

Analysis of the determinants of Temporary employment in 19 European countries

Frederic SALLADARRE & Boubaker HLAIMI
(University of Nantes)

Abstract

This paper studies the determinants of temporary employment in 19 European countries using data from the *European Social Survey*. The analysis shows that temporary employment is more feminized. Fixed term employment appears conversely connected with the age, which supports the fact that temporary employment seems to become the stepping stone to permanent jobs. In addition, temporary employees appear to work less than permanent workers with reference to working time, which reduced relatively their potential wages. Moreover, the probability of being in a fixed term contract is negatively correlated with the trade-union membership. However, non-permanent workers seem to be more favourable than permanent employees for the necessity of having strong trade unions, even if atypical employment is often associated with a less trade-union presence on the place of work. From another hand, past unemployment is likely to reduce considerably the chance to be re-employed on a contract of unspecified duration.

Finally, estimates from a bivariate probit show that part time employment concerns more frequently citizens of the country while fixed term employment is more devoted to immigrants. However, some points of convergence characterize part-time and fixed-term' contracts. Women are more frequently associated with these two kinds of flexibility. Nonetheless, part-time employment is more feminized than fixed-term contract. Age acts in the same sense, but fixed-term workers are younger than part-time workers. In the two cases, domicile location has no impact on probability to work in part-time or in fixed-term contract

JEL Classification: J64, E32, C41; J41; J60

Key Words: temporary jobs, fixed term contract, contract of unspecified duration

INTRODUCTION:

For more than two decades, temporary employment has shown a progression in the majority of the OECD countries. On average, in the European countries, the part of fixed term contracts (henceforth FTC) grew from 5.5% in 1983, to 14% in 2005 and for France, over the same period, from 3,3% to 12,4% (OECD, 2007). Fixed term contracts, interim, on-call contracts and other contractual forms like public subsidised jobs was created and developed. Several reforms led to an increase in the use of those contracts generating low firing costs (Belot et al, 2002). Modifying legal standards regarding work conditions, the utilisation of new contractual forms aims to increase the labour market flexibility in order to reduce unemployment and to allow for an adaptation to an unexpected or limited demand (Blank and Freeman, 1994).

However, this form of external quantitative flexibility can increase employment instability, reduce the job security and induce negative consequences on the relative stability of the life and working's conditions. Moreover, the growth of temporary employment generates a differentiating and unequal dynamics regarding employment characterized for many specialists by a "*strong economic vulnerability and a potential restriction of social rights since the latter are founded, mainly, on the employment stability*" (Paugam, 2000, p.3). Certain unemployed, resulting from temporary forms of employment, do not obtain rights only on the basis of criteria of poverty if the reference period is insufficient (Freyssinet, 2002). The way in which the social risks, related to retirement and health, family and labour market are treated in relation with temporary employment, seems fundamental. Its impact on the forms of employment varies according to social protection systems.

Several approaches provided an understanding description of the development of fixed term employment. Other studies based on micro data tried to identify the determinants and the individual factors associated to temporary employment. This form of employment combines numerous specificities. In several countries, employment of fixed duration appears, on average, less qualified, less remunerated and less syndicated. Temporary employment more frequently concerns young people and women. A limited number of studies seem to have focused on international comparisons of individual data regarding this form of employment.

Our paper tries, basing on an international sample, to compare the determinants of temporary employment in several European countries. We seek to show possible similarities/dissimilarities in the sociodemographic determinants of fixed term employment. Moreover,

following a cumulative principle, we focus on differences related to work conditions and especially the connection between fixed term and part-time' employments.

This paper will be organized as follow: In the first section, we present a review of literature about the determinants of temporary employment by focusing on traditional approaches and the employment transition. In the second section, we present the data and the variables used in our empirical analysis. The third section is devoted to empirical results while the fifth concludes.

1. REVIEW OF LITERATURE:

Theoretical analysis apprehend temporary employment, either as a contractual form offering a method of adjustment regarding the fluctuations of activity, or as the result of a dichotomic conception of the labour market (such as precarious contracts characterizing the secondary labour market and which allow to avoid the firing costs). Some recent approaches stress the importance of FTC in the process of recruitment through contracts of unspecified duration.

At the same time, temporary employment can constitute a way of entry into the labour market and a mode of adjustment for the employers, in imperfect context information, to determine workers capacities to produce. If this assumption on the selection process were fully confirmed, the relevance of long-term measurements on job security would be reduced. A non-permanent employment could appear as a period of specific training or integration within the firm. In this context, it should be perceived in a positive way by the majority of workers: fixed term employment seems to be the first form of securitisation of professional tracks. Moreover, the necessity to combine this kind of external quantitative flexibility and security would be reduced.

However, the assumption of a non-standard employment as a mode of pre-recruitment appears partially validated. For a majority of temporary workers, limited duration employment is not considered as a mean of extending the probation period, and thus it can be associated with various forms of flexibility.

1.1. Temporary employment: traditional approaches and assumption of stepping stones

A limited number of theoretical approaches apprehend employment contracts according to their duration. The first approach characterized by the endogenization *ex ante* of the contract duration was presented by Gray (1978). He analysed the recourse to intermediate employment contracts located between the long-term employment relation -contract of unspecified duration- and spot contracts (Simon, 1951). Reconsidering Walras labour market framework,

Simon (1951) defined the employment relation as a durable relationship held within an organization between the employer and the employee. However, for the spot contracts, the supplier and the applicant decide to limit the relation to a fixed period. The end of the contract is predetermined, but the contract rests on the initialization of the relation and the period associated with the contract. The existence of a deadline, fixed a priori in the case of a fixed duration contract, does not appear in this approach. Several analysis relate to limited duration employment.

Firstly, Doeringer and Piore (1971) define the internal labour market as an administrative unit in which pricing and the allocation of labour such as recruitments, mobility or earnings are governed by a set of administrative rules and procedures. It works according to a set of rules, more or less formalized, specific to each firm, disconnected from the labour market and defining the relation of long-term employment. In this approach, the employees look for the stability of their employment and the firms tend to set their internal market by limiting the costs of rotation, taking into account the external market to give them the required degree of flexibility given the evolution of the economic situation. In opposition to this process of assignment and compensation, on the external labour market, earnings, training and the work allocation are determined by the market adjustments following supply and demand. The use of fixed duration contracts is an element of this secondary market. In this approach, this last appears relatively hermetic compared to the primary labour market. The analysis of Piore and Doeringer (1971) offers an analytical framework of the labour market segmentation. However, this does not allow for explaining the assumption of stepping stone potentially played by limited duration employment.

For Gray (1978), temporary employment enables to adapt to demand fluctuations. In an uncertain environment, the contract duration appears as the result of a trade-off between the costs supported by the firm when employment is not adapted to the demand and the costs of re-contractualisation. Within this framework where the employer fixes the duration, the lengthening of contracts makes it possible to amortize the hiring and firing costs and the specific training. In the model developed by Canzoneri (1980), trade unions fix both the contract duration and the wages, whereas firms choose its employment level. An increasing uncertainty enhances the hiring and firing costs which reduce the contract duration. However, after the two oil crises, the contract duration remained relatively stable (Danziger, 1992). Moreover, following the implicit contracts theory, Danziger (1992) shows that the duration of temporary contracts appear as the result of risk sharing between employers and employees. According to the nature of the shocks (real, nominal or relative), the duration is not affected

similarly. Furthermore, the magnitude of the shocks seems to play a part in the contract duration (Danziger, 1995, 1996). However, only the hiring costs and the intensity of the shocks and their variability justify the recourse to temporary employment, whereas the characteristics of the workers do not play any part, which seems to be contradicted by the empirical studies. Like Piore and Doeringer (1971), these models do not allow for explaining the assumption played by the temporary contracts as a stepping stone towards employment of unspecified duration.

Several complementary approaches integrate the assumption of stepping stones. In a context of imperfect information, in particular on the level of effort and the capacities to produce, the employer has information limited on the employees. The relation of interdependence between the contractual forms makes it possible to face a situation of anti-selection (Lazear, 1995). A temporary contract pushes the employee to reveal his capacities to produce in the hope of recruitment on the basis of an unspecified duration contract. In the model of Harris and Holmström (1987), the duration of the contract allows the employer to adjust in a context of imperfect information, taking into account variations of the capacities to produce of the employees. This model shows that the contract duration is given according to the number of periods necessary to reach the required level of the capacities to produce given the cost occurred. The more the interval is tightened, the more the contract duration lengthens. It is heterogeneous according to the employees. This specification allows for explaining the interdependence between the fixed duration contracts and the temporary employment, the heterogeneity of the contract duration according to socio-economic characteristics. However, the deadline cannot be fixed by the employer because he has to observe beforehand the employee levels of production. With this intention, Guriev and Kvasov (2005) introduce costs linked to the rupture of the contract and to the renegotiation. In this model, a distinction is made between the contractual duration and the duration of the relation between the contracting parts. The contractual duration makes it possible to integrate information on the specific investment carried out by the contracting parts and on the evolution of the external options. However, the duration of the contract is given ex post in this model.

1.2- Temporary employment: a stepping stone towards the permanent post?

Since the last two decades, more than one third of the European employees are recruited through non-permanent employment, of which the half by fixed duration contracts and, in this last set, almost 30% by the interim (OECD, 2002). Non-standard employment aims to adjust the demand fluctuations and their unpredictable nature such as illness or absenteeism, to

reduce the costs of work or to find workers with rare or specific competences necessary for a short period or specific projects (Everaere, 1999). Certain approaches, empirical or qualitative, analyzed the implications of the FTC from several perspectives. On the one hand, non-permanent employment can be considered as a method or an appropriateness entry on the labour market (Engellandt and Riphahn, 2005). In addition, two advanced assumptions are opposed: that of a temporary activity like job shopping and that of stepping stones towards a contract of unspecified duration (*job shopping versus stepping stone*).

In the first case, fixed term employment can be deliberately chosen. In several countries, certain temporary contractual forms offer advantages in terms of remuneration or trade-off between work and leisure. This effect of selected flexibility can result from a bargaining power favourable to workers thanks to their characteristics. In the second case, non-standard employment seems to constitute a means for employers to filter the upcoming permanent employees. This contractual form can be used at the entry of the labour market as a process of selection or of stepping stones. The assumption of fixed duration contract as a stepping stone to the permanent job was the subject of several studies.

For the United Kingdom, Booth et al (2002) confirm partially the assumption of stepping stone, followed by an increase in the wages and welfare benefits. Over a 7 years period, approximately 38% of the non-standard workers go towards employment of unspecified duration after the term of their temporary contract. This positive inciting effect of the fixed term contract does not characterize all the types of non-standard contracts. Temporary employment by its nature (i.e. seasonal workers) is distinguished from the non-temporary activities. There are strong differences in the transitions in term of wages and satisfaction. The authors emphasise the importance of the local conditions of employment (in particular the unemployment/vacancy ratio). With a duration model, Güell and Petrongolo (2007) analyze the determinants of the conversion of temporary contracts into permanent jobs in Spain. The conversion rates are generally lower than 10%: the rate grows with the contract duration with a pick at the legal bound of the contract when it is not possible to retain the worker on a temporary contract. The differences in conversion between the categories of workers rise from differences in exit options of the workers: if these last exist conversions then increase. Nevertheless, the rates of transition from fixed duration contracts towards contracts of unspecified duration appear relatively weak in Spain (Amuedo-Dorante, 2000). The conversion rates are weaker for less qualified workers and grow with the seniority. Men have higher conversion rates (Engellandt and Riphahn, 2005). Güell and Petrongolo (2007) distinguish the entry in fixed duration contracts (first step towards contracts of unspecified

duration) from the exit of fixed duration contracts: in the Spanish case, the probability of accession to a contract of unspecified duration is higher for those in non-standard contract than for the unemployed (in the same way for the USA, to see Farber, 1999). Güell and Petrongolo (2007) find, in the case of Spain, that the rates of conversion of temporary contracts into contracts at unspecified duration increase with the seniority.

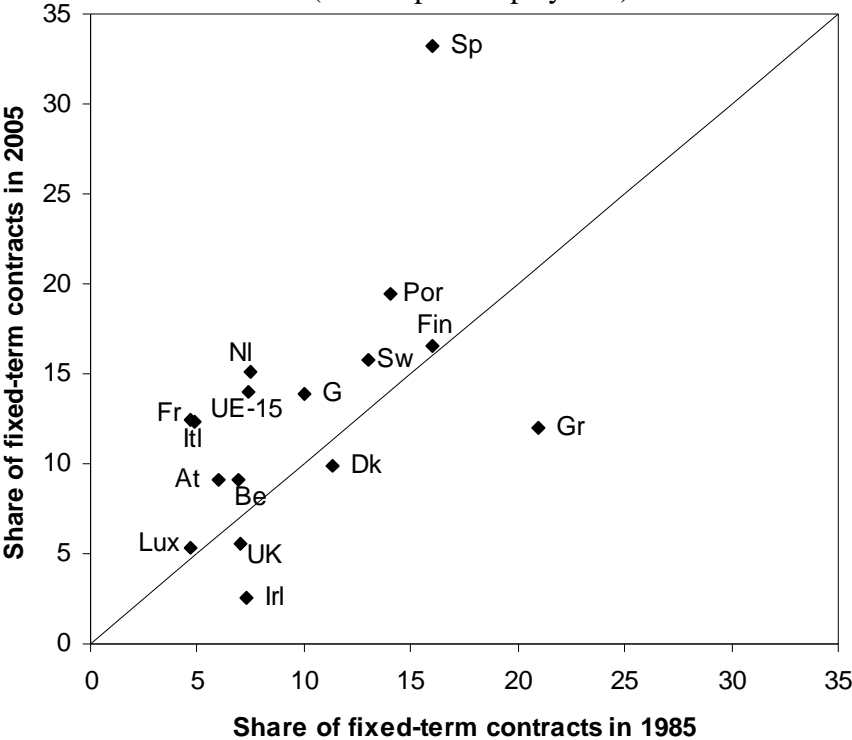
For Italy, the transition probability from a determined duration contract to a permanent job increases with the contract duration, but decreases with repeated fixed term employment, in particular with interruptions (Gagliarducci, 2005). It is not temporary employment itself, but the intermittency which is detrimental to employment. For a long fixed term contract, the probability of conversion increases initially then decreases thereafter. Van Ours (2004) analyzes the locking-in effects of the subsidized temporary employment using a natural experiment of the Slovak labour market: if subsidized employment holds for long time, workers reduce the intensity of their job search. Hagen (2003) and Hagen and Boockmann (2005) confirmed the assumption of partial probationary period for Germany. For Switzerland, Engellandt and Riphahn (2005) found that 26% of non-standard wage-earners sign in determined duration contract after the end of their contract.

In France, temporary contracts became for many firms the usual method of recruitment. They seem to constitute the privileged instrument of the short-term adjustment but also of the transformation of unstable posts into unstable employment (Goux, 2000). In France, the period during which an employee occupies a non-standard employment positively affects the probability of fitting durably on the labour market when this one is not stopped by an inactivity or layoff (Bunel, 2007). The rates of access to stable employment are less different according to the age than the diploma. For Cerc (2005), France is distinguished within the European countries, by weak transitions from the temporary contracts towards employment of unspecified duration. For French labour market, 25% of workers who were in temporary jobs in 1999 are in permanent posts one year later. In the European Union, only Spain (25%) and Portugal (10%) have such low rates of transition. Contrary, the rate of transition reaches 55% in Austria, in Ireland and in Netherlands; it is 50% in Belgium and 45% in the United Kingdom (Cerc, 2005).

France could be ranked among a group of countries, with Spain, Finland, Portugal, Greece and Italy, where the access to employment in temporary contract appears to be rarely a stepping stone towards a permanent job. It seems to offer little more perspectives for jobs with contracts of unspecified duration on the middle term. On the short run, persistence in temporary employment is thus strong in Portugal, France and Spain. The southern European

countries have a strong proportion of temporary employment and offer less transition towards the established post than northern European countries (Muffels and Luijkx, 2005). On the long term, the position of France becomes more favourable: nearly 60% of the workers, who were in temporary contract in 1995, had a permanent job in 2000. This proportion remains lower than 50% in Italy, Spain, Portugal and Greece (European Commission, 2003). Nevertheless, in France as in Spain or Finland, the risk of unemployment, five years after having occupied a temporary employment appears relatively high.

Figure 1 Evolution of fixed-term contracts in Europe between 1985 and 2005
(in % of paid employment)



Source: OECD (2007)

Temporary employment seems to constitute a method of entry on the labour market. However, the assumption of a non-standard employment as mode of stepping stones only appears partially checked. It depends on the national configurations. Consequently, the implementation of measures towards a security of the individual trajectories seems legitimate. The relationship between fixed duration employment and sociodemographic determinants as well as the work conditions will be analyzed. We compare finally two forms of atypical employment in order to understand the specificities and the differences of each form.

2. DATA AND DESCRIPTIVE STATISTICS:

2.1. The European Social Survey:

The data used in this study are from the first wave of the European Social Survey (henceforth ESS). The sample counts 42.359 questioned individuals on the whole and will be used on 19 countries (Austria, Belgium, Switzerland, Germany, Denmark, Spain, Finland, France, United Kingdom, Greece, Ireland, Iceland, Italy, Luxembourg, Netherlands, Norway, Portugal Sweden and Slovenia). This wave provides more than 500 questions regarding employment, conditions of work, and socio-demographic characteristics of individuals, their couple and their parents. Several questions refer to the methods of the participation in the labour market. In addition, the ESS provides information on individual behaviours and beliefs in the European countries. The study carried out relates to only the active wage-earners (people declaring to practice a remunerated profession and giving the number of working hours) of more than 15 years, that is 37964 observations. In the ESS survey, individuals are questioned on the nature of their employment contract (contract of limited duration or not). Among the wage-earners, a binary variable is defined to give us information about the temporary work. We use a set of probit models in order to establish the explanatory factors of fixed term employment. The endogenous variable is the occupation of a fixed term job in opposition to the employment with unspecified duration considered as situation of reference. The explanatory variables are related to the individual and family characteristics of wage-earners. Basing on this international sample, the determinants of fixed term employment will be analyzed. This approach will allow for capture similarities and differences in the employment of fixed duration between European countries.

Given the qualitative nature of our endogenous variable, the traditional methods of inferences based on linear specifications cannot be adopted. Models with qualitative variables enable in this case to take into account discontinuity of the dependant variables. The explanatory factors selected are the followings: gender, age, the household size, the marital status (with 4 modalities), the size of sibship (with 4 modalities), the level of education (with 4 modalities), the socioeconomic status (basing on the general Nomenclature of the Economic activities in the European Communities) and the geographic location (with 4 modalities), the citizenship, additional working time, the unemployment period, the trade-union membership, hierarchical responsibilities, the establishment size and the extent of work organization

2.2. Some descriptive statistics:

Table 1: descriptive statistics

	Permanent employment	Fixed-term contracts
Part in the total paid work	81.5	18.5
Gender		
Male	49.0	43.2
Female	51.0	56.8
Citizenship		
Citizen of the country	95.6	95.0
Immigrant	4.4	5.0
Age		
15-24 years	5.4	27.9
25-34 years	16.8	23.2
35-44 years	22.3	17.0
45-54 years	19.0	12.4
55-65 years	17.1	8.9
More than 65 years	19.4	10.6
Children		
No child	57.7	66.6
One child	17.7	14.4
Two children	17.1	12.5
Three children or more	7.5	6.5
Marital status		
Married	59.5	38.2
Separated/divorced	9.4	6.9
Widowed	7.6	5.2
Never married	23.5	49.7
Domicile description		
Big city	16.4	19.5
Suburb or outskirts of big city	17.4	15.3
Town or Small city	29.6	30.5
Rural area	36.6	34.7
Highest level of education		
Not completed primary education	2.1	3.7
Primary or first stage of basic	10.1	11.2
Secondary Education	66.0	64.4
Tertiary Education : first stage	15.8	14.4
Tertiary Education : second stage	6.0	6.3
Classification NACE		
Agriculture, hunting and fishing	2.1	4.5
Extractives and manufacturing industries	6.5	5.2

Other manufacturing industries	10.1	6.3
Manufacturing of electrical and transport equipments	4.8	3.5
Construction and Electricity supply	7.5	7.3
Trade, hotels and restaurants	15.7	18.7
Transport and financial intermediation	10.4	6.6
Real Estate, public administration	16.1	14.6
Education, Health and social work	20.3	22.9
Social, personal services and household activities	6.5	10.4
Part time	16.2	24.9
Membership of trade-union or similar	32.6	21.7
Trade-union at the work place	61.3	53.9
The need of strong trade-unions		
Absolutely agree	28.9	32.6
Agree	47.0	47.7
Neither agree, nor disagree	13.1	12.3
Disagree	9.1	6.1
Absolutely disagree	1.9	1.3
Unemployment Period during the last 5 years	8.9	26.2
The establishment size		
< 10	24.3	33.0
[10 , 24]	18.0	22.1
[25, 99]	23.6	21.2
[100, 499]	18.7	13.6
> 500	15.4	10.1
to what extent organize own work		
Not at all	12.7	18.9
Very little	12.3	16.8
To some extent	26.0	27.8
To a large extent	49.0	36.5
Allowed to decide how the daily work is organized		
No influence	8.3	15.8
Weak influence	13.1	18.8
certain control	37.5	34.8
Strong control	41.1	30.6
Total	23,279	5,419

Gender differences in employment status appear more unfavourable to female workforce. While the difference between men and women in permanent employment is about 2 points, FTC are 6 points higher for women. Being immigrant doesn't affect considerably the employment status where almost 4.4% of immigrants are in permanent jobs and 5% in FTC. Regarding the age, adult and senior employees seem to be less affected by temporary employment. However, the rate of young employees in FTC exceeds 25%. In addition, temporary jobs concern rather single workers and individual without children, whereas approximately 60% of married workers are in permanent positions.

For the geographic location, the rates of the two forms of employment are very similar even if higher rates of employment are observed in rural areas. For educational levels, secondary education appears the most employable for both permanent and temporary' employments. Finally, for the work conditions, temporary employment is less concerned with trade union membership and temporary workers appreciate more the presence of strong trade-unions.

3. EMPIRICAL ANALYSIS:

3.1. Sociodemographic determinants of temporary employment:

The table 2 summarises the analysis of socio-demographic determinants of fixed term employment in 19 European countries. In the whole sample, temporary employment appears to be more feminized. Women seem to be concerned with the idea of flexibility. In France, men seem to be more often in temporary and casual jobs while the women in contracts of fixed duration (Brunet, 2003). This result is found on the level of the Union European (Stener Pedersen et al, 2004). In France, the probability of being in contract of unlimited duration after having been in temporary employment is relatively lower for the women (Bunel, 2007). The difference between men and women regarding temporary employment can arise from a female specific behaviour. The women seem more inclined to work at given duration: this tendency can result from a propensity of women who passed towards the public and non-market sector (Booth et al, 2002; Lazear and Rosen, 1990). They seem more frequently to be self-selected in temporary employment whose finality does not consist with a filtering or a probationary period.

Another explanation can be associated with the types of employment traditionally occupied by women. The remunerated activities, characterized by a relatively important proportion of women, are those where non-permanent employment is developed the most. This structural effect linked to the permanent employment could allow for explaining this difference. Beyond these explanations, with equal endowments and identical behaviours, unexplained factors can be at the origin of this difference. Taking into consideration the kinds of security, this situation can reduce the employment stability for women, possibly that of work, their income security, but it can contribute positively to their combined security, in particular when it is the case of a choice. Nevertheless, the importance of the national context has to be stressed. The variable gender is significant only in half of the studied countries. In all the southern countries (Spain, Italy, Portugal and Greece) and in almost all those of the North of Europe (Sweden, Norway, Netherlands, Finland, except for Denmark), temporary employment appears more feminized (see table 2a).

Temporary employment appears conversely connected with the age: the profile of this last variable takes an inverted U-shaped. However, the minimum is around 66 years. This form of employment also concerns mainly the youth (Gasparini et al. 2000), including for the component relative to the interim (Stener Pedersen et al, 2004). This result partially supports the assumption of stepping stone. Temporary employment seems to become the stepping stone to a permanent job. It is related to the youth unemployment (Goudswaard and Nanteuil, 2000).

Moreover, the marital status affects negatively the probability of working in fixed term contract. However, the household size increases the probability of being in a fixed term contract. The marriage appears to be a protection from employment of fixed duration in the southern and continental European countries (Austria, Switzerland, Germany, France, Italy, and Portugal except for Belgium, Spain and Greece). For France, our results confirm an association between fixed term employment and celibacy (Cottrell et al, 2002). Except for the United Kingdom, Ireland and some countries (Denmark, France, Greece, Luxembourg and Netherlands), being married is positively connected with the probability of being in a fixed term contract.

Alternatively, the presence of children is conversely connected with the probability of being in a fixed term contract. Globally, the result is not significant in the presence of children, but relative to the case of absence of children, the probability of being in temporary employment becomes negative with the presence of one child. An employment of unspecified duration can be a factor supporting the choice to have one or more children. Contrary, the presence of one child can be perceived like a signal favourable to a more stable contractual form for an employer.

The level of education appears determining on the probability of being in fixed duration contract: in particular, the absence of diploma or the primary level of education support the possibility of having a temporary activity. This result is applicable for the European countries (Pedersen et al, 2004).

Ceteris Paribus, the probability of being employed under fixed-term contract is reduced, from approximately 45% for the primary education compared to the absence of diploma, from 67% with a secondary level or a cycle runs in the tertiary sector and from 63% with a long cycle. The educational level appears generally lower for non-permanent workers, however that depends on the flexible forms of work and the types of employment: the temporary workers tend to be less qualified whereas the majority of the on-call workers and those under contract of unspecified duration have more one higher training level. The temporary workers have on

average a level of diploma and qualification lower than the average (Stener Pedersen et al, 2004). In certain countries, non-permanent employment is often associated uses requiring little formation (Austria, Switzerland, Greece, Spain, Greece, Finland, Sweden and Slovenia). This relation appears particularly strong in the countries of the south of Europe.

For France, we do not find a significant effect of the educational level. Nevertheless, the workers in part-time contract at unspecified duration are more graduate and qualified than those with contracts of fixed duration (Cottrell et al, 2002). However, little difference is observed for the United Kingdom between the two last forms of contractulasing, although on average fixed term employment appears less graduate (Booth et al, 2002). A level of long tertiary education increases the probability of being in contract of limited duration. This last effect is proved for Germany, Finland and Sweden. In these countries, temporary employment can correspond to workers with rare or particular competences required for a short period or specific projects.

For the economic activities, European Social Survey utilizes the general Nomenclature of the Economic activities in the European Communities (NACE). Temporary employment appears to be associated with agriculture, hunting and fishing, reflecting a rather seasonal employment. The probability of being in a fixed term contract is positive for education, health and social work. A similar tendency appears in the Community, Social and Personal Service's sector, cultural activities and sporting and activities of households. In Europe, temporary employment is relatively important in the services, food industries and the construction. Temporary employment is utilized primarily in industry and building (Stener Pedersen et al, 2004). In France, employment of limited duration concentrates in industry for the interim and tertiary sector for the FTC (Cottrell et al, 2002). Conversely, the probability of being in a non-permanent job is lower in manufacturing industries, transport and communications, financial intermediation.

The analysis confirms for several countries (Belgium, Germany, Denmark, Spain, France, Italy, Norway, Portugal and Sweden) the positive probability to work for fixed duration in agriculture. Except for Italy and of Belgium, in the same countries (Germany, Denmark, Spain, Finland, France, Norway Portugal and Sweden), temporary employment is associated with collective, social and personal services. Construction seems to be connected with non-permanent employment in particular in Spain (confirming the results of Dolado et al, 2002; Gagliarducci, 2005), whereas Italy is characterized by a strong tendency to this contractual form for the hotels and restaurants' sector. Globally, in spite of a tendency of a growing

recourse to non-permanent jobs in a whole variety of sectors, it is particularly marked in services sector which shows a strong expansion.

Temporary employment concentrates mainly at the inhabitants of big cities. On the other hand, being in rural regions reduce the probability of being employed with a fixed term contract. The presence in urban areas of individuals having a positive probability to work temporarily holds only for women. One explanation could arise from sectoral differences. If the density of population is high, the possibilities of finding an employment can increase, in spite of the existence of pockets of unemployment in the large cities.

3.2. Work conditions of temporary employees:

Table 3 informs about the characteristics of employees on FTC regarding their working conditions and their professional tracks. Temporary employees seem to work less than permanent workers with reference to working time, which reduced relatively their potential wages. Among full-time workforce, temporary employees make less additional hours in France (Cottrell et al, 2002). For Switzerland, temporary workers provide higher effort than permanent employees: their probability of working unpaid overtime exceeds that of permanently employed workers by 60%, characterizing an effort to integrate an established post (Engellandt and Riphahn, 2005).

The temporary workers are characterized by a larger tendency to work in part-time¹. In France, the non-permanent workers seem to work less than the employees of unspecified duration (Cottrell et al, 2002): the part-time employment of limited duration is particularly strong among women who appear relatively young, less frequently married and whose working time is less often selected and weaker than women in part-time employment of unspecified duration. This seems similar for the European level (Daubas-Letourneux, 1998). A part-time activity generally offers a weak level of earning.

Moreover, the probability of being in a fixed term contract is negatively correlated with the trade-union membership. All things being equal, probability of being in fixed term employment reduce the probability of being syndicated by more than 50%. However, the non-permanent workers appear more favourable than permanent employees on the necessity for having strong trade unions. Temporary employment is associated with a less trade-union presence on the place of work. All things being equal, probability of being in fixed term employment reduce the presence of trade union on the place of work by approximately 25%.

¹ Part-time workers are those who work less than 30 hours a week; following the OCDE definition

This result can be associated a temporary activity which concerns mainly small firms (less than 25 employees). This confirms the fact that small-sized firms choose more frequently temporary work rather than permanent contracts (Daubas-Letourneux, 1998). In France, the probability of being in contract of unspecified duration after having been in temporary employment is relatively lower in small-sized companies (Bunel, 2007).

All things being equal, the probability of being in contract of given duration is multiplied by nearly three (2.93) if the employer met an unemployment period during the last 5 years. An episode of unemployment leads to a decline in the future probability to find an employment of unspecified duration. Unemployment can be viewed as a period of human capital desaccumulation. Frequent employment changes are likely to generate a depreciation of the human capital stock, by reducing the specific productivity (Arulampalam, 2001). Thus, unemployment provides a negative signal to employers about a lower unobservable productivity of the employees (Gibbons and Katz, 1991), which can reduce the prospects for temporary workers having met an episode of unemployment. Contrary, according to the assumption of stepping stones, temporary employment, less qualified on average, appears as a means of generating specific competences to the firm before recruitment for unspecified duration.

The share of autonomy of temporary employees appears relatively reduced. To be in contract at limited duration multiplies by nearly two (1.8) the absence of decision regarding work organization compared to employees for unspecified duration. In addition, non-permanent workers seem to have less freedom for the tasks organization, working methods or the rhythm of work (Daubas-Letourneux, 1998). At the European level, temporary workers seem to have less control on the production process and on the working methods (Merllié and Paoli, 2001). By the same way, temporary employment could reduce the possibilities of tasks changes. The probability of being in fixed term employment decrease by 17% in the case of weak influence, by 28% in that of a certain control and by 40% for a great control. On the level of work organization, precarious workers carry out more monotonous and repetitive tasks, have little opportunity to acquire new knowledge through their work. If they are less subject than the permanent workers to raised rates, they have on the other hand much less autonomy in the management of their work and their time; are consulted and less take part in the decisions (Daubas-Letourneux, 1998). The cumulative principle (Gouswaard and Nanteuil, 2000) seems confirmed: subcontracting may be dedicated to permanent and highly qualified employees, while non-permanent contracts may be widely used for core, non-subcontracted, activities. The material working conditions and the work condition are unfavourable for the temporary

workers. This situation can be at the origin of a weak job security for the non-permanent employees.

In parallel, the influence on the work organization and on the possibility of influencing the decisions regarding work organisation appears weak in the case of fixed term employees compared to wage earners with contract of given duration. In the case of interim, employees seem to have little control on the rhythm of work (Merllié and Paoli, 2001). The use of flexible workers seems to induce a reorganization of the tasks while the internal division of work is increased (Goudswaard and Nanteuil, 2000): there is a relation between quantitative flexibility and the organisational change. Temporary employees appear relatively less concerned by functional flexibility. They can allow a greater organisational flexibility for workers in unspecified duration while being confined with tasks excluding any form from qualitative internal flexibility. Within this framework, the cumulative assumption, associating little conditions of both work and employment appears confirmed. This situation can be at the origin of a weak job security for non-permanent employees.

3.3. Part-time employment and fixed term contract

As another kind of work flexibility, part-time work concerns directly wage-earners. In this section, these two kinds will be compared through bivariate Probit regression.

Fixed-term contract can be distinguished from part-time workers by several ways. Part-time employment concerns more frequently citizens of the country. Conversely, immigrants are usually in fixed-term employment. Familial composition greatly differs between part-time employment and fixed-term contracts. While part-time workers are more frequently married, fixed-term contracts live generally in other family structure (separated, divorced, widowed or never married). Moreover, fixed-term workers are less educated.

Even if there is no difference in the fact of having children between permanent and part-time workers, fixed-term workers have fewer children than permanent workers. Additional working time concerns simply part-time workers whereas fixed-term contract met more frequently unemployment period during the last 5 years. Part-time employee exert more frequently in retail trade, education sector, health and personal services' sectors.

However, some points of convergence characterize part-time and fixed-term' contracts. Women are more frequently associated with these two kinds of flexibility. Nonetheless, part-time employment is more feminized than fixed-term contract. Age acts in the same sense, but fixed-term workers are younger than part-time workers. In the two cases, domicile location has no impact on probability to work in part-time or in fixed-term contract.

These two forms of atypical employment are less syndicated and have less hierarchical responsibilities. They are more frequently concentrated in small establishments.

While part-time workers have a higher degree of freedom to organize their own work than fixed-term employees, the extent to organize their own work is less frequent than that of permanent employees.

Except for the Great Britain and Netherlands, these two types of flexibility are generally inverted.

Once the effects of different variables are controlled, positive correlation coefficient is observed between two forms of employment. This result shows a greater probability to cumulate fixed-term contract and part-time employment in Europe.

4. CONCLUDING REMARKS:

In this paper, we analyzed the determinants of temporary employment in several European countries using the *European Social Survey*. Our results show that temporary employment appears conversely connected with the age, which supports the fact that temporary employment seems to become the stepping stone to a permanent job.

In addition, temporary employees seem to work less than permanent workers with reference to working time, which reduced relatively their potential wages. Moreover, the probability of being in a fixed term contract is negatively correlated with the trade-union membership.

However, the non-permanent workers appear more favourable than permanent employees on the necessity for having strong trade unions, even if temporary employment is associated with a less trade-union presence on the place of work.

From another hand, anterior unemployment can be viewed as a period of human capital desaccumulation where the probability of being in contract of given duration is multiplied by nearly three (2.93) if the employer met an unemployment period during the last 5 years. An episode of unemployment leads to a decline in the future probability to find an employment of unspecified duration.

Finally, estimates from a bivariate probit show that part time employment concerns more frequently citizens of the country while fixed term employment is more devoted to immigrants. However, some points of convergence characterize part-time and fixed-term' contracts. Women are more frequently associated with these two kinds of flexibility. Nonetheless, part-time employment is more feminized than fixed-term contract. Age acts in

the same sense, but fixed-term workers are younger than part-time workers. In the two cases, domicile location has no impact on probability to work in part-time or in fixed-term contract

REFERENCES:

- Amuedo-Dorante C. (2000) “Work Transitions into and out of Involuntary Temporary Employment in a Segmented Market: Evidence from Spain”, *Industrial and Labor Relations Review*, vol.53, n°2, pp.309-325.
- Arulampalam W. (2001), “Is unemployment really scarring? Effects of unemployment experiences on wages”, *The Economic Journal*, vol.111, pp.585-606
- Belot M.K.V., Boone B. & Van Ours J.C. (2002), “Welfare effects of employment protection”, Discussion Paper Series n°3396, Centre for Economic Policy Research, May 2002
- Blank R. & Freeman R.B. (1994), “The connection between Protection and Flexibility”, in Blank R., *Social Protection vs. Economic Flexibility: Is There a Tradeoff?*, Series: (NBER-CLM) National Bureau of Economic Research--Comparative Labor Markets Series, pp.21-41
- Booth A.L., Francesconi M. & Frank J. (2002), « Temporary Jobs: Stepping Stones or Dead Ends? », *The Economic Journal*, vol.112, June, pp.F189-F213
- Bunel M. (2007), « Analyser la relation entre CDD et CDI : emboîtement et durée des contrats », *Document de travail*, n°82, Centre d'étude et d'emploi, mars
- Cerc (2005), *La Sécurité de l'emploi. Face aux défis des transformations économiques*, Rapport n°5, La Documentation française, Paris
- Cottrell M., Letremy P., Macaire S., Meilland C. & Michon F. (2002), « Le temps de travail des formes particulières d'emplois », *Economie et Statistique*, n°352-353, pp.169-189
- Daubas-Letourneux V. (1998), *Précarité et conditions de vie dans l'Union européenne*, European Foundation for the Improvement of Living and Working Conditions, Luxembourg, Office for Official Publications of the European Communities
- Danziger L. (1992), “On the Prevalence of Labour Contract with Fixed Duration”, *American Economic Review*, vol.82, n°2, pp.195-206
- Danziger L. (1995), “Contract Reopeners”, *Journal of Labor Economics*, vol.13(1), pp.62-87
- Danziger L. (1996), “Discrete Shocks and Fixed duration of Labor Contracts”, *Labour Economics*, vol.2, pp.359-379
- Doeringer P.B. & Piore M.J. (1971), *Internal Labor Markets and Manpower Analysis*, Lexington, D.C. Heath

Dolado J.J., García-Serrano C. & J.F. Jimeno (2002), “Drawing Lessons from the Boom of Temporary Jobs in Spain”, *The Economic Journal*, vol.112, n°480, June, pp.270-295

Engellandt A. & Riphahn R. (2005), “Temporary contracts and employee effort”, *Labour Economics*, vol.12, pp.281–299

European commission, (2003),

Everaere C. (1999), « Emploi, travail et efficacité de l’entreprise : les effets pervers de la flexibilité quantitative », *Revue française de gestion*, n°124, juin-juillet-août, pp.5-21

Farber H.S. (1999a), “Alternative and Part-Time Employment Arrangements as a Response to Job Loss”, *Journal of Labor Economics*, vol.17, n°4, pp.S142-S169

Freyssinet J. (2002), « Normes d'emploi et normes de protection sociale: l'impact de la diversification des temps de travail - les tendances en Europe occidentale », in Sarfati H. et Gagliarducci S. (2005), “The dynamics of repeated temporary jobs”, *Labour Economics*, vol.12, pp. 429-448

Gasparini G., Parent-Thirion A., Latta M. & Nanteuil de M. (2000), *Le travail à temps plein et à temps partiel : pratiques et souhaits*, Dublin, Fondation européenne pour l’amélioration des conditions de vie et de travail

Goudswaard A. & Nanteuil de M. (2000), *Flexibility and Working Conditions : A Qualitative and Comparative Study in Seven EU Member States*, European Foundation for the Improvement of Living Condition and Working Conditions, Luxembourg, Office for Official Publications of the European Communities

Goux D. (2000), « La place des CDD et des CDI dans le fonctionnement du marché du travail » in *Plein emploi*, Les rapports du Conseil d’Analyse économique, n° 30, Paris, La Documentation française

Gray J.A. (1978), “On Indexation and Contract Length”, *Journal of Political Economy*, vol.86, n°1, pp.1-18

Guriev S. & Kvasov D. (2005), « Contracting on Time », *American Economic Review*, vol.95, n°5, pp.1369-1385

Güell M. & Petrongolo B. (2007), “How binding are legal limits? Transitions from temporary to permanent work in Spain”, *Labour Economics*, vol. 14, pp.153– 183

Hagen T. (2003) “Do fixed term contracts increase the long-term employment opportunities of the unemployed?” *ZEW Discussion Paper*, n°03-49, pp.1-56

Hagen T. & Boockmann B. (2005), “Fixed-term Contracts as Sorting Mechanisms: Evidence From Job Durations in West Germany”, *ZEW Discussion Paper*, n°05-85, pp.1-32

- Harris M., & Holmström. B, 1987, « on the duration of agreements », *International Economic Review*, 28 (2), p. 389-406
- Lazear E.P. (1990), “Job Security Provisions and Employment”, *Quarterly Journal of Economics*, August, vol. 105, n°3, pp.699-726
- Lazear E.P. & Rosen S. (1990), “Male-female wage differentials in job ladders”, *Journal of Labor Economics*, vol.8, n°1, pp.S106-S123
- Merllié D. & Paoli P. (2001), *Dix ans d'évolution des conditions de travail*, Fondation européenne pour l'amélioration des conditions de vie et de travail, Luxembourg, Office for Official Publications of the European Communities
- Muffels R. & Luijkx R. (2005), « Job Mobility and Employment Patterns across European Welfare States. Is there a ‘Trade-off’ or a ‘Double Bind’ between Flexibility and Security?” TLM.NET 2005, *Working Paper n°2005-13*, Amsterdam, SISWO/Social Policy Research
- OECD, 2007, Labour Force Survey
- OCDE (2002), *Perspectives de l'emploi*, Paris, July 2002
- Paugam, S. (1991), *La disqualification sociale. Essai sur la nouvelle pauvreté*, PUF Paris
- Simon H.A. (1951), « A Formal Theory of the Employment Relationship », *Econometrica*, vol.19, n°3, pp.293-305
- Stener Pedersen H., Bo Hansen C. et Mahler S. (2004), *Temporary Agency Work in the European Union*, European Foundation for the Improvement of Living and Working Conditions, Luxembourg, Office for Official Publications of the European Communities
- Van Ours J.C. (2004) “The locking-in effect of subsidized jobs”, *Journal of Comparative Economics*, vol. 32, pp.37-55
- Wilthagen T. (2002), “The Flexibility-Security Nexus: New approaches to regulating employment and labour markets”, OSA/Institute for labour Studies, Working paper WP2002-18, September (paper for the *British Journal of Industrial Relations*)

ANNEXES:

Table 2 Socio demographic determinants of fixed term contracts

Fixed term contract	Probit	
	Coefficients	t-test
Constant	1.633	11.34***
Gender female	0.123	5.68***
Age	-0.069	-18.40***
Age square (/100)	0.052	13.91***
Citizen of the country	-0.129	-2.20**
Born in the country	-0.094	-2.37**
Household size	0.052	4.90***
Marital status		
Married	Ref.	
Separated/divorced	0.165	4.36***
Widowed	0.124	2.59***
Never married	0.224	7.36***
Children		
No child	Ref.	
One child	-0.115	-3.72***
Two children	-0.182	-4.86***
Three children or more	-0.170	-3.19***
Highest level of education		
Not completed primary education	Ref.	
Primary or first stage of basic	-0.238	-3.64***
Secondary Education	-0.399	-6.32***
Tertiary Education : first stage	-0.480	-7.08***
Tertiary Education : second stage	-0.345	-4.59***
Classification NACE		
Agriculture, hunting and fishing	Ref.	
Extractives and manufacturing industries	-0.519	-7.58***
Other manufacturing industries	-0.634	-9.56***
Manufacturing of electrical and transport equipments	-0.567	-7.61***
Construction and Electricity supply	-0.453	-6.79***
Trade, hotels and restaurants	-0.490	-7.97***
Transport and financial intermediation	-0.607	-9.17***
Real Estate, public administration	-0.455	-7.32***
Education, Health and social work	-0.272	-4.45***
Social, personal services and household activities	-0.155	-2.36**
Domicile description		
Big city	Ref.	
Suburb or outskirts of big city	-0.022	-0.64
Town or Small city	0.033	1.08
Rural area	0.008	0.27
Countries		
Austria	-0.116	-1.88*
Belgium	-0.115	-1.73*
Switzerland	-0.205	-3.25***
Germany	-0.003	-0.06
Denmark	Ref.	
Spain	0.598	9.41***
Finland	0.377	6.60***
France	0.318	4.68***

Great Britain	-0.014	-0.23
Greece	0.261	4.02***
Ireland	0.225	3.65***
Island	0.342	5.40***
Italy	0.117	1.52
Luxembourg	-0.363	-4.56***
Netherlands	-0.027	-0.45
Norway	-0.046	-0.77
Portugal	0.210	3.12***
Sweden	0.149	2.53**
Slovenia	0.240	3.70***
Number of observations	25354	
Number of Fixed-term contract	4874	
Log likelihood	-10518.775	
Pseudo R2	0.1315	

The reported coefficients are estimated from a probit model. The population selected is all wage-earners over 15 years of age. The significance levels are respectively equal to 1% (***), 5% (**) and 10% (*).

Source: ESS 2002-2003

Table 2a: the determinants of temporary employment by country

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	AT	BE	CH	DE	DK	ES	FI	FR	UK	GR	IRL	ISL	ITL	LUX	NL	NOR	PT	SWD	SLV
FTC	228	183	182	325	201	363	462	219	233	239	289	337	122	120	268	260	227	380	236
Observation	1626	1209	1581	2270	1285	984	1685	826	1696	1045	1237	1112	633	798	1854	1680	999	1724	1096
Log Likelihood	-552	-372	-471	-788	-496	-479	-719	-387	-632	-490	-625	-605	-234	-209	-666	-595	-425	-697	-462
Constant				--		+			---	---		--		--					-
Gender : female		+++				+++	+			+++			+++	+	+++	++	++	+++	
Citizenship		--				---	---		--		---				---		-		
Household size		+++	+++	+					++	+			+					++	
Age																			
15-24 years	+++	+++	+++	+++	+++	+++	+++	+++	++	+++	++	+++		+	+++	+++	+++	+++	+++
25-34 years		+++			++	+++	+++			+++		+++			+++	+++	+++	+++	+++
35-44 years						+				+++		+++		+++	+++	+++	+		
45-54 years		++					+			++		+++					++	+	++
55-64 years	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
65 and more				---															
Marital status																			
Married	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Separated				++			+	+++					++					+++	
Widowed	+++		+++					++											
Never married	+++	+	+++	+++		+	+++	++					+++				+++	+++	+++
children																			
Without	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
1 child		--																	
2 children																--			
3 and more		---	--									-	-						
Level of education																			
Not completed	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Primary													++					--	
Secondary	---		---					-		---								-	-
Tertiary : 1 st			--		-	---	--			--							+	-	---
Tertiary : 2 nd	---		-															-	-
Nace																			
Nace0	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref

Nace 1					---	---			-										
Nace 2		--		--	--	---			-										
Nace 3		-		---		---			-										
Nace 4		--				---													
Nace 5		--		--	---	---													
Nace 6		--		---	--	---			--										
Nace 7		-		--		---													
Nace 8						---	+++												
Nace 9		-				---	++												
Domicile description																			
Big city	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Suburb			--															---	
Town			---								+++							-	
Rural area			---			+			--									-	

The reported coefficients are estimated from a probit model. The population selected is all wage-earners over 15 years of age. The significance levels are respectively equal to 1% (+++/---), 5% (++/--) and 10% (+/-). The white cells correspond to non-significant variables.

Source: ESS 2002-2003

Table 3 Fixed term contract and work conditions

Fixed term contract	Probit	
	Coefficients	t-test
Constant	-0.308	-3.25***
Hierarchical responsibility	-0.240	-9.37***
Working time (in hours)	-0.005	-5.89***
Formation	-0.072	-3.02***
Unemployed during the last 5 years	0.544	19.41***
Trade-union membership	-0.245	-10.17***
The establishment size		
< 10	0.013	0.43
[10 , 24]	Réf.	
[25, 99]	-0.119	-3.80***
[100, 499]	-0.166	-4.77***
> 500	-0.174	-4.60***
to what extent organize own work		
To a large extent	-0.258	-7.93***
To some extent	-0.194	-6.22***
Very little	Réf.	
not at all	0.182	4.48***
Number of observations	23211	
Number of FTCs	4522	
LoG Likelihood	-9528.236	
Pseudo R2	0.1378	

The reported coefficients are estimated from a probit model. The population selected is all wage-earners over 15 years of age. The significance levels are respectively equal to 1% (***), 5% (**) and 10% (*). Age, gender and the years of schooling are included in this regression. Binary variables for each country are also specified.

Source: ESS 2002-2003

Table 4 Part-time employment and fixed term contract

Variables	Part-time employment		Fixed term contract	
	Coefficients	t-test	Coefficients	t-test
Constant	-0.608	-3.36***	1.145	7.04***
Sex (female)	0.645	25.44***	0.039	1.64*
Age	-0.027	-6.13***	-0.069	-16.51***
Age square (/100)	0.023	5.19***	0.056	13.33***
Citizen of the country	0.256	4.30***	-0.118	-2.22**
Household size	0.069	5.25***	0.056	4.84***
Marital status				
Married	Ref	Ref	Ref	Ref
Separated/divorced	-0.138	-3.38***	0.105	2.56**
widowed	-0.085	-1.65*	0.066	1.25
Never married	-0.172	-4.78***	0.175	5.30***
Children				
No child	Ref	Ref	Ref	Ref
One child	-0.019	-0.56	-0.128	-3.83***
Two children	-0.005	-0.12	-0.184	-4.54***
Three children or more	-0.082	-1.37	-0.172	-2.98***
Highest level of education				
Not completed primary education	Ref	Ref	Ref	Ref
Primary or first stage of basic	-0.011	-0.11	-0.238	-3.12***
Secondary Education	-0.116	-1.32	-0.277	-3.77***
Tertiary Education : first stage	-0.123	-1.33	-0.248	-3.16***
Tertiary Education : second stage	-0.131	-1.31	-0.115	-1.33
Classification NACE				
Agriculture, hunting and fishing	Ref	Ref	Ref	Ref
Extractives and manufacturing industries	-0.348	-3.65***	-0.448	-5.70***
Other manufacturing industries	-0.299	-3.27***	-0.524	-6.93***
Manufacturing of electrical and transport equipments	-0.240	-2.35**	-0.496	-5.89***
Construction and Electricity supply	-0.324	-3.38***	-0.392	-5.15***
Trade, hotels and restaurants	0.253	3.13***	-0.443	-6.30***
Transport and financial intermediation	0.007	0.08	-0.496	-6.56***
Real Estate, public administration	0.045	0.54	-0.318	-4.47***
Education, Health and social work	0.601	7.45***	-0.135	-1.92*
Social, personal services and household activities	0.411	4.86***	-0.100	-1.34
Domicile description				
Big city	Ref	Ref	Ref	Ref
Suburb or outskirts of big city	0.041	1.05	0.009	0.23
Town or Small city	0.004	0.11	0.030	0.90
Rural area	-0.024	-0.68	0.006	0.17
Additional time	0.009	8.97***	-0.002	-1.52
Unemployed during the last 5 years	0.049	1.45	0.615	21.16***
Trade-union membership	-0.167	-6.49***	-0.150	-5.94***
Hierarchical responsibility	-0.475	-17.56***	-0.220	-8.44***
The establishment size				
< 10	Ref	Ref	Ref	Ref
[10 , 24]	-0.198	-6.21***	0.020	0.65
[25, 99]	-0.212	-6.81***	-0.086	-2.77***
[100, 499]	-0.335	-9.28***	-0.101	-2.88***
> 500	-0.473	-11.24***	-0.101	-2.58**

to what extent organize own work				
To a large extent	Ref	Ref	Ref	Ref
To some extent	-0.030	-1.18	0.032	1.26
Very little	0.064	1.84*	0.236	7.11***
not at all	-0.028	-0.65	0.381	9.70***
Countries				
Austria	Ref	Ref	Ref	Ref
Belgium	0.060	0.92	0.014	0.20
Switzerland	0.104	1.78*	-0.022	-0.34
Germany	-0.036	-0.65	0.052	0.87
Denmark	-0.085	-1.33	0.175	2.61***
Spain	-0.578	-7.17***	0.516	7.36***
Finland	-0.514	-7.98***	0.555	9.14***
France	-0.321	-4.18***	0.335	4.68***
Great Britain	0.246	4.32***	0.127	2.03**
Greece	-0.730	-9.43***	0.280	4.12***
Ireland	0.007	0.11	0.407	6.31***
Island	0.019	0.29	0.462	6.88***
Italy	-0.298	-3.43***	0.073	0.85
Luxembourg	-0.137	-1.71*	-0.258	-2.93***
Netherlands	0.461	8.38***	0.167	2.70***
Norway	-0.028	-0.47	0.137	2.18**
Portugal	-0.876	-10.16***	0.265	3.62***
Sweden	-0.234	-3.76***	0.281	4.49***
Slovenia	-0.957	-10.41***	0.371	5.44***
Number of part-time workers	5181			
Number of fixed-time contract workers				4522
Nombre of observation	23211			
Corrélation coefficient (t-test)	0.126*** (7,67)			
Log likelihood	-17496.846			

The reported coefficients are estimated from a bivariate probit model. The population selected is all wage-earners over 15 years of age. The significance levels are respectively equal to 1% (***), 5% (**) and 10% (*). Age, gender and the years of schooling are included in this regression. Binary variables for each country are also specified.

Source: ESS 2002-2003