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JEL Codes: J64, C41

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The role of job interruptions, temporary contracts and multi-firm experiences in the Temporality Trap in Spain

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Abstract

The path to a permanent contract often implies a sequence of temporary jobs, multi-firms experiences and unemployment spells. This paper investigates whether the characteristics of the path may influence the chances to get a permanent contract and the duration itself at the non-permanent state. We estimate a simple hazard model with unobserved heterogeneity to examine the average duration at the *non-permanent* position needed to get a permanent one, either in the same or in other firm. The analysis considers two different groups of workers specially affected by temporary contracts. These are the young workers who just enter into the labor market, and the long term unemployed. We find evidence of the existence of the temporality trap. The probability of accessing into a permanent contract is non linearly related to the duration at the non-permanent state. It starts increasing but once it reaches a maximum it drops to pretty low levels. Besides, repeated temporary contracts and job interruptions reduce it while multi-firms experiences seem do not affect it negatively.

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I Introduction

Recent labour market reforms aimed at reducing the presence of temporary contracts carried out by several European countries raised the issue of whether temporary contracts effectively help to improve the performance of the labour market and particularly, whether they positively affect workers labour career. Moreover, during the last years, the successive EU Directives for employment, have repeatedly urged the social speakers to negotiate agreements that guarantee increases in the productivity and in the competitiveness at the same time that they assures "the necessary balance between flexibility and stability".

From a theoretical point of view, workers have essentially two opposing ways of considering temporary contacts. They can view them as a springboard towards more stable positions (Booth, Francesconi and Frank, 2002; Varejao and Portugal, 2002). The idea is that these contracts offer them the opportunity to acquire the labour market experience necessary to join on the labour market. Secondly, workers can consider them as a permanent condition not necessarily ending into a permanent job. Obviously, this second case represents a valid alternative only when compensates the uncertainty intrinsic to temporary contracts by offering a higher wage. However, the empirical experience at hand indicates that temporary contracts might give rise to disadvantageous situations for workers since they are also associated to labour precariousness and low qualification paid jobs (Farber, 1999; Araulampalan and Booth, 1998). For instance, De la Rica (2004) and García Pérez and Rebollo (2005) put forward the existence of wage penalties associated with temporary employment in Spain. Besides, the experience has revealed that the probability of getting a permanent contract from a non-permanent position is not equal among different types of workers and the negative effects of these contracts are suffered for certain type of workers. Hence, temporary contracts might foster the segmentation of the labour market and create a dual labour market formed by a primary sector -consisted of workers with high social protection and good labour expectations-, and a secondary sector - characterized by workers submitted to the precariousness in social protection and employment (Jimeno and Thoaria, 1993).

Nevertheless, the majority of the previous empirical analysis has restricted the analysis of the transition rate from temporary to a permanent contract to a single temporary contract. However, as the empirical evidence tells us, the path to a permanent contract often implies a sequence of temporary contracts and job interruptions. For instance, young workers may need more than just one temporary contract to acquire the experience needed to be promoted to a permanent employment. In this type of situations, it is more relevant to refer to *temporary careers* instead of *temporary jobs*. The analysis of a single temporary contract does not capture the fact that the characteristics of the labour trajectory may influence the changes to get a permanent contract and the duration itself of the temporary career.

This paper studies the role of temporary contracts on workers labour path for the Spanish economy. Spain is an interesting extreme example where temporary work is far higher than elsewhere in EU, despite several reforms attempting to reduce employment protection restrictions over the last fitting years. Specifically, we analyse the probability of getting a

permanent contract considering the previous labour path of the individual. We estimate a single risk model in which the worker faces the alternative of remaining in the same situation characterized by the absence of a permanent contract, *-non-permanent position-*, or to move to permanent job. The empirical analysis takes information from the Social Security records for the period 1995-2004. This database gathers the whole labour path of the workers during the mentioned period and avoids the problems of aggregation of different periods of employment, generally throughout one quarter or year, existing in other databases. On the other hand, the analysed period turns out to be especially relevant since in the years 1997 and 2001 important labour market reforms directed to reducing the presence of the temporary contracts have been implemented in Spain.

Our main findings are as follows. Firstly, we find evidence of the temporality trap in Spain since the duration dependence of the exit rate is non-linear: it starts increasing but at a certain point in time turns down to pretty low levels. For the average worker, the exit rate reaches a maximum after being, at least, four years in this position. Secondly, the incidence of temporary contracts depends on observed and unobserved characteristics: for women - except the young ones-, mature workers, immigrants, part-time workers, those employed at the construction temporary contracts can suppose a trap towards labour instability instead of leading them to stable jobs. Besides, for certain type of workers -around 44% for labor market entrants and 40% for long term unemployed-, and independently of their observed characteristics, temporary contracts strongly reduce their possibility of acceding to a permanent one. This probability is already lower for short durations at the non-permanent position. Thirdly, the probability of accessing to a permanent contract diminishes notably with multi-contract and job interruptions whereas it increases with multi-firm experiences. For instance, the probability of getting a permanent contract is significantly lower if the worker has a temporary contract of two years opposite to having six temporary contracts of four months of duration each. We consider that these results show an important characteristic of the hiring decision of Spanish firms: a high percentage of temporary contracts are used to fill "permanent" positions.

The organization of the paper is the following one. First, in order to frame the state of the question, in Section 2 we comment the most relevant empirical studies related to the problem of temporality. In the following Section we describe the methodology applied to the study of the temporality. In Section 4 we offer some basics statistics about the evolution of the temporary employment in Spain. Our principal results of the estimations appear in Section 5. Finally in Section 6 we present a summary of the results and our preliminary conclusions.

II Previous Empirical Studies

Since the 1980s, when temporary contracts emerged in several European countries as an instrument to increase labour market flexibility, there has been a significant and ever-growing literature on temporary contracts and their implications for the performance of the labor market. Given that these effects have not always been as expected, this issue is nowadays an object of debate in several European countries. Initially, the majority of the studies showed up the benefits of temporary contracts in terms of a drop in unemployment duration. Nevertheless a

second important issue is the impact of temporary contracts on workers labour career. For certain workers a temporary contract may suppose an intermediate suitable stage to get better employment perspectives whereas for another type of workers it does not have the desired effect and it positions them in situations of labour market instability. So far, existing theory provides contradictory answers to the impact of multi-temporary contracts, multi-firm experiences and job interruptions into the path to permanent employment. This lack of answer is also resembled in the empirical work. In this section we comment the most relevant studies that focus on these items for the European labour markets in general and for the Spanish labour market in particular.

Several studies that focus on the Spanish situation are Amuedo-Dorantes (2000), Güell and Petrongolo (2004), Casquel and Cunyat (2005) and García-Serrano (2004)¹. Except the last one, they all use competing risk models to study the transition rate from a –single- temporary to a permanent contract. In the first case, the authors conclude that temporary contracts are more a trap than a way towards labour stability whereas the second one suggests that they have two principal uses since the conversion rate to a permanent contract depends on job tenure. This rate is higher for short (1 year) and long (3 years) durations. From these results they conclude that in some cases, firms exhaust the maximum legal duration of the temporary contract before transforming it into a permanent one. On the contrary, in other cases the temporary contract fulfils one of its fundamental functions since it serves as a screening device to find the best match. Casquel and Cunyat (2005) indicate that only observed workers characteristics are fundamental to explain the effect of a labour contract on her labour career. For some workers, these contracts are positive since they are the way to access to better labour market positions whereas for others, they reduce the possibility of obtaining stable jobs. For instance, young men, women and low skill workers tend to get trapped. So as to test whether firms use temporary contracts to improve their knowledge about the worker, they study whether the existence of unobservable characteristics influences the transition rate to a permanent employment and conclude that in Spain temporary contracts do not play this role.

From a different perspective, García-Serrano (2004) analyses whether workers with temporary contracts occupy precarious jobs what induces them to have a high employment exit rate. He takes the information from the living and working conditions database (*Encuesta de Calidad de Vida en el Trabajo*) of the year 2001 and constructs a series of individual indicators relative to the living and working conditions. The author obtains that, still controlling by characteristics of the individuals and companies, workers with temporary contracts have jobs with worse labour conditions and face a greater employment exit rate, especially those with tenure lower than 18 months. He also finds that the differences between workers with permanent and temporary contracts with tenure superior to 42 months are low. Therefore, he concludes that workers with temporary contracts occupy jobs that have similar characteristic to ones of the workers with

¹ Among the earlier studies focused on the Spanish labour market we can find those of Thoaria (1996) and Alba-Ramírez (1998). They study the exit rate to a temporary employment using the data provided by the Survey of Active Population (EPA). They observe that this rate depends on the characteristics of the worker and the job. Specifically, Alba-Ramírez (1998) finds evidence in favour of the existence of a dual labour market where the worse qualified workers have a major probability of remaining in temporary contracts in the long term. On the other hand, he concludes that job tenure exerts a positive influence on the transition probability towards a permanent employment.

permanent contracts. Consequently, he points out that Spanish firms use temporary contracts in permanent tasks so as to reduce total labour costs.

There also are several studies that cover the same topic but analysis other European countries. All these studies consider the exit rate of temporary employment from a duration model with one or several risks in competition. For instance, D'Addio and Rosholm (2005) follow the last approach and use the European Community Household Panel (1995-1999). They find that the duration dependence of the exit rate from a temporary to a permanent contract is positive for women whereas for men it decreases after two years. But, Spain turns out to be an exception: the greater the duration of the temporary contract the higher the probability of undergoing into the temporality trap². They also find evidence of the positive relation between low quality and low paid jobs, unemployment experiences and temporary contracts for workers with low labour qualification and women with children. On account of which, the authors state that when temporary jobs are occupied by workers with low skills, they are not a good mechanism to improve the labour position of the worker and on the contrary, they reduce the chances of finding a stable job.

Booth, Francesconi and Frank (2001, 2002), Zijl, Van Den Berg and Heyma (2004) and Gagliarducci (2005) examine whether temporary contracts lead workers towards stable positions or on the contrary, they damage their labour career in Great Britain, Holland and Italy, respectively. Booth, Francesconi and Frank (2001, 2002) get that temporary contracts favour the access to permanent ones though workers have to stay in temporary contracts between 18 to 40 months. This strong variability depends on the type of temporary contract hold by the worker and it is larger for seasonal contracts. Zijl, Van Den Berg and Heyma (2004)³ conclude that temporary contracts favour the access of unemployed workers to permanent contracts since the probability of finding an indefinite contract during the first six months is 20% for the unemployed ones and 80% for the temporary contracted ones⁴. However, the transitions from unemployment to permanent contracts are more common than the transitions from temporary to permanent ones. Therefore, these authors also conclude that temporary contracts do not play an important role in the access to a stable employment for Dutch unemployed workers. Gagliarducci (2005)⁵ finds that the duration dependence of the exit rate to a permanent contract is not linear. In terms of matching models this implies that good matches become permanent contracts quickly, after the first contact, whereas for long contracts, the probability first increases but it falls soon. He also obtains that the probability of acceding to a permanent contract drops with the number of contracts⁶. Therefore, he concludes that job interruptions, instead of temporary, contracts, are the sources of the deterioration of the labor market career of

² In this paper, long-term temporary contracts are over-represented since it is not possible to identify labour transitions along one year.

³ This paper faces the same limitation as the D'Addio y Rosholm (2004) because it does not have available labor market transitions along a year.

⁴ These authors apply the timing of events approach (Van den Berg, Holm y Van Ours, 2002) and estimate a mixed exit rate model with repeated observations. It is interesting to emphasize that the unobserved heterogeneity is specific at each state and type of transition.

⁵ He uses the European Community Household Panel and proposes a risk competition model with repeated observations and unobserved heterogeneity.

⁶ When a worker reaches his second temporary job, the probability of acceding to a permanent contract begins to fall, the fall it is greater when this contract change is accompanied with an episode of unemployment.

workers in non-permanent positions. For this reason, the author considers that the reforms must go directed not as much to the temporary contract per se but to guarantee the continuity of the spell of employment after the temporary contract.

Van Ours (2004) studies whether to subsidize temporary contracts help the unemployed workers to find a stable job. The author finds that the exit rate from a temporary employment to a permanent one decreases with the duration. This is due to the drop in the worker's intensity job search and therefore, in the middle and long term these workers get trapped into a non-permanent position. From the point of view of the economic policy, he recommends subsidies to short term temporary contracts.

III The Econometric Approach

Given that the database offers the duration of the spells of employment and unemployment on a monthly base the appropriate approach is to study the exit rate from a temporary contract as a discrete duration model. Moreover discrete time duration models allow specifying with enough flexibility the time dependence characteristics of the exit rate, as well as to incorporate in the analysis explanatory variables with temporary variability (Allison 1982). In addition, discrete duration models put in evidence the narrow existing correspondence between duration and discrete choice models.

As it is traditional in the literature of duration models the objective function is to estimate the exit rate $h(t)$. For each individual i we observe the duration in a determined state from $t=1$ up to k -month in which the individual changes of situation ($c_i=1$) or remains in the same state ($c_i=0$). Combining the information relative to the censored and uncensored observations, the likelihood function to be maximized is standard:

$$\ell = \prod_{i=1}^n \left[\left(\frac{h_{ik}}{1-h_{ik}} \right) \prod_{t=1}^k (1-h_{it}) \right]^{c_i} \left[\prod_{t=1}^k (1-h_{it}) \right]^{1-c_i} \quad (1)$$

A common alternative to estimate the exit rate consists of transforming the duration model in a sequence of discrete choice equations defined on the surviving population at each duration. In this case, the form of the likelihood function has exactly the same form that the likelihood function of a discrete choice model once we have rearranged the database so there are so many rows by individual as time intervals -months in this case-, in which the worker has remained in the initial situation (Allison, 1982; Jenkins, 1995). The corresponding probability term of the likelihood function when we estimate the duration model as a binary discrete choice model is:

$$P_j(t/x) = \frac{\exp(\gamma_j(t) + x\beta_j + \varepsilon_j)}{\sum_{j=0}^J \exp(\gamma_j(t) + x\beta_j + \varepsilon_j)}; \quad j = 0,1 \quad (2)$$

In the previous specification of the likelihood function we have assumed that all the heterogeneity is due to observable characteristics. Nevertheless, it is also possible that

unobserved characteristics such as the individual's preference for leisure or individual's ability constitute a factor of heterogeneity in the exit rate among observations. As it has been extensively shown in the literature, the existence of unobserved heterogeneity in duration models might give rise to spurious duration dependence and bias the estimated coefficients⁷. In relation to the temporary exit rate, the unobserved heterogeneity might miss-specify the duration dependence term. For instance, if more motivated workers find a permanent employment more quickly, the share of workers who remain in the temporary situation might grow along time.

We follow the approach proposed by Heckman and Singer to specify the unobserved heterogeneity term. We assume that each exit rate has two support points. Besides, we allowed two types of individuals, so that each type is characterized by a unique set of points of support and the corresponding probability, π_m . The points of support and the associated probabilities are estimated jointly. Following McFadden and Train (2000) the likelihood function of a mixed logit is:

$$\ln L = \sum_{i=1}^N \sum_{j=1}^J y_{ij} * \ln(\Pi_{ij}); \quad j=0,1 \quad (3)$$

where $y_{ij}=1$ if the worker changes to state j and zero otherwise. We also define the term Π_{ij} :

$$\Pi_j = \sum_{m=1}^M \pi_m P_j(t/x, v) = \sum_{m=1}^M \pi_m \frac{\exp(\gamma_j(t) + x\beta_j + v_{jm})}{\sum_{j=0}^J \exp(\gamma_j(t) + x\beta_j + v_{jm})} \quad (4)$$

where v represents the unobserved heterogeneity term, m represents the points of support and π_m the corresponding probabilities. Given this specification, our econometric approach is to estimate a logit model with unobserved heterogeneity.

IV Data Description

We use a sample drawn from the Social Security records of the Spanish economy during the period 1995-2004. The starting year is 1995 because the available information relative to the type of contract is scant in previous years. This data base has not been used previously to analyze the temporality issue in the Spanish economy although the Social Security records offer detailed information on the labour market history of the individual. Other databases only gather annual or quarterly information and therefore the individual labour market transitions within a year are not available giving rise to an under-representation of short term temporary contracts. This last matter is relevant when the aim of the study is to analyse the incidence of the temporary contracts on the high rate of job turnover that characterised the Spanish economy.

This administrative dataset gathers much information about the worker's labour market

⁷ In general terms, the unobserved heterogeneity component allows controlling for specification problems as the omission of relevant variables or measurement errors in the endogenous variable (see Lancaster, 1979, 1990).

trajectory and individual characteristics such as age, gender, occupation, unemployment and employment spells and their durations. We have available the reasons to the end of the contract, the location of the firm, the sector of activity, type of contract and whether the contract was signed with a temporary help agency for each spell of employment. The duration of the unemployment and employment spells are built from the dates of the hiring and the end of the contract and it is measured in months. In the analysis we also consider several aggregate variables at the regional and national level to control for the labour market situation and the business cycle. Basically we use the growth rate of the domestic product and the regional unemployment rate.

Temporary employment has a number of different meanings. Some temporary work is, by its nature, seasonal or causal. For other jobs, where the work itself does not dictate temporary employment, the job is temporary due to a characteristic of the contract itself under which the worker is hired, namely its fixed-term duration. Therefore, the definition of a temporary contract is a relevant issue. Guell and Petrongolo (2004) and Booth, Francesconi and Frank (2001, 2002) use a broad definition of a temporary contract⁸. Throughout this research, we follow the same approach and within the concept of temporary contract we include the following categories: fixed term, specific task, training, contract for circumstances of production, internship contract and replacement.

From the initial database we omit all workers younger than 18 years old and older than 55 years old. We select workers who have one temporary contract, at least. The selected workers are then followed until they get their first indefinite contract and then they are removed from the sample. Therefore, the sample consists of spells of temporary contracts that can end up into one of the following states: permanent contract, other temporary contract and non-employment.

IV.a Main Characteristics of the Spanish Temporary Employment

We start off displaying in Table 1 the different options a worker faces after the temporary contract. The worker moves to unemployment in approximately 50% of the cases, whereas only in approximately 8% of the cases he improves its position and obtains a permanent contract. Workers move again to a temporary contract, either in the same or in another firm in the 40% of the transitions. This result seems enough stable along the period 1995-2004 and it shows that the probability of getting a permanent contract is pretty low in Spain. We observe greater variability in the probability of changing firm, either with a temporary or a permanent contract. The data show that the probability of connecting temporary contracts and the transition from temporary to permanent contracts within the same firm have tended to increase. Thus, whereas in 1996, around 15% of new permanent contracts and 24% of new temporary contracts were signed in the same company, in the year 2003 these shares rise to 30% and 39% respectively.

We show in Table 2 the relation between the duration of the temporary contract and the type of transition. We obtain that short term contracts tend to end into unemployment while longer term ones end into permanent ones. Moreover, we can observe that the average duration of temporary

⁸ For instance, in Casquel and Cunyat (2005) some type of contract such as internship contract are not considered.

contracts is pretty short since 53% of them lasted three months and 22% between three and six months.

Table 1: Transitions From a Temporary Contract

	P.C.		T.C		U	
	Total	Equal Employer	Total	Equal Employer	Total	Equal Employer
Media 1995-2004	8%	25%	40%	36%	52%	-
1996	11%	15%	32%	24%	57%	-
2000	9%	27%	41%	37%	50%	-
2003	5%	30%	43%	39%	52%	-

P.C = Permanent Contract; T.C = Temporary Contract; U=Unemployment

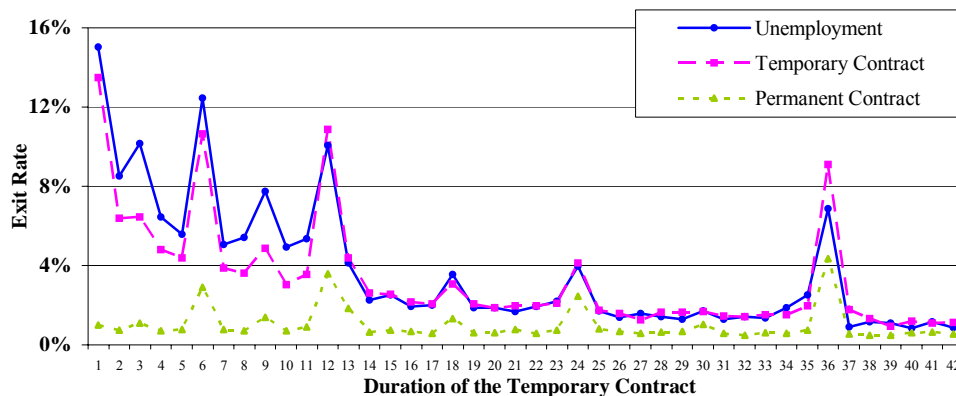
Table 2: Type of transitions and its relation with the duration of the temporary contract

	Total	P.C.		T.C		U	
		Total	Equal Employer	Total	Equal Employer	Total	Equal Employer
< 3 Months	53%	4%	40%	42%	55%	53%	-
3-6 Months	22%	8%	63%	40%	50%	51%	-
6-12 Months	14%	10%	59%	38%	46%	52%	-
12-24 Months	7%	15%	52%	43%	38%	41%	-
> 24 Months	3%	19%	43%	42%	36%	38%	-

P.C = Permanent Contract; T.C = Temporary Contract; U=Unemployment

We display in Graph 1 the empirical exit rates from a temporary contract to each of the destination states considered. Firstly, we observe negative duration dependence when the destinations are the unemployment and other temporal contract. Interestingly, the exit rate to a permanent contract hardly varies except at certain durations and it reaches a local maximum at duration 36.

Figure 1: Empirical Exist Rate from a Temporary Contract by Type of Transition



IV.b Main Characteristics for young and long term unemployed workers.

The database suffers from the common problem of left censored information since the worker may have experienced several labour transitions before 1995. Since this might influence the analysis we subtract from our main sample two additional subsamples: one formed by young

workers whose first observation matches with their entrance at the labor market (*labor market entrants* from now on) and the other one formed by long term unemployed workers. Once a worker is selected, she is followed until her first indefinite contract. This type of analysis allows checking whether the incidence of temporary contracts differs between workers with different labour market histories. In order to build the sample of labour market entrants we select those workers whose first observation in the social security records is with a temporary contract and they are younger than 27 years old. In the case of long term unemployed we keep those workers who have been unemployed for at least twelve months and enter into the labour market with a temporary contract.

Given this sample selection criteria we have available 44,034 spells for young workers and 80,468 spells for long-term unemployed. As Table 2 illustrates, there are some interesting differences between both samples. Firstly, the share of workers who get directly a permanent contract is much larger for long term unemployed workers. This ratio is 42% while for young workers is only 15%. Secondly, young workers face a larger probability of having an indefinite contract after a temporary contract experience. This probability is 58% for young workers instead of 42% as it happens to be for long term unemployed workers. Therefore, temporary contracts as an intermediate step to get into stable jobs seem to be a more common option for young workers.

We display in Table 3 some basic characteristics of the workers labor path for both samples. The results show that workers who obtain a permanent employment are, in average, between 18-19 months in a non-permanent position in the labour market, the average duration of their temporary contracts is 6 months, they do not undergo many unemployment experiences and tend to remain in the same firm. Those who do not accede to a permanent job seem to have a worse position in the labor market. In average, they have been more than 38 months without a permanent contract; they have passed through 4 temporary contracts and at least one unemployment experience. In fact, some seem to have entered into the temporality trap, since around 25% have accumulated 7 temporary contracts, two firms movements and two unemployment spells.

Table 3: The presence of Temporary Contracts to get into a Permanent Job

	No P. C.	P. C. after T. C	P.C directly
Young Workers	60%	24%	15%
Long Term Unemployed Workers	44%	12%	42%

P.C = Permanent Contract; T.C = Temporary Contract;

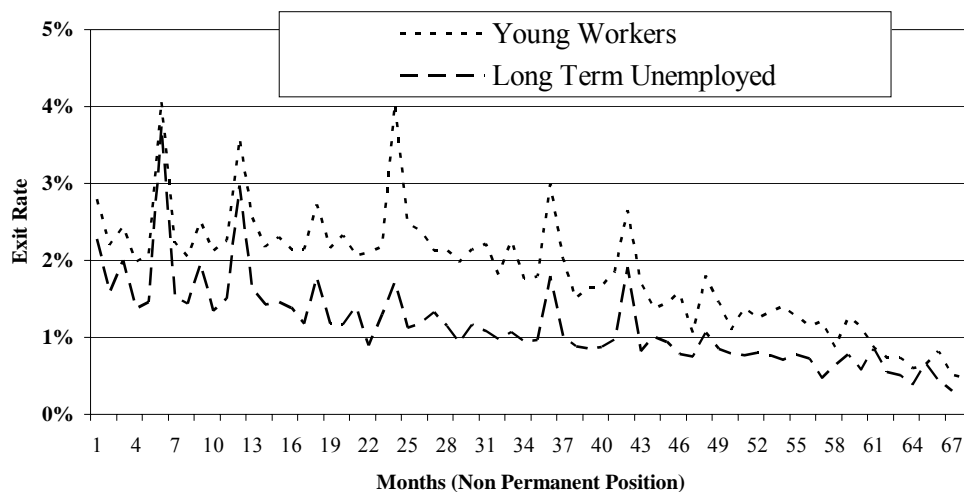
Table 4: Main Characteristics of the Temporary Career

	No P.C			P. C.		
	P ₂₅	P ₇₅	Average	P ₂₅	P ₇₅	Average
Young Workers						
Duration in a Non Permanent Position	16	50	31	6	25	20
Nº of Unemployment Spells	1	4	2	0	2	1
Nº T. C.	2	8	5	1	5	3
Nº of Firms	0	1	1	0	1	1
Long Term Unemployed Workers						
Duration in a Non Permanent Position	15	53	32	7	28	15
Nº of Unemployment Spells	0	3	2	0	1	0
Nº T. C.	2	6	5	1	4	2
Nº of Firms	0	1	1	0	1	0

Note: P₂₅ and P₇₅ represent percentile 25 and 75 respectively.

In Figure 2 we display the empirical exit rate from the non-permanent situation for young and long term unemployed workers. Firstly, it stands out the large average duration in the non-permanent position and evidences the existence of the temporality trap since the probability of accessing to a permanent contract decreases with the duration at the non-permanent state. Secondly, this rate is always higher for labour market entrants and this difference increases with the duration. In the case of labour market entrants the exit rate starts decreasing after 24 months whereas this rate starts decreasing from the first month when for the group of long term unemployed. Thirdly, in both cases, the exit rate reaches local maximums at certain durations. Nevertheless, we can not get any final conclusion since this empirical exit rate is an unconditional analysis that can be biased by selection effects.

Figure 2: Exit rate to a Permanent Contract



The labour market experience of the worker is evidently an important variable to explain the transition rate to a permanent contract. In our analysis we use the age cohort, measured at the time of the entrance of the labor market, as an indicator of the previous labour market experience. We divide each sub-sample by the following age cohorts: 18-21, 23-24 and 24-26 for young workers; 27-29, 30-35, 36-40, 41-45 and 46-50 for long term unemployed workers. In

fact, the statistics showed in Table 4 points out significant differences in the transition rate to a permanent position among workers located in different age cohorts. The average duration at the non-permanent state increases with the age. The same result is found for the average duration of temporary contracts. On the contrary, the number of temporary contracts and job interruptions tend to decrease with the age.

Table 5: Some Basic Statistics by Age Cohort

	T. C. (Months)	Non-Permanent State (Months)	N° of T. C.	N° of U. Spells
Young Workers				
Age:18-20	7.0	17.3	3.6	1.7
Age:21-23	7.6	18.8	3.5	1.6
Age:24-26	8.0	18.6	3.3	1.4
Long Term Unemployed				
Age:27-30	8.2	19.2	3.3	1.3
Age:31-35	8.7	19.9	3.3	1.3
Age:36-40	8.4	19.5	3.2	1.3
Age:41-45	8.7	20.3	3.3	1.4
Age:46-50	9.7	18.3	2.6	1.1

V The Determinants of the Exit Rate from an Unstable Labor Position

The main question to be answered in this sector is how long does it take to find a stable position and what are the main determinants of this process?. The empirical evidence shows that the conversion rate from temporary to permanent employment is low in Spain. This might mean that temporary contracts do not favour stable positions or that the workers need several temporary contracts before they accede to a permanent one. The statistics displayed also show that both situations might simultaneously happen. Therefore, to test whether the large average duration in the non-permanent position can be related to the need to accumulate human capital skills or it effectively leads to the temporality trap we need to estimate the duration dependence of the exit rate once we control for all the observed and unobserved heterogeneity and to evaluate the effect of multi-firm and multi-contract experiences and job interruptions into the exit rate from the non-permanent state⁹. The way these variables are related to the exit rate from a non-permanent position is not clear cut.

Firstly, the matching approach states that when firms use temporary contracts as a screening device to identify the best match, then workers will need few temporary contracts to get a permanent position. Besides, the exit rate from a temporary contract should decrease as the time pass by. On the other hand, if firms use them to fill permanent positions, the worker will probability passes through many temporary contracts of longer duration –and firms- and she will face a low transition rate to a permanent contract. Secondly, human capital models point out that the accumulation of temporary contracts and firms favours the accumulation of general human capital (and specific if it is in the same firm), and consequently, it increases the probability of conquering a permanent contract, whereas unemployment experiences reduce it.

⁹ We have also use the sector of activity as a control variable but it was not statistically significant.

These models also point to a positive duration dependence of the exit rate from a temporary to a permanent contract since worker's productivity¹⁰ increases with its duration. Thirdly, search models state that search intensity decreases with the duration of the temporary contract and therefore the exit rate should fall as time pass by. Finally, institutional factors must be also considered. Concretely, in labour markets characterised by excess of labour supply it is possible that the firm converts temporary contracts into permanent ones when the legal limit is reached. In this case one would find that the exit rate reaches the maximum at certain contracts durations depending on the legal environment.

Our empirical model considers those variables available in our database that control for worker and job heterogeneity. Mainly, age, gender, nationality, wage category, whether the contract is with a temporary help agency, hours of work, and firm activity sector. We also include some aggregate variables such as the regional output and the regional unemployment rate to control for regional and cyclical variability.

In this model the duration term gathers all the spells of temporary employment and unemployment previous to a permanent contract. The type of the duration dependence might help to understand the role of temporary contracts in the Spanish labour market. Thus, this variable is specified as a quadratic function to capture non-linearities¹¹. In order to gain flexibility in the specification of the duration dependence and to control for the role of institutional factor we also include several dummy variables that describe some specific points in time: 6,12,24,36 and 42. The first spikes are meant to capture short-run effects, while the longer ones were introduced to capture longer renewal dynamics for temporary workers which can be related to institutional factors, among other things.

Since we want to test whether the type of the labour path influences the exit rate to a permanent contract our model contains the following time dummy variables: the number of temporary contracts and unemployment spells previous to last observed worker spell. This last spell will be a permanent contract for the case of uncensored observations and a spell of unemployment or temporary contract for censored observations. These variables are modelled as dummy variables because this specification allows quantifying the marginal effect of each new spell into the exit rate to a permanent employment. Besides, we also use multi-firm experiences in the model in order to distinguish among internal or external markets. The idea is that firms can hire their temporary workers after a certain number of experiences in the same company or proceeding from outside. Finally, we also consider the duration of the unemployment spells. We expect that workers with one unemployment spell will have a lower probability of getting into a permanent contract the larger is its duration.

The employment variables refer to the last job. The variable "changes in the wage level" seeks to capture changes in worker's qualification. Finally, we include dummy variables that specify the age cohorts the individual belongs at the moment of entering into the social security records. In the sample of young workers this corresponds with the age of entrance in the labour market.

¹⁰ This rise in worker productivity might be related to the accumulation of human capital and/or to on-the-job training.

¹¹ We have also estimated the model with seven dummy variables that gather the following time intervals measured in months: <3, 3-6, 6-12,12-18, 18-24, 24-36 and >36.

We expect that the sooner the entrance of the labour market, the lower the probability of entering into the temporality trap and the higher the number of temporary contracts needed to get a permanent position. Besides, we relate these dummy variables with the duration term¹² to check whether the duration dependence depends on the cohort. Since age approaches workers labour market experience, it is probable that the average duration in the non-permanent state varies in relation to the age cohort. Again we expect the average duration in the non-permanent state will be larger for younger workers. Besides, to control for aggregate effects, we create dummy variables for the year of entrance in the Social Security records.

The results of estimating the exit rate from the non-permanent position for young and long term unemployed workers are displayed in Table 6. In all cases we observe that: i) The duration dependence of the exit rate to a permanent contract is non linear since it starts increasing until the worker accumulates enough months in the non-permanent state. Interestingly, the exit rate of the young workers is always superior than the one of the long term unemployed¹³; ii) There are significant differences in the exist rate by age and type of worker; iii) The exit rate reaches maximum levels at specific durations, mainly at 24 and 36 months; iv) The exit rate strongly depends on the previous labour path of the worker, specially on the number of temporary contracts, job interruptions and multi-firm experiences; v) There are several individual and job characteristics that strongly influence the exit rate to a permanent contract; vi) the unobserved heterogeneity term is relevant to explain the observed dispersion in the exit rate.

We start off by highlighting the results relative to the unobserved heterogeneity component display in the last row of Table 6. To get a better understanding of the results we compute the duration dependence of estimated exit rate -measured at the average worker- by the unobserved heterogeneity component. They are displayed in Figures 3 and 4. These Figures put forward the evidence of the temporality trap for both, young and long term unemployed workers since once the worker has spent several months in the non-permanent state, the probability of getting a permanent contract starts decreasing. Moreover, the unobserved heterogeneity term points that there seem to be two types of workers faced with different chances to promote to stable jobs. Around 66% of young workers have a higher average exit rate –workers Type II-, 1.32% instead of the lower rate 0.25% faced by the rest of young workers. When we consider the long-term unemployed ones we obtain that the share of workers with a higher exit rate states at around 60%. The differences between the exit rates of workers Type I and Type II are smaller since the exit rate is much lower for this group of workers. Concretely, it is 1.1% for workers Type II and 0.1% for workers Type I. These large differences in the exit rate mean that the probability of getting a permanent contract for workers Type I are much lower independently of the duration at the non-permanent state.

Given our model lacks of many individual and job characteristics we find it difficult to offer an economic meaning for the unobserved heterogeneity component. Previous empirical evidence

¹² We also test whether the duration dependence was different for each wage group and we did not find significant differences.

¹³ These results match with those of Blanco and De la Rica (2002). They find that the exit rate from unemployment is lower for Long Term Unemployed older than 45 years. These differences in the exit rate are due to a lower arrival rate of job offers and a higher value of leisure. This last fact is also related to higher unemployment compensation benefits.

tends to point out the variable education as a main determinant of the labour market segmentation. This variable is not available in our database and we proxy it with the wage group. Yet, it might be that this last variable does not correctly capture workers differences in attainment levels¹⁴. Additionally, the unobserved heterogeneity term might be related to other non-observable characteristics such as ability or individual effort.

Among the main determinants of the exit rate from the non-permanent position it stands out the workers age cohort. Figures 5 and 6 show the duration dependence of the exit rate from the non-permanent position for workers Type II by age cohort¹⁵. We obtain that, on average, younger workers face a lower probability of acceding into a permanent contract at the moment of entering into the labour market. Secondly, as the worker remains in the state of job instability, the exit rate grows faster for younger workers. Therefore, though the differences are small at the start of the non-permanent situation, they increase with its duration and from the second or third year, the exit rate is clearly higher for younger workers. On the other hand, the exit rate reaches the maximum at different durations and this maximum tends to arise earlier for older workers. These results match with the idea that temporary contracts favour the access of young workers into stable positions because as they stay in a temporary contract, they accumulate human capital and increase their productivity to compensate for the larger costs related to a permanent contract. The differences found between age cohorts might be related to differences in educational attainment levels¹⁶. It is possible that young workers with high levels of formal education but with low labour market experience are in low paid jobs¹⁷. These results might point out that for younger workers the labour market demands longer labour market experience to access to a permanent position. Other interesting results common to both samples are the local maximums in the exit rate found in the durations 12, 24 and 36. This points out that firms might wait until the end of the contract and exhaust all legal limits to convert temporary into permanent contracts.

¹⁴ We find this argument especially relevant for young workers.

¹⁵ We only display the results relative to workers Type II because the behavior of the exit rate for workers Type I has the same characteristics.

¹⁶ Note that the variable used to measure the qualification of the worker is the wage group the worker belongs.

¹⁷ This idea also matches with the fact that low and medium skills young workers face a larger probability of getting into a permanent contract.

Table 6: Exit Rate from the non-permanent position to a Permanent Contract (model with unobserved heterogeneity)

	Young Workers		Long-Term Unemployed	
	Coefficient	t-student	Coefficient	t-student
Constant	-5.434	-76.09	-5.919	-72.61
Medium Skill (last contract)	0.214	3.66	0.178	3.96
Low Skill (last contract)	0.176	3.42	0.334	10.35
Woman	-0.256	-11.2	-0.187	-7.86
Temporary Help Agency (last contract)	0.101	5.96	-0.357	-5.17
Age Cohort 18-20	-0.071	-1.32	-	-
Age Cohort 21-23	0.021	1.56	-	-
Age Cohort 30-35	-	-	-0.171	-3.61
Age Cohort 36-40	-	-	-0.166	-3.59
Age Cohort 41-45	-	-	-0.231	-4.47
Age Cohort 46-50	-	-	-0.033	-0.69
Month 6	0.835	19.00	1.007	24.65
Month 12	0.665	14.13	0.871	10.81
Month 24	0.750	13.36	0.410	9.79
Month 36	0.786	5.45	0.529	5.81
Month 42	0.220	1.67	0.144	0.2
Duration	0.079	21.15	0.071	22.18
Duration ²	-0.001	-16.53	-0.001	-17.05
Duration*Age Cohort 18-20	0.009	9.46	-	-
Duration*Age Cohort 21-23	0.005	3.69	-	-
Duration*Age Cohort 30-35	-	-	-0.003	-1.46
Duration*Age Cohort 36-40	-	-	-0.008	-3.14
Duration*Age Cohort 41-45	-	-	-0.003	-0.66
Duration*Age Cohort 46-50	-	-	-0.017	-5.78
Duration of the Unemployment Spells	-0.032	-22.2	-0.054	-21.8
N° Temporary Contracts 2	-0.439	-0.51	-0.731	-17.57
N° Temporary Contracts 3	-0.541	-1.82	-1.029	-19.98
N° Temporary Contracts 4	-0.684	-2.32	-1.168	-19.84
N° Temporary Contracts 5	-0.746	-3.22	-1.406	-20.35
N° Temporary Contracts >=6	-1.042	-3.51	-1.552	-27.01
N° Unemployment Spells 1	-0.871	-3.27	-0.860	-22.27
N° Unemployment Spells 2	-1.083	-2.62	-0.876	-16.78
N° Unemployment Spells 3	-1.273	-2.61	-0.918	-13.83
N° Unemployment Spells 4	-1.634	-1.34	-1.431	-17.72
N° Firms 2	0.141	12.98	0.251	7.72
N° Firms 3	0.240	12.78	0.259	5.67
N° Firms 4	0.401	11.75	0.341	5.07
N° Firms 5	0.365	12.08	0.523	7.1
N° Activity Sectors 2	0.303	8.44	0.656	15.01
N° Activity Sectors 3	0.345	4.96	0.807	8.64
T.c GDP /10	3.308	13.58	3.909	15.72
Unemployment Rate /10	0.010	0.4	0.075	-5.22
Construction	-1.681	-14.8	-1.608	-17.39
Cte Type1	-0.948	23.18	-1.805	35.32
Prob. Type1	44.0%	-	40.3%	-
Log (Likelihood Function)	-61624.8		-51371.901	

*Constant Term (Young Workers) : Men, 1 temporary contract, no unemployment experience, no firm mobility, no temporary help agency, no construction, high skill, cohort 24-26.

*Constant Term (Long Term Unemployed Workers) : Men, 1 temporary contract, no unemployment experience, no firm mobility, no temporary help agency, no construction, high skill, cohort 27-30.

Figure 3 : Duration Dependence of the exit rate to a Permanent Position (Young Workers)

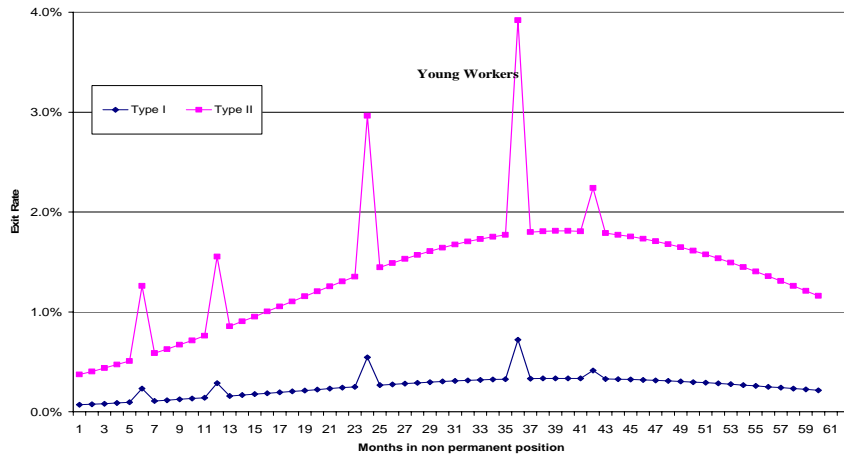


Figure 4: Duration Dependence of the Exit Rate to a Permanent Contract (Long Term Unemployed)

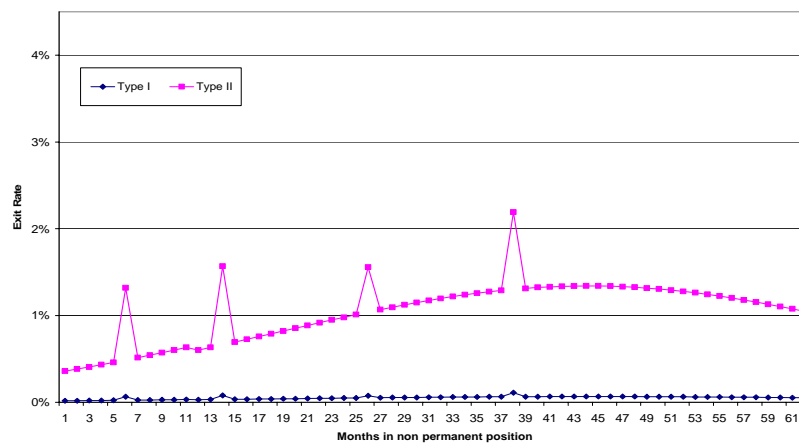


Figure 5: Duration Dependence of the Exit Rate to a Permanent Contract by Age Cohort (Young Workers)

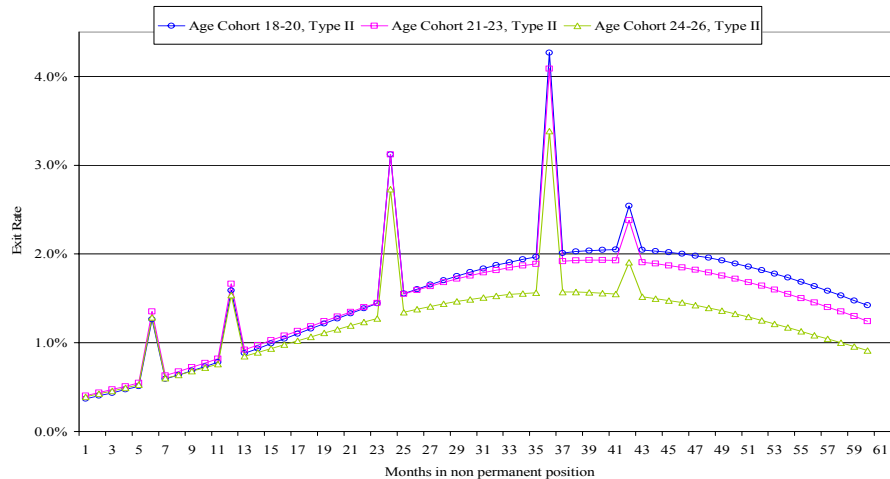
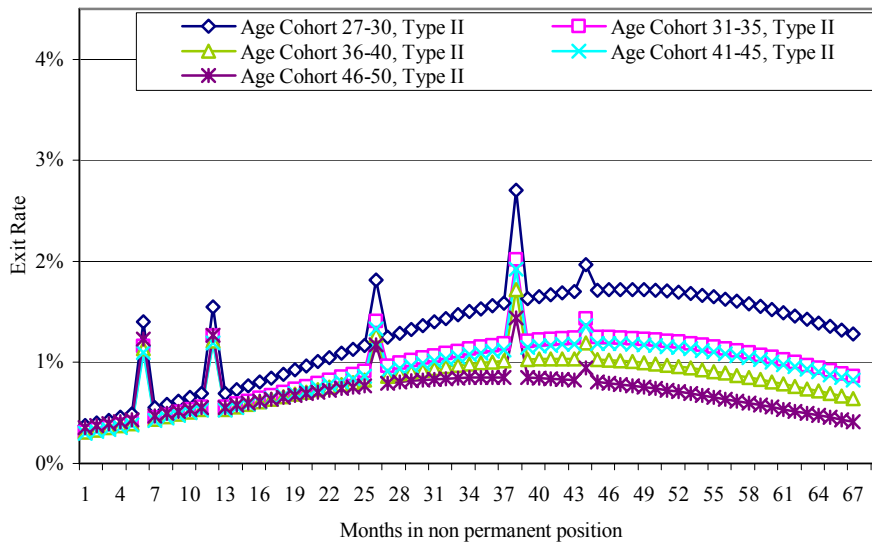


Figure 6: Duration Dependence of the Exit Rate to a Permanent Contract (Long Term Unemployed)



Now we wonder whether the characteristics of the workers labour path influence the exit rate to a permanent contract. That is, we analyse the incidence of the number of temporary contracts, multi-firm experiences and job interruptions on the exit rate towards a permanent position. We build six and four dummy variables to measure the effect of the first five temporary contracts and the first four unemployment experiences into the exit rate. Similarly, multi-firms experiences are described with four dummy variables. This specification is flexible since it captures any non-linearities in the relation between the exit rate and the accumulation of temporary and unemployment spells and multi-firm and sector experiences. Specifically it allows measuring the marginal effect of each new temporary contract, firm, or unemployment spell into the exit rate. It is important to remind that they are all specified as time-varying variables.

All the dummy variables related to the number of temporary contracts and unemployment experiences are negative and statistically significant. Hence, the probability of getting a permanent contract decreases with the number of temporary contracts and job interruptions for both samples. The dummy variables that control for multi-firm experiences are also statistically significant and positive. Therefore, we find that the effect of multi-firm do not seem to influence negatively into the exit rate to a permanent employment.

In order to illustrate the effects of the characteristics of the labour market trajectory into the exit rate to a permanent employment we compute the exit rate from the model parameters at certain situations. We start displaying in Table 7 the estimated exit rate for a worker who has been 24 months at the non-permanent state and in the same firm. We allow the exit rate varying as the workers accumulates different temporary contracts and unemployment spells. For instance, in the first column of Table 7 we describe the exit rate when the worker has been 24 months at the non-permanent state without unemployment experiences and each row represents the behaviour of the exit rate depending of the temporary contracts accumulated. Some interesting ideas arise from the results presented. Firstly, the exit rate to a permanent contract is the largest when the

worker experience one temporary contract of 24 months. This exit rate decreases when the workers pass through several temporal contracts, though the duration at the non-permanent states remains the same. The largest drop takes place when the worker passes from the first to the second temporary contract experience. Thus, the exit rate goes from 6.26% to 4.48% for young workers and from 2.37% to 1.16% for long term unemployed ones. Therefore and assuming that the duration at the non-permanent position is the same, from the workers perspective it is better to get a temporary contract of larger duration than several temporary contracts of shorter duration. Secondly, the exit rate drops when the worker experience job interruptions. The largest drop takes place when the worker has the first job interruption. Afterwards, as the worker keeps entering into unemployment the exit rate decreases but at a lower rate. For instance, the exit rate for young workers moves down from 6.26% to 2.72% after having one unemployment spell. The same sequence takes place for the long-term unemployed but the differences are smaller since the exit rate is already much lower. Thirdly, the negative incidence of job interruptions into the exit rate to a permanent contract is much stronger than the accumulation of temporary contracts. Summarizing, for young and long-term unemployed workers the exit rate experiences the largest drop after the first temporary contract followed by an unemployment experience.

Table 7: Exit Rate to a Permanent Employment by the Number of Temporary Contracts and Unemployment Spells

N° T. C	N° of Unemployment Spells									
	Young Workers					Long-Term Unemployed Workers				
	0	1	2	3	4	0	1	2	3	4
1	6.26%	2.72%	-	-		2.37%	1.02%	-	-	-
2	4.48%	1.92%	1.56%	-		1.16%	0.49%	0.48%	-	-
3	4.07%	1.75%	1.42%	1.18%	-	0.86%	0.37%	0.36%	0.35%	-
4	3.62%	1.55%	1.26%	1.04%	0.73%	0.75%	0.32%	0.31%	0.30%	0.20%
5	3.50%	1.50%	1.21%	1.01%	0.70%	0.59%	0.25%	0.25%	0.24%	0.16%
6	2.70%	1.15%	0.93%	0.77%	0.54%	0.51%	0.22%	0.21%	0.20%	0.14%

Equivalently, we can analyse the behaviour of the exit rate to a permanent employment as the number of temporary contracts and firm experiences increases. In this case we compute the exit rate under the assumption that the worker does not experience job interruptions. These results are presented in Table 8. It is interesting to note that the exit rate of a worker who stays at the same firm accumulating temporary contracts is lower than the exit rate when she accumulates temporary contract and simultaneously changes firm. For instance, the exit rate of a young worker who has experience three temporary contracts at the same firm is 4.07%. Meanwhile, this exit rate when the worker has moved to other firms at each temporary contract is 5.13%. This result holds for young and long-term unemployed workers. Though in the case of young workers the exit rate starts decreasing when the worker has four multi-firm experiences. This result does not show up for the case of long term unemployed workers. Therefore we find that several multi-firm experiences may have a positive impact on the exit rate to a permanent

contract¹⁸.

Table 8: Exit Rate to a Permanent Employment by the Number of Temporary Contracts and Multi-firm Experiences

	Multi-firm Experiences									
	Young Workers					Long-Term Unemployed Workers				
Nº T. C.	0	1	2	3	4	0	1	2	3	4
1	6.26%	-	-	-	-	1.95%	-	-	-	-
2	4.48%	5.12%	-	-	-	0.95%	1.21%	-	-	-
3	4.07%	4.66%	5.13%	-	-	0.70%	0.90%	0.91%	-	-
4	3.62%	4.15%	4.56%	5.31%	-	0.61%	0.79%	0.79%	0.86%	-
5	3.50%	4.01%	4.41%	5.14%	4.97%	0.48%	0.62%	0.63%	0.68%	0.81%
6	2.70%	3.10%	3.41%	3.98%	3.84%	0.42%	0.54%	0.54%	0.59%	0.71%

In Table 9 we compare the incidence of the duration of the unemployment spell with the number of spells on the exit rate to a permanent contract. When we focus on the case of young workers we can observe that to explain the decreasing trend of the exit rate the duration of the unemployment experience is less relevant than the job interruption itself. In the case of long-term unemployed workers these results are less clear since the exit rate is much lower and there are not significant differences between the exit rate as the duration of the unemployment spell increases and the exit rate when there are job interruptions. It seems that for this group of workers the duration of the spell of unemployment is as important as the number of job interruptions¹⁹.

The results shows that while one single temporary experience is helpful, repeated temporary contract experiences may instead have a detrimental effect on the conquer for a stable job. From the results just presented we conclude that the optimal strategy to access to a permanent contract is to pass through few temporary contracts of long duration and with no job interruptions. Nevertheless, when the worker needs to accumulate temporary contracts it is better to change firms.

¹⁸ Since the average number of multi-firm experiences is one and the percentile 75 is two we do not find relevant to specify more than four dummies.

¹⁹ In fact we have computed the exit rate for workers type II and we found that the exit rate decreases at a faster rate when the duration of the unemployment spell increases than when the workers accumulate new unemployment experiences.

Table 9: Estimated Exit Rate to a Permanent Employment by the Duration of the Spell of Unemployment (months)

	Number of Spells of Unemployment			
	Young Workers		Long-Term Unemployed	
Unemployment Duration	1	2	1	2
1	2.64%	-	0.23%	-
2	2.56%	1.51%	0.21%	0.21%
3	2.48%	1.47%	0.20%	0.20%
4	2.40%	1.42%	0.19%	0.19%
5	2.33%	1.38%	0.18%	0.18%
6	2.26%	1.34%	0.17%	0.17%
7	2.19%	1.29%	0.16%	0.16%
8	2.12%	1.25%	0.15%	0.15%
9	2.06%	1.21%	0.15%	0.14%

VI Summary and Conclusions

After two decades of strong segmentation of the Spanish labour Market, there exists general agreement that the presence of temporary contracts must be limited. This consensus has upheld the labour market reforms that began during the 90s and which are still present in the political economic agenda. Yet, the current state of the Spanish labour market is still characterised by high levels of temporary contracts and there are not clear signs of any changing since the share of new contracts with a temporary nature is still too high, around 80%.

A fundamental issue related to this high rate of temporality is the probability that workers enter into the *temporality trap*. That is to say, a labor market path characterised by ongoing movements between temporary contracts and job interruptions and with low prospects of finding a stable position. This phenomenon has strong negative consequences on the workers expected future rents since job instability is also related to low paid jobs what directly also affects unemployment compensations and retirement. Consequently, we find important to study whether the flexibilisation of the labor market through the extensive use of temporary contracts favour the existence of the temporality trap and to analyse what are the main determinants of this phenomenon from the perspective of the social well-being and the public policy. We already know that the excessive level of job turnover might have negative consequences on the productivity level and therefore to offset the positives effects of the temporary contracts in terms of efficiency.

One of the main aims of this study is to show whether the duration of the temporary situation, the number of temporary contracts, unemployment spells and multi-firm experiences help accessing to a permanent contract. Concretely we study the labour path of a sample of Spanish

temporary workers using a database taken from the social security records for the period 1995-2004. Since we want to avoid the initial conditions problem, we analyse two specific types of workers: young workers and long term unemployed who enter into the labour market through a temporary contract. We estimate the exit rate from a non-permanent position to an indefinite contract controlling for observed and unobserved heterogeneity.

The statistical section showed that the transition rate to a permanent contract is pretty low. However this situation can arise because the worker needs to accumulate several temporary contracts to get a permanent one. The idea is that the worker has to increase her general and specific human capital skills because the firm will be willing to convert her temporary contract into a permanent one once her labour productivity offset the higher labour costs associated to a permanent contract.

The evidence showed provides information to the extent whether temporary contracts are good or bad for workers labour career. We obtain that the average duration before getting a permanent contract is enough high in Spain. The exit rate from the non-permanent position is low and it reaches a maximum for durations larger than three years. Nevertheless, this average result hinder significant differences between workers depending on observed, mainly age cohort, and unobserved characteristics. Specifically, the unobserved heterogeneity term shows that temporary contracts might impose an important penalty on the labour path of certain type of workers, independently of their observed characteristics such as age or gender, and independently of the duration at the non-permanent state. This group represents around the 44% and 40% for young and long-term unemployed workers, respectively.

Our results also ratify the fact that high job turnover rates have negative consequences on the probability of getting stable labour positions. We obtain that this probability notably decreases when the worker passes through several temporary contracts and unemployment experiences. On the contrary, in relation to multi-firm experiences we do not find evidence of a negative impact, at least for the first four firm movements. We also wonder whether the duration of the unemployment spell is more important than the number of job interruptions and we conclude that job interruptions have a stronger impact on the exit rate for young workers. Whereas, the opposite result is observed for long-term unemployed.

These results point to some characteristics of the hiring decision process of Spanish firms and question the temporary nature of the jobs covered with temporary contracts. In one hand, it seems that some Spanish firms support the use of temporary contracts as almost exclusive instrument to obtain the external and internal flexibility and even with the negative cost that the excessive labour rotation has on productivity. Those workers who establish a labor relation with this type of firms can get trapped into the temporality state. This obstructs the accumulation of specific human capital since as it is known, the incentives of the businessmen and workers to investing in formation and experience depend positively on the expected duration of the labour relation. On the other hand, we also find that some firms use temporary contracts as an screening device since one temporary contract of 6-12 months is enough to find out whether the firm has found a good match. Nevertheless, other firms exhaust legal limits to convert the temporary contract into a permanent one and therefore labour institutions influence the duration at the temporality state.

The important policy conclusion from this research is that the expansion of temporary work, as a way of increasing labour market flexibility, comes at a cost. From the economic policy point of view, the main issue should not be the existence of temporary contracts itself but their penalty effects on the workers labour path when temporary contracts are joined to high turnover rates. This notably hinders the chances to acquire general and specific human capital skills and therefore it limits the probability of getting a stable position in the labour market.

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