

Analysis of the determinants of Temporary employment in 19 European countries

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Abstract

This paper studies the determinants of temporary employment in 19 European countries using data from the *European Social Survey*. We show 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. This has reduced relatively their potential wages. Moreover, the probability of holding 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. Nevertheless, some points of convergence characterize part-time and fixed-term' contracts. Women are more frequently associated with these two kinds of flexibility even if part-time employment is more feminized than fixed-term contract. Age acts in the same sense, but fixed-term workers are younger than those on part-time jobs.

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

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

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). FTC, 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 these 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 living 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). Certain unemployed, after ending a temporary contract, do not obtain rights only basing on criteria of poverty if the reference period is insufficient (Freyssinet, 2002). The way by which the social risks related to the family and the 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 (Goudswaard and Nanteuil, 2000), 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 positively perceived 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 situated 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.

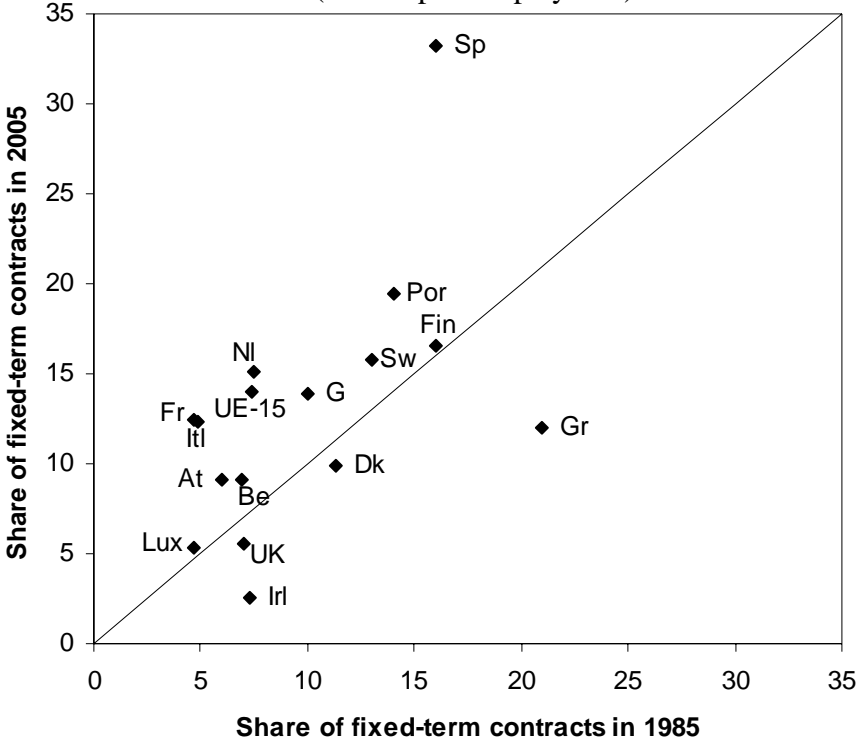
For Italy, the transition probability from a determined duration contract to a permanent job increases with the contract duration, but decreases with repeated fixed term employment, in particular with interruptions (Gagliarducci, 2005). It is not temporary employment itself, but the intermittency which 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 the 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 Luijckx, 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 37,204 individuals questioned in 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) aged between 18 and 64 years, that is 19,077 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 marital status (with 4 modalities), the number of kids (with 4 modalities), the level of education (with 6 modalities), the socioeconomic status (basing on the general Nomenclature of the Economic activities in the European Communities), 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	88.6	11.4
Gender		
Male	54.4	47.4
Female	45.6	52.6
Citizenship		
Citizen of the country	95.4	94.3
Immigrant	4.6	5.7
Age		
18-24 years	5.7	21.8
25-34 years	22.1	31.6
35-44 years	31.2	22.9
45-54 years	25.9	15.9
55-65 years	15.1	7.8
Children		
No child	47.7	60.5
One child	20.1	16.4
Two children	22.1	15.1
Three children or more	10.1	8.0
Marital status		
Married	60.6	41.2
Separated/divorced	9.7	7.3
Widowed	1.5	1.3
Never married	28.2	50.2
Highest level of education		
Primary or first stage of basic	7.8	7.6
Secondary education: first stage	18.0	18.7
Secondary education: second stage	36.5	34.5
Post secondary non tertiary	11.3	11.0
Tertiary Education: first stage	18.5	19.5
Tertiary Education: second stage	7.9	8.7
Classification NACE		
Agriculture, hunting and fishing	4.0	2.0
Extractives and manufacturing industries	4.3	3.0
Other manufacturing industries	8.4	5.6
Manufacturing of electrical and transport equipments	3.9	3.7
Construction and Electricity supply	8.1	7.9
Trade, hotels and restaurants	16.2	15.1
Transport and financial intermediation	9.9	7.7
Real Estate, public administration	17.5	17.3
Education, Health and social work	20.3	29.0
Social, personal services and household activities	7.4	8.7
Part time	16.5	24.1
Membership of trade-union or similar	37.5	32.0
Trade-union at the work place	60.5	54.1
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	34.3	27.5
[10 , 24]	16.6	22.6
[25, 99]	21.4	22.8
[100, 499]	15.4	15.4
> 500	12.3	11.7
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	16908	2169

Source : ESS 2002-2003

Gender differences in employment status appear more unfavourable to female workforce. While the difference between men and women in permanent employment is about 9 points, FTC are at least 5 points higher for women. Being immigrant doesn't affect considerably the employment status where almost 6% of immigrants are in permanent jobs and 5.7% in FTC.

Regarding the age, adult and senior employees seem to be less affected by temporary employment. However, more than the half of temporary workers have less than 34 years, the same age group represents 28% of permanent employees. In addition, temporary jobs concern rather single workers and individual without children, whereas approximately 60% of married workers are in permanent positions (versus 40% for temporary contracts).

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. Except for Portugal, in all the southern countries and in Sweden, Norway, Finland, Luxembourg and Belgium, temporary employment appears more feminized (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 51 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 in particular for married, divorced and never married. The marriage appears to be a protection from employment of fixed duration in the southern and continental European countries (Austria, Belgium, Switzerland, Finland, Slovenia, Spain, Italy, and Portugal). For them, our results confirm an association between fixed term employment and celibacy. Alternatively, the presence of at least 3 children is positively connected with the probability of being in a fixed term contract¹. 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 primary education supports the possibility of

¹ In an other paper, we show that this effect concerns solely women (Salladarré *et al.*, 2007)

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 20% for the first stage of secondary education compared to the primary level, from 35% with a second stage of secondary and tertiary first stage' levels and from 17% 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 find a significant effect only for the second stage of tertiary education. 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).

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.

In several countries (Denmark, Finland, France, Portugal, Luxembourg, Slovenia 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). 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.

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-time². 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 10%. However, temporary workers appear more favourable than permanent employees on the necessity for having strong trade unions (table1). Temporary employment is associated with a less trade-union presence on the place of work. This result can be associated with temporary jobs which concern mainly small firms (more than 10 and 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 about three (3.03) if the employer met an unemployment period during the last 5 years. An

² Part-time workers are those who work less than 30 hours a week; following the OECD (2002) definition

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 more than the double (2.2) 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). 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 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 forms 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 or never married). Moreover, fixed-term workers are more educated with reference to part-time ones.

In addition, fixed-term workers have fewer children than part-time 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 trade, hostelling and restaurant, education, 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.

These two forms of atypical employment are less syndicated and have less hierarchical responsibilities. They are more frequently concentrated in small establishment, especially for part-time employees. While part-time workers have a higher degree of freedom in organizing their own work than fixed-term employees, the extent to which they organize is more significant than that of temporary employees.

Except for the Great Britain and Netherlands, these two types of flexibility are generally inverted. Whereas for all the other countries a certain trade-off is confirmed, these two countries show a complementarity between part-time and temporary employment. However, once the effects of different variables are controlled, a positive correlation coefficient is observed between two forms of employment. This result shows a greater individual 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. Furthermore, 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 three 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.

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ANNEXES:

Table 2 Socio demographic determinants of fixed term contracts

Fixed term contract	Probit	
	Coefficients	t-test
Constant	1.766	8.90***
Gender female	0.082	2.90***

Age	-0.122	-13.96***
Age square (/100)	0.119	11.21***
Citizen of the country	-0.263	-4.35***
Marital status		
Married	Ref.	
Separated/divorced	0.120	2.47**
widowed	0.148	1.38
Never married	0.179	4.71***
Children		
No child	Ref.	
One child	0.012	0.30
Two children	0.005	0.12
Three children or more	0.085	1.67*
Highest level of education		
Primary or first stage of basic	Ref.	
Secondary education: first stage	-0.110	-1.89**
Secondary education: second stage	-0.227	-4.02***
Post secondary non tertiary	-0.250	-3.78***
Tertiary Education: first stage	-0.237	-3.91***
Tertiary Education: second stage	-0.121	-1.73*
Classification NACE		
Agriculture, hunting and fishing	Ref.	
Extractives and manufacturing industries	-0.415	-4.51***
Other manufacturing industries	-0.340	-4.16***
Manufacturing of electrical and transport equipments	-0.294	-4.34***
Construction and Electricity supply	-0.134	-1.67*
Trade, hotels and restaurants	-0.164	-2.49**
Transport and financial intermediation	-0.299	-5.33***
Real Estate, public administration	-0.204	-3.24***
Education, Health and social work	-0.069	-1.26
Social, personal services and household activities	0.169	3.22***
Countries		
Austria	Ref.	
Belgium	0.031	0.37
Switzerland	0.009	0.11
Germany	0.182	2.39**
Denmark	0.306	3.81***
Spain	0.678	8.42***
Finland	0.456	5.92***
France	0.076	0.86
Great Britain	0.187	2.37**
Greece	0.229	2.85***
Ireland	0.286	3.76***
Island	0.359	4.81***
Italy	0.034	0.34
Luxembourg	-0.163	-1.57
Netherlands	0.266	3.53***
Norway	0.211	2.73***
Portugal	0.333	3.81***
Sweden	0.206	2.70***
Slovenia	0.495	5.82***
Number of observations		18492
Number of Fixed-term contract		2121
Log likelihood		-6109.192

Pseudo R2	0.095
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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	95	79	96	132	111	146	159	70	115	105	135	172	40	44	152	134	100	138	98
Observation	1126	873	1193	1385	919	690	1055	675	1055	1011	1043	1100	504	414	1234	1156	687	1156	621
Log Likelihood	-294	-222	-285	-374	-290	-296	-345	-198	-332	-298	-377	-433	-115	-112	-404	-351	-243	-366	-220
Pseudo R2	0.10	0.16	0.15	0.14	0.14	0.17	0.23	0.12	0.08	0.11	0.06	0.09	0.17	0.20	0.12	0.15	0.15	0.13	0.15
Constant					++	++							-						
Gender : female		++				++	++			+			+++	++		+		++	
Citizenship		--				---			---						-		--		
Age																			
15-24 years	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
25-34 years		---	---	---	---	---	---	---	---	-	--			---	---	---		---	---
35-44 years	-	---	---	---	---	---	---	---	---	---	--	-		---	---	---	---	---	---
45-54 years	-	---	---	---	---	---	---	---	---	---	-	--		---	---	---	---	---	---
55-64 years		---	---	---	---	---	---	---	---	---	---	---	-	---	---	---	---	---	---
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																			
Primary	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Secondary: 1 st								-				--	--						-
Secondary: : 2 nd								-		-		--	---	---					-
Post Secondary	--							-		---		-	-	---					-
Tertiary: 1 st	---	---					--			-			--						--
Tertiary: 2 nd	--							---						--	---				-
Nace																			
Nace0		---	---							---	--				---	+			
Nace 1		+			---		--							---			-		-
Nace 2					---		---							---					--
Nace 3								-										-	--
Nace 4					---	++		-										--	-
Nace 5	--				---			-				---							-
Nace 6					---			---											
Nace 7								---	++										
Nace 8		++	+++					---		++								--	-
Nace 9	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref

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	1.476	6.84***
Hierarchical responsibility	-0.132	-4.08***
Working time (in hours)	-0.005	-4.51***
Unemployed during the last 5 years	0.625	16.62***
Trade-union membership	-0.063	-1.91*
The establishment size		
< 10	-0.231	-5.68***
[10 , 24]	Ref.	
[25, 99]	-0.087	-2.10**
[100, 499]	-0.065	-1.40
> 500	-0.083	-1.62
to what extent organize own work		
To a large extent	Ref.	
To some extent	0.094	2.91***
Very little	0.333	7.55***
not at all	0.425	7.10***
Number of observations	16937	
Number of FTCs	1962	
Log Likelihood	-5237.788	
Pseudo R2	0.1375	

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, education level and the activities classification 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	Fixed term contract		Part-time employment	
	Coefficients	t-test	Coefficients	t-test
Constant	1.228	5.26***	0.060	0.26
Gender (female)	0.022	0.71	0.843	27.59***
Age	-0.121	-12.67***	-0.100	-10.42***
Age square (/100)	0.121	10.46***	0.121	10.59***
Citizen of the country	-0.143	-2.16**	0.324	4.46***
Marital status				
Married	Ref.		Ref.	
Separated/divorced	0.094	1.80*	-0.168	-3.58***
widowed	0.164	1.41	-0.007	-0.07
Never married	0.150	3.66***	-0.149	-3.56***
Children				
No child	Ref.		Ref.	
One child	0.014	0.33	0.191	4.87***
Two children	0.029	0.64	0.350	8.46***
Three children or more	0.127	2.23**	0.400	7.65***
Highest level of education				
Primary or first stage of basic	Ref.		Ref.	
Secondary education: first stage	-0.062	-0.95	-0.049	-0.75
Secondary education: second stage	-0.122	-1.93*	-0.090	-1.40
Post secondary non tertiary	-0.096	-1.29	-0.259	-3.50***
Tertiary Education: first stage	-0.068	-0.99	-0.109	-1.59***
Tertiary Education: second stage	0.070	0.89	-0.213	-2.68***
Classification NACE				
Agriculture, hunting and fishing	Ref.		Ref.	
Extractives and manufacturing industries	-0.153	-1.29	-0.024	-0.20
Other manufacturing industries	-0.064	-0.60	-0.095	-0.86
Manufacturing of electrical and transport equipments	0.022	0.19	-0.092	-0.71
Construction and Electricity supply	0.040	0.38	-0.122	-1.08
Trade, hotels and restaurants	-0.038	-0.38	0.414	4.37***
Transport and financial intermediation	0.032	0.31	0.205	2.02**
Real Estate, public administration	0.201	2.02**	0.236	2.45**
Education, Health and social work	0.408	4.11***	0.807	8.50***
Social, personal services and household activities	0.255	2.44**	0.601	6.08***
Additional time	0.001	0.38	0.021	13.77***
Unemployed during the last 5 years	0.635	16.66***	0.161	3.79***
Trade-union membership	-0.080	-2.41**	-0.123	-3.93***
Hierarchical responsibility	-0.165	-5.07***	-0.486	-15.43***
The establishment size				
< 10	-0.212	-5.16***	0.150	3.79***
[10 , 24]	Ref.		Ref.	
[25, 99]	-0.091	-2.15**	-0.050	-1.20
[100, 499]	-0.074	-1.57	-0.187	-3.89***
> 500	-0.093	-1.80*	-0.314	-5.71***
to what extent organize own work				
To a large extent	Ref.		Ref.	
To some extent	0.083	2.54**	0.015	0.48

Very little	0.339	7.63***	0.098	2.18**
not at all	0.421	6.99***	-0.068	-1.02
Countries				
Austria	Ref.		Ref.	
Belgium	0.045	0.48	0.046	0.59
Switzerland	0.074	0.86	0.116	1.67*
Germany	0.150	1.81*	-0.010	-0.15
Denmark	0.361	4.14***	-0.461	-5.62***
Spain	0.593	6.49***	-0.698	-7.00***
Finland	0.507	6.00***	-0.655	-7.94***
France	0.015	0.16	-0.348	-3.91***
Great Britain	0.223	2.60***	0.135	1.89*
Greece	0.236	2.68***	-0.663	-7.92***
Ireland	0.375	4.49***	-0.010	-0.13
Island	0.376	4.48***	-0.040	-0.55
Italy	-0.029	-0.25	-0.314	-3.29***
Luxembourg	-0.128	-1.09	-0.058	-0.57
Netherlands	0.344	4.16***	0.494	7.26***
Norway	0.271	3.23***	-0.223	-3.04***
Portugal	0.319	3.26***	-1.033	-9.74***
Sweden	0.218	2.57***	-0.558	-6.99***
Slovenia	0.439	4.71***	-1.094	-9.01***
Number of part-time workers				2800
Number of fixed-time contract workers		1918		
Number of observation				16493
Correlation coefficient (t-test)				0.120*** (5.48)
Log likelihood				-10753.501

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