



Analysis of the determinants of Temporary employment in Europe

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Abstract

This paper studies the determinants of temporary employment in 19 European countries using micro-level data drawn from the European Social Survey. The analysis shows that temporary employment is a stepping-stone to a permanent job. In addition, temporary employees work less than their permanent counterparts with reference to working time, which decreased their potential wages. From another hand, past unemployment episodes are likely to reduce considerably the chance of being re-employed on a permanent work arrangement.

Finally, compared to other work arrangements, temporary employment is more often devoted to immigrant workers while national citizens are more likely to hold part time jobs. However, some points of convergence characterize part-time and fixed-term contracts. Women are more frequently associated with these two forms of flexibility.

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

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

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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 work arrangements were created and developed. Several reforms led to an increase in the use of those work arrangements generating low firing costs (Belot et al, 2002). Changing legal standards regarding work conditions, the use of new contractual forms aims to increase the labour market flexibility, to reduce unemployment and to allow for an adaptation to an unexpected or limited demand (Blank and Freeman, 1994).

However, this form of external flexibility can increase employment instability, reduce the job security and induce negative consequences on the relative work-family balance. Moreover, the growth of temporary employment induces a differentiating and unequal dynamics regarding employment characterized 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, resulting from temporary forms of employment, do not obtain rights only based on criteria of poverty if the reference period is insufficient (Freyssinet, 2002). The way in which the social risks (retirement, health, family and labour market) are considered in relation with temporary employment, seems fundamental. Accordingly, their impacts on the forms of employment vary according to social protection systems.

Several approaches provided an understanding description of temporary employment. Other studies based on micro data tried to identify the individual factors associated to temporary employment. This form of employment combines a number of specificities. In several countries, temporary employment appears, on average, less qualified, less remunerated, less unionized and often concerns young people and women. A limited number of studies seem to have focused on cross-country differences in employment contracts.

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 FTC. Moreover, we focus on differences regarding 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. 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 (Piore and Doeringer, 1971). Some recent approaches underline the importance of FTC in the process of recruitment through contracts of unspecified duration.

At the same time, temporary employment is a way of entry into the labour market and a mode of adjustment for the employers, in a context of imperfect information, to determine workers capacities to produce. A non-permanent employment appears 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 flexibility and job 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 the stepping-stones hypothesis

A limited number of theoretical approaches apprehend employment contracts according to their duration. The first approach characterized by the *ex ante* endogenization of the contract duration was presented by Gray (1978). He analysed the alternative of intermediate labour contracts located between the long-term employment relation - the contract of unspecified duration - and the spot contracts (Simon, 1951). Reconsidering Walras labour market framework, Simon (1951) defined the employment relationship as a durable association held within an organization between the employer and the employee. However, for the spot contracts, the supplier and the applicant decide to limit the duration to a fixed period. The existence of a deadline, fixed a priori in the case of a temporary contract, does not appear in this approach. Several analyses focused on limited duration employment.

Firstly, Doeringer and Piore (1971) define the internal labour market as an administrative unit in which pricing and labour allocation such as recruitments, mobility or earnings are governed by a set of administrative 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 long-term labour relationship. In this approach, the employees look for the stability of their jobs 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. By opposition to this process of assignment and compensation, earnings, training and labour allocation are determined by the market adjustments following supply and demand. The use of FTC is an element of this secondary market. In this approach, the latter 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.

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. Accordingly, 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 set both contract duration and 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 similarly affected. Furthermore, the extent of the shocks can affect 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 worker characteristics have no effect on the contract duration, 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 permanent jobs.

Other alternative approaches integrate the assumption of stepping-stones. In a context of imperfect information, in particular regarding the effort level and the capacities to produce, the employer has partial information on the employees. The relation of interdependence

between the contractual forms makes it possible to deal with anti-selection (Lazear, 1995). A temporary contract pushes the employee to reveal his capacities to produce in the hope of recruitment on a permanent basis. In the model of Harris and Holmström (1987), the contract duration allows the employer to adjust in a context of imperfect information, taking into account variations of the worker's abilities. This model shows that the contract duration is specified according to the number of periods that are necessary to reach the required ability to produce given the cost occurred. The more the interval is tightened, the more the contract duration lengthens. However, the deadline cannot be set 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 breach of contract and to the renegotiation. In this model, a distinction is made between the contract duration and the duration of the relationship between the contracting parts. The contract 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 contract duration is given ex post in this model.

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

Over the last two decades, more than one third of European workers are recruited through non-permanent jobs, of which the half by FTC 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 skills necessary for a short period or specific projects (Everaere, 1999). Certain approaches analyzed the implications of FTC from several perspectives. On the one hand, non-permanent employment can be considered as a method of entry into 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 permanent contract (*job shopping versus stepping-stone*).

In the first case, temporary employment can be deliberately chosen. In several countries, certain temporary work arrangements offer many 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 into 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) partially confirm 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 permanent jobs after the term of their temporary contract. This positive inciting effect of FTC 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 local work conditions (in particular the unemployment/vacancy ratio). Through a duration analysis, Güell and Petrongolo (2007) study the determinants of the conversion of temporary contracts into permanent jobs in Spain. They find that 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 FTC towards more permanent work arrangements 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 from the exit of FTC: in the Spanish case, the probability of accession to a permanent contract is higher for those in non-standard contract than for the unemployed (in the same way for the USA, 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 temporary to a permanent job increases with the contract duration, but decreases with repeated fixed term employment, in particular with interruptions (Gagliarducci, 2005). For a long FTC, the probability of conversion increases first before decreasing. Van Ours (2004) analyzes the locking-in effects of subsidized temporary jobs using a natural experiment on 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 temporary jobs after the end of their contract.

In France, temporary contracts became for many firms a common method of recruitment. They have the advantage to enable both short-term adjustment to economic fluctuations and the conversion 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 he is not stopped by an inactivity or layoff (Bunel, 2007). Moreover, For CERC (2005), France is distinguished within the European countries, by weak transitions from temporary towards permanent employment. For the French labour market, 25% of workers who hold 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. In contrary, the rate of transition reaches 55% in Austria, Ireland and Netherlands; 50% in Belgium and 45% in the United Kingdom (CERC, 2005).

France can be ranked among the group of Mediterranean countries, with Spain, Portugal, Greece and Italy, where the access to temporary employment appears to be rarely a stepping-stone towards permanent jobs. In the short run, the persistence in temporary employment is thus strong in Portugal, France and Spain. The southern European labour markets have a strong share of temporary jobs and offer lower transition towards permanent employment than northern European countries (Muffels and Luijkx, 2005). On the long term, the position of France becomes more favourable: almost 60% of workers holding temporary contracts in 1995 have permanent jobs in 2000. This proportion remains lower than 50% in Italy, Spain, Portugal and Greece (European Commission, 2003). Nevertheless, in France, Spain and Finland, the risk of unemployment, five years after holding a temporary job is relatively high.

Source: OECD (2007)

Temporary employment is a method of entry into the labour market. However, the stepping-stones hypothesis appears partially confirmed. It depends on national configurations. Therefore, the implementation of measures towards a security of the individual trajectories seems justified. The relationship between temporary employment and sociodemographic determinants as well as work conditions will be analyzed. We compare 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 individuals from 19 countries¹. Several questions refer to the methods of labour market participation. We then focus on the active wage-earners of more

¹ Austria, Belgium, Switzerland, Germany, Denmark, Spain, Finland, France, United Kingdom, Greece, Ireland, Iceland, Italy, Luxembourg, Netherlands, Norway, Portugal Sweden and Slovenia.

than 15 years, that is 37964 individuals. We define a dummy variable that take the value of 1 if the individual holds a temporary job, 0 otherwise. We use a set of probit models in order to establish the explanatory factors of FTC. 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 variables are gender, age, household size, marital status, number of children, level of education, socioeconomic status, housing location, citizenship, additional working time, unemployment period, trade-union membership, hierarchical responsibilities, establishment size and extent of work organization

2.2. Some descriptive statistics:

Table 1: descriptive statistics

	Permanent employment	temporary employment
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 contracts appear to be more unfavourable for female workforce. While the gender difference in permanent jobs is about 2 points, FTC are 6 points higher for women. Being immigrant does not 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, whereas approximately 60% of married workers hold permanent positions.

For the geographic location, the rates of the two work arrangements are very similar even if higher rates of employment are observed in rural areas. For all school levels, secondary education is the most employable for both permanent and temporary jobs. Finally, for the work conditions, temporary employment is less unionized 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 FTC in 19 European countries. In the whole sample, temporary employment is more feminized. Women seem to be concerned with the idea of flexibility. The gender difference in temporary jobs can arise from a female specific behaviour. Women are more disposed to work on temporary basis: 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). Another explanation can be associated to the types of employment traditionally held by women. The more feminized paid jobs 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 positively contribute to their combined security, in particular when it is the

case of a choice. Nevertheless, the importance of national context should be put forward. The gender dummy is significant only for 9 countries. In all the southern countries (Spain, Italy, Portugal and Greece) and in almost all northern economies (Sweden, Norway, Netherlands, Finland), temporary employment appears to be more feminized (see table 2a).

Temporary employment is 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 stepping-stone hypothesis, and can be explained by high rates of youth unemployment (Goudswaard and Nanteuil, 2000).

Moreover, the marital status reduces the probability of holding a FTC while the household size increases it. The marriage appears to be a protection from temporary employment 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 the association between temporary employment and celibacy (Cottrell et al, 2002). Being married is positively connected with the probability of holding a FTC².

Alternatively, the presence of children is conversely connected with the probability of holding a FTC. 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 positive signal of more stable work arrangement for an employer.

The education level is determinant for the probability of holding a FTC: the absence of diploma or a primary level of education is strongly associated to the likelihood of holding a temporary job (Pedersen et al, 2004).

With reference to the case of “no education”, the probability of occupying a temporary job is reduced by 45% for primary school level, by 67% for secondary level and by 63% for tertiary education. Therefore, educational level is likely less prevalent for non-permanent workers even if this still depends on the flexible forms of work and the types of employment: temporary workers are often less qualified whereas the majority of on-call workers and those under permanent contract often hold tertiary levels (Pedersen et al, 2004). In certain countries, non-permanent employment is often associated to jobs that require few skills (Austria,

² This result does not hold for United Kingdom, Ireland, Denmark, Greece, Luxembourg and Netherlands,

Switzerland, Greece, Spain, Greece, Finland, Sweden and Slovenia). This relation appears to be particularly strong in southern European countries.

For France, we do not find a significant effect of education. Nevertheless, workers holding part-time permanent jobs are more educated than those with temporary contracts (Cottrell et al, 2002). However, little difference is observed for the United Kingdom, although fixed term employment appears to be less qualified (Booth et al, 2002). A tertiary level increases the probability of holding a temporary job. This last effect is confirmed for Germany, Finland and Sweden.

For the economic activities, temporary employment appears to be associated with agriculture, hunting and fishing, reflecting a rather seasonal employment. The probability of holding a FTC is positive for education, health and social work. A similar tendency appears in the Social Services sector, leisure activities and household services. In Europe, temporary employment is relatively important in the manufacturing and services' sectors (agribusiness, building, services) (Stener Pedersen et al, 2004). Conversely, the probability of holding a non-permanent job is lower in transport and communications, financial intermediation.

The analysis also confirms for several countries (Belgium, Germany, Denmark, Spain, France, Italy, Norway, Portugal and Sweden) the increasing probability to hold a temporary job in agriculture. In the same countries,³ temporary employment is associated with collective, social and personal services. Public Building and construction seem to be connected with non-permanent patterns of work in particular for Spain (confirming the results of Dolado et al, 2002; Gagliarducci, 2005). Whereas in Italy temporary jobs are abundant in hostelling and catering sector. Globally, in spite of a growing recourse to temporary jobs in a variety of sectors, it is particularly marked in services sector, which shows a strong expansion. Finally, temporary employment mainly concentrates among urban population. On the other hand, being in rural regions reduce the probability of holding a temporary job.

3.2. Work conditions of temporary employees:

Table 3 summarizes the characteristics of employees holding FTC regarding their working conditions and their professional tracks. Temporary employees seem to work less than permanent ones with reference to working time, which can reduce 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 counterparts: their probability of working overtime exceeds that of permanent

³ Except for Italy and Belgium.

workers by 60%, characterizing their willingness to integrate an established post (Engelland and Riphahn, 2005).

The temporary workers are also more inclined to hold part-time jobs⁴. In France, the non-permanent workers seem to work less than permanent ones (Cottrell et al, 2002): the temporary part-time employment is particularly recurrent among women who appear relatively young, less frequently married and whose working time is less often selected and weaker than women in permanent part-time employment. 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 holding a FTC is negatively correlated with the trade-union membership. All things being equal, being in fixed term employment reduce the probability of being syndicated by more than 50%. However, the non-permanent workers appear more sensitive about the importance of strong trade unions. Temporary employment is associated with a less trade-union presence at the workplace. All things being equal, probability of holding a temporary job is reduced with the presence of trade union by approximately 25%. This result can be associated with the fact that temporary employment often concerns small-sized firms (less than 25 employees). Such organizations choose temporary work arrangements to adjust their activities to economic fluctuations (Daubas-Letourneux, 1998). In France, the probability of being in a permanent position after having been in temporary employment is relatively lower in small-sized companies (Bunel, 2007).

All things being equal, the probability of holding a temporary contract 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 upcoming probability to find a permanent job. Unemployment can be perceived as a period of human capital desaccumulation. Frequent employment changes are likely to generate a depreciation of the human capital stock, reducing the specific productivity (Arulampalam, 2001). Thus, unemployment induces a negative signal to employers about a lower unobservable productivity of employees (Gibbons and Katz, 1991), which can reduce the prospects for temporary workers having met an episode of unemployment. On the contrary, according to the stepping-stones assumption, temporary employment, less qualified on average, appears as a means of generating specific competences to the firm before recruitment on permanent work arrangements.

⁴ Part-time workers are those who work less than 30 hours a week; following the OCDE definition

The degree of autonomy of temporary employees is relatively reduced. Holding a temporary job multiplies by nearly two (1.8) the absence of decision regarding work organization compared to permanent workers. In addition, non-permanent workers seem to have less freedom for organizational tasks, working methods or rhythm of work (Daubas-Letourneux, 1998). At the European level, temporary workers have less control on the production process and on the working methods (Merllié and Paoli, 2001). Similarly, temporary employment could reduce the possibilities of changing work tasks. The probability of holding a 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 of work organisation. Indeed, precarious workers carry out more monotonous and repetitive tasks, have little opportunity to acquire new knowledge through their work. Moreover, temporary workers have much less autonomy in the management of their work and their time, and are less implicated within the work organisation (Daubas-Letourneux, 1998). The cumulative principle (Gouswaard and Nanteuil, 2000) is confirmed: subcontracting may be dedicated to permanent and highly qualified employees, while FTC are widely used for core, non-subcontracted activities. The working conditions are unfavourable for the temporary workers.

Likewise, the influence on the work organization is weak in the case of fixed term employees. 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 is confirmed. This situation can explain the 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 directly concerns wage-earners. In this section, temporary and part-time employments are compared through a bivariate Probit specification.

FTC can be distinguished from part-time employment by several ways. Part-time concerns more frequently the national workers. Conversely, immigrants are usually in fixed-term employment. Family composition greatly differs between part-time and temporary jobs. While part-timers are more frequently married, temporary workers generally live in other

family structure (separated, divorced, widowed or never married). Moreover, fixed-term workers are less educated.

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

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

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

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

Except for Great Britain and Netherlands, these two types of flexibility are generally inverted. Once different variables effect neutralized, positive correlation coefficient is observed between two forms of employment. This result shows a greater probability to cumulate FTC and part-time employment in Europe.

4. CONCLUDING REMARKS:

In this paper, we analyzed the determinants of FTC in several European countries. Our results show that temporary employment is conversely correlated with the age, which supports the fact that FTC represents the stepping-stone to permanent jobs.

In addition, temporary workers seem to work less than permanent ones with reference to working time, which reduced relatively their potential wages. Moreover, the probability of holding a FTC is negatively correlated with trade-union membership. However, non-permanent workers are more favourable to the necessity for having strong trade unions, even if temporary employment is associated with a less trade-union presence on the place of work.

Nevertheless, past unemployment episodes strongly increases the probability of holding a temporary job and often lead to a decreasing probability of transition toward permanent contract.

Finally, estimates from a bivariate probit show that part-time employment concerns more frequently native workers while FTC are more devoted to immigrants. However, some points of convergence characterize part-time and FTC. Women are more frequently associated with these two forms of flexibility. Nonetheless, part-time employment is more feminized than FTC. Age acts in the same sense, but temporary workers are younger than part-timers. In the two cases, housing location has no impact on probability to work in part-time or in FTC.

Our analysis can provide important implications regarding labour market optimal regulation. While in the Northern countries flexible employment policies have facilitated transition from part time and temporary jobs to more permanent ones, this has not been the case in the Southern European economies. These countries, instead, have directed the most of their labour policies on reducing labour costs of low-paid employees, without taking the repercussions in terms of security and well-being of vulnerable workers. Our future research will therefore focus on labour market differences that arise depending on the manner in which governments confront the flexibility-security trade-off.

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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 significance levels are respectively equal to 1% (***) , 5% (**) and 10% (*). Age, gender, country dummies and the years of schooling are included in this regression.

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