	DK	DE	SP	UK
<b>PART-TIME WORKERS VERSUS FULL-TIME WORKERS</b>				
<b>types of exit</b>				
unemployed - remaining employed	0.92	1.05	0.85*	1.34**
inactive - remaining employed	1.98*	0.46	2.09***	1.11
household - remaining employed	2.75*	2.22*	1.00	1.28*
<b>security dimension</b>				
unemployed - inactive	0.47*	2.27	0.41***	1.22
<b>employability</b>				
education - remaining employed	1.87**	2.21*	3.13***	3.61***
education - unemployed	2.04**	2.10	3.70***	2.69***
p <sup>2</sup> <sub>MF</sub>	0.18	0.15	0.22	0.20
Significance levels: *= $p < 0.05$ , **= $p < 0.01$ , ***= $p < 0.001$				
Additional independent variables: type of contract, gender, marital status, age, qualification, occupation, unemployed before, children in the household and if yes, childcare or not.				

Source: Own calculation based on ECHP data; single country models have been calculated. For information on model specification compare footnote 22. An example of the full model is given in Table 7 (annex 1).

Looking at the security dimension, in Denmark and in Spain, the odds of part-time workers to exit to self-assessed unemployment relative to exiting to inactivity are only half as great as the ones for full-time workers. The effects for Germany and the United Kingdom are not significant.

Participation in education can be seen as a sustainable strategy for bridging non-employment periods because it helps maintaining employability and work-readiness. We already saw that education plays an important role especially in Denmark. Furthermore, the year-to-year transitions revealed that the share of non-standard workers that make transitions from employment to education is higher than that of workers with standard contracts in all countries. And this also proves true when controlling for additional characteristics as the odds of making transitions to education as compared to remaining employed or becoming unemployment are 1.9 to 3.7 times greater among part-time workers than among full-time workers and significant in all four countries.

### Temporary versus permanent employment

How do temporary and permanent workers compare if we look at their exit patterns? Since the strength of effects considerably varies between fixed-term/short-term workers and casual workers, tables for both groups are displayed separately (compare Table 6<sup>24</sup>). In line with our assumptions (lower EPL for temporary workers and short term nature of contracts) accounting for individual, household, and job characteristics, the odds to make transitions to unemployment relative to remaining in employment

<sup>24</sup> The case numbers for casual workers in Germany are very low we therefore display the results in brackets and do not comment on them.

are significantly greater for workers with fixed-term contracts than for workers with permanent contracts. The size of effect ranges from 2.7 in the United Kingdom to 3.6 in Spain. The effects are of similar size for casual workers. The status of workers with casual contracts seems to be even more volatile than that of workers with fixed-term contracts. While coefficients for workers with fixed-term contracts concerning exits to inactivity are only significantly positive for Spain, the odds of casual workers to make exits to inactivity as compared to remaining in employment are significant and positive in all countries. Additionally, fixed-term workers in Germany and fixed-term as well as casual workers in Spain have higher odds to change from employment to household/carer activities.

**Table 6: Odds of different exits for fixed-term/short-term (casual) workers compared to workers with permanent contracts (reference)**

odds ratios	DK	DE	SP	UK
<b>FIXED- /SHORT-TERM WORKERS VERSUS PERMANENT WORKERS</b>				
<b>types of exit</b>				
unemployed - remaining employed	3.52***	3.53***	3.63***	2.69***
inactive - remaining employed	1.74	1.14	1.72**	1.36
household - remaining employed	0.59	2.36*	3.31***	1.32
<b>security dimension</b>				
unemployed - inactive	2.02	3.09***	2.10***	1.97*
<b>employability</b>				
education - remaining employed	3.73***	3.59***	2.50***	3.52***
education - unemployed	1.06	1.02	0.68	1.31
<b>CASUAL WORKERS VERSUS PERMANENT WORKERS</b>				
<b>types of exit</b>				
unemployed - remaining employed	3.23***	(1.48)	3.34***	3.48***
inactive - remaining employed	3.07***	(5.37***)	2.44***	2.50*
household - remaining employed	1.95	(2.67)	7.84***	1.16
<b>security dimension</b>				
unemployed - inactive	1.05	(0.28*)	1.37	1.39
<b>employability</b>				
education - remaining employed	3.27***	(4.16*)	2.23*	5.23***
education - unemployed	1.01	(2.80)	0.67	1.51
P <sup>2</sup> <sub>MF</sub>	0.18	0.15	0.22	0.20
Significance levels: * = p < 0.05, ** = p < 0.01, *** = p < 0.001				
Additional independent variables: type of contract, gender, marital status, age, qualification, occupation, unemployed before, children in the household and if yes, childcare or not.				

Source: Own calculation based on ECHP data; single country models. For information on model specification compare footnote 22. An example of the full model is given in Table 7 (annex 1).

Concerning the security dimension, in Germany, Spain and the United Kingdom but not in Denmark the odds to make transitions to unemployment relative to making transitions to inactivity are significantly greater for fixed-term workers than for workers with open-ended contracts. Here, one has to keep in mind that we are looking at self-assessed unemployment which can either be unemployment with or unemployment without insurance benefit entitlement. The coefficients for casual workers on the security dimension are not significant.

On the employability dimension in all countries, the odds to make transitions to education relative to remaining in employment are significantly greater for fixed-term and casual workers than for workers with open-ended contracts. In contrast to part-time workers, the odds to make transitions to education relative to becoming unemployed do not significantly vary between workers with temporary and workers with permanent contracts.

Independent of holding a standard or a non-standard contract as expected women and parents are considerably more likely to exit to housework/carer activities than men and childless people. In Spain and the United Kingdom this is also true for married persons. It is not clear why the gender effect for Germany is not significant. The coefficient for child-care points into the expected direction (except for Spain) but is not significant for any country (see Table 7, annex 1). And what about qualification, occupation, and age effects? Usually a positive relationship between low qualification levels as well as employment in elementary occupations on exits to non-employment is expected. The effects on the variable that captures the qualification level are with very few exceptions not significant. Except for Germany, where coefficients take the expected direction but are not significant, occupations that require higher qualifications are to a lesser degree associated with odds to enter unemployment than elementary occupations (not all significant). Age effects are not consistent over countries except for highly significant negative effects of age on participation in education (compare Table 7, annex 1).

#### **4. Conclusion**

The above descriptive and multivariate results support the hypothesis that non-standard employment is less stable than standard employment. Due to the short-term nature of temporary contracts and less strict employment protection legislation we had expected that temporary workers would be more likely than permanent workers to make transitions to unemployment – this proves true for all countries. As expected, overall mobility is higher in the United Kingdom and Denmark (lax employment protection legislation) than in Germany which has relatively strict EPL on permanent and temporary contracts. Mobility – especially so downward mobility – is also high in Spain nevertheless this its strict EPL. One explanatory factor that has not been taken account of in the analysis is the comparatively high unemployment rate in Spain that might contribute to this outcome. Accounting for individual, household and job characteristics differences between permanent and temporary workers (fixed-term/short term and casual) in downward transitions to unemployment, inactivity or household/carer activities are by far largest in Spain but also evident in the other countries. This outcome is especially problematic in light of the very large shares of temporary workers in Spain.

Upward transitions to permanent employment (only regarded here as year-to-year transitions) are most common in the United Kingdom and least common in Spain. An important finding is that casual employment is even more volatile than fixed-term employment: downward transitions – especially to inactivity – among casual workers as compared to permanent workers are considerably more pronounced than among workers with fixed-term contracts.

The descriptive analysis showed that part-time employment has a higher persistency than temporary employment in all countries except for Spain where the majority of part-time workers have temporary contracts. Longer-term persistency of part-time employment is especially high in Germany and in the United Kingdom, the two countries where household constellations with a male full-time worker and a female part-time worker are still common. As expected, downward transitions to inactivity and/or household/care are considerably more important among part-time workers than among full-time workers. This is also true for Spain and Denmark where part-time

employment is not traditionally used to combine work with family activities. We expected no difference between part-time and full-time workers in exits to unemployment because EPL does not vary between full-time and regular part-time workers. This expectation only proves true for Denmark and Germany. Spanish part-time workers are in fact somewhat less likely than full-time workers to become unemployed but the fact that they are more likely to become inactive. A possible explanation for the higher exit likelihood of part-time workers in the UK is the bad quality of part-time jobs in this country especially if it comes to earnings which might stimulate part-time workers to leave their job (become unemployed) in order to search for a new job.

The analysis also showed that sideward transitions from employment to education are considerably more likely among non-standard than among standard workers in all countries. The role that education measures play among non-standard workers has to be further assessed though. We for example do not know which proportion of non-standard workers deliberately quits or interrupts their job in order to participate in skill-upgrading education measures and which proportion voluntarily or involuntarily participates in education or training measures in order to remain employable during times of unemployment. Education and training among non-standard workers indeed can take various forms: it is for example well known that young people in Denmark and in the United Kingdom often combine part-time work with (university) education.

The use and active promotion of fixed-term and casual contracts as well as part-time employment has surely helped some groups to enter or re-enter the labour market and has therefore contributed to increasing employment and/or decreasing unemployment and inactivity. On the other hand, these developments rendered employment of certain subgroups less stable (higher risk of unemployment and inactivity) and more insecure (risk of lower income and insufficient social insurance coverage). These employment forms thus entail segmentation potential. The analysis showed that part-time workers and employees with fixed-term or casual contracts are in all four countries more likely than their counterparts in standard employment to become unemployed or inactive. While temporary employment except for Spain also plays an important bridging function to regular permanent employment, part-time employment is persistent especially in the countries that closely comply with the extended male breadwinner model (male full-time worker and female part-time worker), namely Germany and the United Kingdom.

How problematic the volatility of non-standard employment is very much depends on the function and on the extent of non-standard employment in the specific countries. Denmark, Germany, and the United Kingdom dispose of high shares of part-time workers especially among women. In Denmark part-time employment is prevalent among young people who combine work and education, while in Germany and in the United Kingdom, in the absence of sufficient child-care services, it is mainly used by mothers to combine work and care activities. How financial penalties and disadvantages that arise from part-time employment will be balanced will crucially depend on the household situation of the people concerned. In Spain, part-time employment often goes hand in hand with temporary employment which further downgrades the situation of the people concerned. Temporary employment clearly is associated with being young (especially in Spain and Germany) and with low qualification levels, the United Kingdom being an exception. While temporary employment in Denmark and in the United Kingdom remained relatively stable at around 10(5)

percent over the last one and a half decades, in Germany, in absolute numbers, it increased considerably since the early 1990s. The high extent of downward transitions among temporary workers in Spain is especially problematic not only in light of the high shares of fixed-term and casual workers in overall employment but also in light of insufficient unemployment benefit coverage for this group. The low degree of employment protection legislation, extensive child-care provision, and an ongoing positive labour market situation seem to support standard employment among prime-age people in Denmark.

## Annex 1

**Table 7: Multinomial logit models for single countries (reference category: remaining in employment), beta coefficients**

REFERENCE CATEGORY: REMAINING IN EMPLOYMENT	Denmark	Germany	Spain	UK
<b>EXIT UNEMPLOYMENT</b>				
Part-time	-0.086	0.050	-0.167*	0.294**
Reference : permanent workers				
Fixed-term	1.258***	1.262***	1.290***	0.990***
Casual	1.147***	0.394	1.206***	1.246***
Female	0.101	-0.299***	0.091	-0.150
Age	0.006	-0.011*	0.012***	-0.016***
Reference: ISCED 0-2				
ISCED 3	-0.062	0.133	-0.098	-0.123
ISCED 5-7	-0.219	0.087	-0.179*	-0.003
Unempl. before	3.689***	4.537***	3.065***	3.907***
Reference: married				
Separated/divorced	0.153	0.260*	-0.274	0.308**
Widowed	-0.593	-0.251	-0.714*	0.074
Never married	0.122	0.315**	0.159*	0.356***
Reference: children, no child-care				
No children	0.230	-0.066	-0.067	-0.169
Children + child-care	0.130	-0.090	-0.050	-0.540***
<b>EXIT INACTIVITY</b>				
Part-time	0.681*	-0.771	0.737***	0.100
Reference: permanent				
Fixed-term	0.556	0.131	0.544**	0.310
Casual	1.123***	1.682***	0.892***	0.917**
Female	0.693*	-0.010	0.549**	0.366*
Age	-0.077***	0.049***	0.027**	-0.001
Reference: ISCED 0-2				
ISCED 3	0.535	-0.120	0.034	0.171
ISCED 5-7	0.196	-0.487	-0.210	0.196
Unempl. before	0.255	0.244	-0.189	0.608***
Reference: Married				
Separated/Divorced	0.254	0.251	0.616*	0.139
Widowed	-36.108***	-0.497	0.319	-1.120
Never married	-0.014	-0.371	0.279	0.337
Reference: children, no child-care				
No children	-0.601*	0.511	-0.200	-0.084
Children + child-care	-0.662	-0.043	0.117	-1.039**
<b>EXIT HOUSEHOLD/CARER</b>				
Part-time	1.011*	0.798*	0.001	0.247*
Reference : permanent workers				
Fixed-term	-0.528	0.860*	1.196***	0.275
Casual	0.668	0.982	2.059***	0.148
Female	2.456***	0.496	5.351***	3.392***
Age	-0.001	-0.026	0.035**	-0.070***
Reference: ISCED 0-2				
ISCED 3	2.179*	-0.318	-0.353	0.249
ISCED 5-7	1.504	-0.138	-0.584	0.274*
Unempl. before	-0.524	0.675	0.367	0.129
Reference: married				
Separated/divorced	0.014	0.403	-1.049**	-0.429*
Widowed	-37.049**	0.569	-0.667	-0.147
Never married	-0.284	-0.593	-1.522***	-0.680***
Reference: children, no child-care				
No children	-1.186**	-0.828*	-0.553**	-2.539***
Children + child-care	-0.500	-0.394	0.031	-0.127
<b>EXIT EDUCATION</b>				
Part-time	0.626**	0.790*	1.142***	1.283***
Reference : permanent workers				
Fixed-term	1.315***	1.277***	0.914***	1.257***
Casual	1.184***	1.424*	0.801*	1.655***
Female	-0.237	-0.899***	-0.237	-0.005

Age	-0.094***	-0.113***	-0.161***	-0.173***
<b>Reference: ISCED 0-2</b>				
ISCED 3	0.419*	0.265	0.895***	0.465
ISCED 5-7	0.135	-0.008	1.301***	0.468*
Unempl. before	-0.446*	-0.283	-0.843***	-0.409*
<b>Reference: married</b>				
Separated/divorced	-0.771	0.442	0.010	0.741
Widowed	-35.588***	-37.099***	-31.450***	-29.163***
Never married	-0.528	-0.094	1.209***	0.486
<b>Reference: children, no child-care</b>				
No children	0.682	0.958*	0.106	0.343
Children + child-care	0.168	0.100	-1.151	-0.213
Pseudo R2	0.18	0.15	0.22	0.20
Prob>chi2	0.000	0.000	0.000	0.000
Number of Cases	141686	248595	261893	301776

Source: Own calculation based on ECHP data, single country models are calculated. Time and occupations are controlled for but not displayed here. Coefficients for the exit category 'retirement/other' are not shown.

Significance levels: \*=p<0.05, \*\*=p<0.01, \*\*\*=p<0.001

## Annex 2

### The European Community Household Panel data (ECHP)

The ECHP provides comprehensive harmonised cross-sectional and longitudinal data for EU-15 countries. It has been running from 1994 to 2001. In 1994 a sample of approximately 60500 nationally representative households composed of about 130000 individuals aged 16 and over was interviewed in the then twelve member states (Eurostat, 2002). Austria joined the ECHP in 1995, Finland in 1996. Sweden provided data for the ECHP derived from the Swedish Living Conditions Survey from 1997 onwards. The data was collected by national statistical offices or research institutions based on a common questionnaire. It was then transmitted to Eurostat which further processed the data (editing, weighting, imputations) and created the user data base (Wirtz and Mejer, 2002). In Germany, the United Kingdom and Luxembourg the original ECHP survey was stopped after three waves and replaced by comparable data derived from existing national panels. In Germany ECHP variables are derived from the German Socio-Economic Panel (SOEP), in the United Kingdom from the British Household Panel Survey (BHPS). Accordingly, some variables and categories are missing in the German and the British data and comparability is lower than between countries that used the original questionnaire. Mainly due to protection of data privacy the information that is available in the user data base is more restrictive than the original data. Occupation, industry, and education categories are for example highly aggregated in comparison to the original questionnaire. Furthermore, the user data base provides only aggregated information on many income variables. The ECHP contains cross-sectional weights on the individual and household level and individual-level longitudinal weights to take into account household and unit non-response and thereby correct for any lack of representativeness in the sample.

Due to concerns about timeliness and comparability, in 1999 it was decided to replace the ECHP with a new data base, the 'Statistics on Income and Living Conditions' (EU-SILC). The main difference to the ECHP is that existing national data sources (survey or register data) are used (ex-ante-output harmonisation), a rotating panel structure is adopted and new EU members states as well as Norway and Island participate. The survey was launched in seven countries in 2003. Data is just now becoming available for some countries (Ehling and Günther, 2003).

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