

Wage Growth Implications of Fixed-Term Employment: An Analysis by Contract Duration and Job Mobility[☆]

Catalina Amuedo-Dorantes^{a,*}, Ricardo Serrano-Padial^{b,1}

^a Department of Economics, San Diego State University, 5500 Campanile Drive, San Diego, CA 92182, United States

^b Department of Economics, University of California, San Diego, 9500 Gilman Drive, La Jolla, CA 92093, United States

Received 26 January 2005; received in revised form 27 June 2006; accepted 14 September 2006

Available online 30 October 2006

Abstract

Focusing on Spain, where fixed-term workers account for a third of the wage and salary workforce, we examine the wage growth implications of fixed-term employment of varying duration while distinguishing between wage growth occurring on-the-job versus via job mobility. Wage growth among employees with indefinite work contracts largely occurs via job mobility, whereas fixed-term workers gain via job mobility as well as on-the-job. Consequently, job stayers with fixed-term contracts a year ago narrow their wage gap with respect to similar counterparts with indefinite-term contracts. Yet, this effect is solely driven by the 10.5 percentage points higher wage growth experienced by fixed-term workers with 6-months contracts able to keep their jobs beyond their initial contract period. Given the limited number of short-term temporary workers in those circumstances, the overall wage gap between past fixed-term and indefinite-term workers is unlikely to vanish in the near future.

© 2006 Elsevier B.V. All rights reserved.

JEL classification: J2; J3; J4; J6

Keywords: Fixed-term work; Temporary employment; Wage growth; Contract duration; Job mobility; Spain

[☆] We are grateful to Benita Aybar López at the Instituto Nacional de Estadística for her help with survey related questions, and to Cynthia Bansak, Nels Eikenhout, Susan Houseman, Kristen Keith, Susan Pozo, and participants at the ASSA meetings, the SOLE meetings, and a W.E. Upjohn Institute for Employment Research seminar for helpful comments and suggestions on earlier drafts of this paper. Financial support from the W.E. Upjohn Institute for Employment Research for this project is gratefully acknowledged.

* Corresponding author. Tel.: +1 619 594 1663; fax: +1 619 594 5062.

E-mail addresses: camuedod@mail.sdsu.edu (C. Amuedo-Dorantes), riserranopadial@ucsd.edu (R. Serrano-Padial).

¹ Tel.: +1 619 847 2841; fax: +1 858 534 7040.

1. Introduction

The 1990s were characterized by the rapid growth of non-standard work arrangements as the result of both an increased demand on the part of employers and an increased supply of workers who prefer such arrangements. Spain, in particular, constitutes a unique case with more than one third of its total salaried employment in non-standard work arrangements during the past decade (Toharia et al., 2001; Dolado et al., 2002). The vast majority of these workers were fixed-term workers holding jobs lacking an explicit or implicit contract for long-term employment.

Fixed-term jobs may have served as a stepping-stone to better paid jobs, as in the case of school-to-work and welfare-to-work transitions, or may have provided workers with a second household income (e.g. Bugarin, 1998). Nonetheless, workers in fixed-term work arrangements often endure lower job stability and wages than employees in regular, full-time indefinite jobs (Handler, 1995; Peck and Theodore, 2000). Although some of the lower wages might be due to their generally lower educational attainment and experience, a series of studies have shown that a wage differential among the various types of work contracts remains even after controlling for these workers' characteristics (e.g. Jimeno and Toharia (1993) and Bentolila and Dolado (1994) for the Spanish case). The limited job stability and opportunities for advancement characteristic of fixed-term work arrangements may harm workers through their inability to be promoted to or to access higher paying jobs in the near future, thus, affecting their future wage potential.

Consequently, although it may be counterproductive to limit these types of jobs given the existing demand by firms and voluntary supply by some employees, we need to be aware of the implications of fixed-term work arrangements. While previous work has provided evidence of the contemporaneously lower wages earned by fixed-term workers, no studies have yet examined the impact that the duration of fixed-term employment may have on the employee's future wages due to the lack of appropriate longitudinal data on both wages and the duration of the fixed-term contract. Furthermore, the existing literature has not distinguished between wage growth occurring on-the-job when the fixed-term contract is used as a screening device versus wage growth taking place via job-to-job mobility –of special interest given the short-life of fixed-term contracts. Therefore, we pose the following questions: How does the wage growth experienced by workers who have previously held a fixed-term contract compare to that of their counterparts with open-ended (or indefinite) contracts? Does wage growth differ according to the duration of the fixed-term contract held by the employee? How much of this wage growth occurs on-the-job versus via voluntary job mobility?

This paper addresses the aforementioned questions with an analysis of the wage growth implications of fixed-term employment of varying duration, while distinguishing between wage growth occurring on-the-job versus via voluntary job mobility. The analysis uses Spanish data from the 1995 through 2001 waves of the European Community Household Panel (ECHP), a unique longitudinal survey containing wage and contract information for the Spanish workforce. In addition to information on the respondent's previous job mobility, the analysis controls for their personal human capital and job-related characteristics possibly affecting any lasting effects of fixed-term employment on wages.

Several findings are worth summarizing. First, wage growth among indefinite workers primarily occurs via job mobility. This is to be expected as workers with indefinite-term contracts would not leave the security of their jobs unless a significantly better job opportunity were to come along their way. In contrast, fixed-term employees experience wage gains via job mobility as well as on-the-job. As a result, the wage growth experienced by job stayers with fixed-term contracts a year ago is 4 percentage points higher than the wage growth enjoyed by similar

employees with indefinite work contracts. On-the-job wage growth among fixed-term employees may be the payoff to their greater effort in an attempt to keep their jobs (Alba–Ramírez, 1994) or a by-product of the conversion of their temporary work status to indefinite after a preliminary probationary or screening process (e.g. Loh, 1994; Wang and Weiss, 1998). Secondly, fixed-term workers' wage growth performance varies substantially, not only according to their recent job mobility, but also depending on the duration of the contract held. Specifically, employees with short fixed-term contracts lasting less than 6-months experience the greater on-the-job wage gains of all temporary workers. This is expected to the extent that these workers have been able to keep their jobs beyond the time period stipulated in their contracts.

Summarizing, fixed-term workers are able to narrow their wage gap with respect to similar counterparts with indefinite-term contracts in the past; however, this is only true among job stayers. Furthermore, the narrowing of the wage gap between fixed-term and indefinite-term employees is solely driven by the 10.5 percentage points higher wage growth experienced by workers with 6-months contracts who manage to keep their jobs. To the extent that: a) fixed-term contracts of less than 6-months duration only account for less than 20 percent of all fixed-term employment and b) only an average of 34 percent of workers with contracts lasting less than 6-months are able to keep their jobs beyond their initial contract period,² the wage gap between past fixed-term and indefinite-term employees is likely to persist.

2. Legal and institutional framework of Spanish fixed-term employment

Before discussing the wage growth implications of holding a particular type of work contract, it is essential to learn about the institutional and legal environment surrounding the different types of work contracts available in Spain so as to gain a better understanding of the prevalence of fixed-term employment in the country.

Fixed-term contracts were first regulated in the 1980 Workers' Statute and its 1984 reform (Jimeno and Toharia, 1993). Specifically, the new legislation regulated the circumstances under which a fixed-term contract may be signed by the parties, as well as the duration, pay, and other characteristics of the fixed-term contract itself. Failure to follow the legislated requirements could result in the presumption of the work relationship to be indefinite and, therefore, in the automatic conversion of the fixed-term contract into an indefinite contract.

In addition to training and practical work contracts (typically lasting between 6 months and two years), four different types of fixed-term work contracts were contemplated in the Workers' Statute, article 15.1, the Royal Decree Law 2720/1998, and the Law 12/2001: (1) Contracts for a specific task or service (*contratos para obra ó servicio determinado*), (2) Insertion contracts (*contratos de inserción*), (3) Casual employment contracts (*contratos eventuales por circunstancias de la producción*), and (4) Fixed-term work contracts to fill a vacancy created by a worker on leave (*contratos de interinidad*).³ In all four cases, the distinguishing factor between the regulation of fixed-term and indefinite contracts are dismissal costs.⁴ In particular, common to all fixed-term contracts is the provision of an advance notice for dismissal of 15 days if the contract duration exceeds one year. The exception are fixed-term contracts to fill the

² Authors' tabulations using the European Community Household Panel (ECHP).

³ A detailed explanation of the characteristics of each of these types of contracts is contained in the appendix.

⁴ It should be noted that there are not systematic institutional differences in the treatment of fixed-term and indefinite workers in Spain. Specifically, the Spanish law explicitly prohibits the inferior treatment of fixed-term workers relative to indefinite workers in terms of pay. See: TS 13-5-91, RJ 3909, RJ 5483, and RJ 118. Additionally, the Constitutional Courts in TCo 177/1993 stated that the shorter contract duration is not sufficient to justify a lower rate of pay.

vacancy created by a worker on leave, for which the provision of an advance notice for dismissal depends on what the parties agreed upon signing the contract. If the work relationship is continued after completion of the project, time period, or circumstances detailed in the contract, the contract becomes an indefinite work contract. Additionally, if the fixed-term contract falls within categories (1) or (3) mentioned above, the worker is entitled to receive the severance payment negotiated through collective bargaining or, most commonly, a payment corresponding to the salary of 8 days per year of tenure.

On the contrary, indefinite workers' dismissals typically need to be notified to the worker and worker's representative with an advance notice of 30 days, during which the employee also has the right to use up to 6 hours a week to look for another job (Workers' Statute, articles 51 and 53). Unless otherwise negotiated by the parties, severance payments traditionally amount to 20 days per year of tenure with a maximum of 12 months pay.⁵ Nonetheless, as *Toharia and Ojeda (1999)* further explain, the worker has the right to sue the firm for unfair dismissal. In that case, bargaining over the severance payment takes place resulting in the vast majority of the cases in severance pays well above the amounts established by law and closer to the amount of 45 days pay per year of tenure with a maximum of 42 months pay contemplated by law for the unfair dismissal.⁶ In the case bargaining fails, the case goes to the Labor Courts. If the latter decide the dismissal was unfair, the employer also has to pay the wages and social security taxes corresponding to the time period between the dismissal and the notification of the judicial decision.

Through their lower dismissal costs, fixed-term contracts seemed to be successful at promoting firms' use of fixed-term work contracts and combating, at least to a certain extent, the traditionally high unemployment rate. Fixed-term contracts quickly proliferated during the second half of the 1980s and have accounted for approximately one third of the total salaried workforce since 1992 despite a series of reforms in 1994, 1997, and the year 2001 promoting the use of indefinite work contracts.⁷ Given the lower dismissal costs still characterizing their work contracts, fixed-term workers endure greater job insecurity than their indefinite counterparts. In a country with traditionally high unemployment rates, the greater job insecurity typical of fixed-term work contracts explains the large fraction of fixed-term workers claiming to be involuntarily employed in fixed-term jobs due to their inability to obtain an indefinite work offer (*Amuedo-Dorantes, 2000*). As a result, more able workers who can provide a noisy signal of their skill to firms may be more likely to get into desired indefinite jobs, while potentially less skilled individuals may display a higher likelihood of working in fixed-term jobs. Workers from the higher end of the skill distribution occupy indefinite jobs, while workers from the lower end of the skill distribution display a tendency to be sorted into fixed-term jobs. Under these circumstances, panel estimates that hold constant the individual-specific element of skill as well as other unobserved worker characteristics – such as their greater work commitment or ability, provide leverage to separate the effect of holding a particular type of work contract from that of workers' unobserved skill on wages.

⁵ The amount of the severance pay regulated by law varies according to the cause alleged by the firm for the dismissal. *Toharia and Ojeda (1999)* note that most individual dismissals take the form of an "objective dismissal" (based on economic and technological circumstances) or a disciplinary dismissal since the latter requires no advance notice and no initial severance payment.

⁶ While this option is also available to fixed-term workers by law (Supreme Court, April 16, 1999 – RJ 4424), the majority of dismissals found unfair correspond to indefinite workers' dismissals.

⁷ Refer to *Toharia et al. (2001)* and to *Dolado et al. (2002)* for more detailed descriptions of the evolution of fixed-term employment from 1987 onwards.

3. Wage growth by type of work contract and job mobility

3.1. *The role of contract duration*

According to human capital theory, previous work experience, whether fixed-term or indefinite, adds to the individual human capital, resulting in higher potential productivity and, therefore, higher wages (Mincer, 1974; Oi, 1995). However, work experiences frequently differ in a variety of aspects across types of work contracts. Therefore, there are various reasons as for why fixed-term workers and their counterparts with indefinite work contracts might earn different wages and experience different wage growth patterns. On one hand, fixed-term workers may earn lower wages than their employees with indefinite work contracts if their jobs are dead-end jobs offering few opportunities for advancement. Alternatively, fixed-term and indefinite work experiences may elicit different responses from employers if job stability is believed to signal worker quality. While still valuing experience, employers may view a fixed-term worker as a less-productive employee than an indefinite worker given the involuntary nature of most fixed-term work (Amuedo–Dorantes, 2000).⁸ This effect might be particularly acute among workers with short-term fixed-term contracts. As a result, employers may statistically discriminate against fixed-term workers by offering them lower wages than if they had been employed through indefinite work contracts. In doing so, employers may favor a segmented labor market composed of fixed-term or secondary workers in jobs with low pay and indefinite or primary workers in jobs offering higher wages (Bentolila and Dolado, 1994).⁹ In this case, fixed-term work would harm workers' current wages.¹⁰ On the other hand, fixed-term workers may earn higher wages than their counterparts holding indefinite work contracts if they exert greater effort in order to keep their jobs or if employers compensate them for their limited job security and worse working conditions (Alba–Ramírez, 1994).

More importantly, independently of whether they earn less contemporaneously than their permanent counterparts, fixed-term workers may experience a significantly higher wage growth. The latter may occur on-the-job if, for example, the fixed-term worker was hired on a temporary basis as a screening device for a better paid and more stable position. Alternatively, via their greater job mobility, fixed-term workers may be able to take advantage of new job opportunities offering higher wages than less mobile counterparts with indefinite work contracts.

A series of studies have examined the contemporaneous wage effect of the type of work contract held by the employee by running augmented Mincer wage regressions. Using U.S. data and after controlling for age, education, race, geographic region, industry, union status, and occupation, Houseman (1997) shows that agency temporaries, on-call workers, and direct-hire temporaries earn between 5 percent and 19 percent less than regular full-time employees. Likewise, using a longitudinal file of administrative data from the State of Washington, Segal and Sullivan (1998) also examine wage differentials in the fixed-term help industry and found a 10 to 20 percent wage differential between agency temporaries and other employees. Also using U.S. data, this time from the 1990–1993 SIPP panels, Lane et al. (2003) compare mean earnings of

⁸ This might be the case if fixed-term workers exhibit, in general, poor work skills, fixed-term employment might signal to some employers limited work commitment or work ethic –failure to show up, absenteeism, conflict with others, or inability to perform work. As pointed out in Delsen (1995, p. 81), there is evidence of a negative link between fixed-term employment and labor productivity in Spanish manufacturing firms. As a result, employers might statistically discriminate against fixed-term workers. See Spence (1973) for a reference to statistical discrimination.

⁹ Refer to Cain (1976), Elliott (1991), and Delsen (1995) for a review of the literature on segmented labor markets.

¹⁰ Similar stigma effects are discussed by Gregory and Jukes (2001), Belzil (1995), Lockwood (1991), and Vishwanath (1989) referred to the effect of an unemployment record.

past fixed-term help industry workers a year later to those of past non-fixed-term workers. They find that mean earnings for fixed-term help industry workers are lower than those of similar workers who got non-fixed-term jobs. Similarly, using data from the British Household Panel Survey for the period 1991–1997, Booth et al. (2002) examine the wage profiles of workers who have ever held a temporary job and compare them to those of permanent workers. They find that fixed-term jobs are effective stepping-stones to permanent jobs, with the wage gap between temporary and permanent workers disappearing when past temporary workers obtain a permanent job. However, Lane et al. (2003) and Booth et al. (2002) analyses do not provide any information on the differential wage effect that fixed-term work may have according to its duration, nor do they distinguish between the wage growth occurring on-the-job versus via job mobility.

Focusing on Spain, Jimeno and Toharia (1993) estimate the wage penalty associated with fixed-term work to be between 8 percent and 11 percent. Similarly, Bentolila and Dolado (1994) find evidence of lower wages for fixed-term workers relative to indefinite workers. Nonetheless, possibly due to the lack of longitudinal data on both the duration of fixed-term employment and wages, the literature has not addressed the effect of the duration of fixed-term work on future wage growth nor the role played by job mobility on such wage growth.

3.2. *The role of job mobility*

As noted earlier, job mobility may affect workers' wage growth (e.g. Bartel and Borjas, 1981; Mincer, 1986; Keith and McWilliams, 1995, 1999). Because fixed-term workers might be more likely to voluntarily switch jobs than the so-called permanent employees given the short-life of their contracts, there is a possibility that wage growth is primarily realized via job mobility. Alternatively, if fixed-term contracts are used as a screening device, significant wage growth may take place while on-the-job. Yet, previous work on the wage implications of contingent work contracts has not controlled for the effect of job mobility on wage growth nor distinguished between wage growth taking place on-the-job versus via job mobility.

In what follows, we examine the wage growth implications of fixed-term work of varying duration (e.g. six months or less, 7–12 months, and more than 12 months) while accounting for workers' recent job mobility. The analysis tests the following hypotheses: (a) whether previous fixed-term work affects workers' wage growth once we account for job mobility; (b) whether wage growth differs according to contract length; and (c) whether wage growth occurs on-the-job or via job mobility.

4. Data and some descriptive evidence

4.1. *Data*

For the purpose of this analysis, we use Spanish data from seven survey waves of the European Community Household Panel (ECHP), a longitudinal survey started by the European Union member countries in 1994 following the Directives from the European Commission.¹¹ The Spanish survey follows a panel of approximately 8000 households. In addition to its information on the type of work contract held, wage being paid, and other work-related characteristics, the data set includes pertinent information on demographic, income, household, and geographic characteristics. In fact, this is the only nationally representative and longitudinal survey in Spain

¹¹ Information on the data sampling and sampling error is provided in the data appendix.

containing both wage *and* work contract information.¹² Nonetheless, information on the type of work contract held was only recorded from 1995 onwards. Furthermore, the ECHP does not collect information on the type of work contract held by wage and salary workers employed for less than 15 hours/week due to their limited labor force. Consequently, we use a balanced panel of civilian wage and salary workers working at least 15 hours/week with valid data on the variables from the second through the seventh waves of the ECHP.

The wage variable is the logarithm of average hourly wages, computed as the ratio of monthly wage income to weekly hours of work.¹³ Hourly wages are deflated using the consumer price index.¹⁴ Workers in the ECHP report the type and duration of their work contract. The ECHP distinguishes among indefinite contracts, fixed-term contracts, other non-specified contract types, or no contract at all. We create work contract dummies for each of these categories. Within fixed-term work contracts, we also construct contract dummies for the various self-reported contract lengths: up to six months, between six months and one year, or more than one year. We generate a job mobility dummy variable that utilizes the information collected by the survey on whether the employee held another job during the previous year. To the extent that the duration in fixed-term employment is influenced by contract terminations and contract conversions into permanent employment (Güell and Petrongolo, 2003), it is important to purge out any potential effects of contract duration induced by the worker's mobility out of fixed-term employment. A detailed description of the variables used in the analysis is contained in Table A in the appendix.

Table B provides a summary of the main personal and work characteristics of fixed-term and indefinite workers in our sample. As evidenced from Table B, fixed-term workers earn less, on average, than workers with indefinite work contracts. Part of this wage difference is due to workers' observed characteristics. For instance, fixed-term workers are typically younger, less educated, and have less work experience than their counterparts with indefinite work contracts. Similarly, workers with indefinite work contracts appear more likely to be employed in higher-skill occupations. Alternatively, wage differences between workers with fixed-term versus indefinite work contracts may be the result of unobserved differences in the "quality" of workers. Hence, it may be important to account for individual level heterogeneity via fixed-effects estimations. Finally, the figures in Table B also emphasize the higher wage growth as well as job mobility rates of fixed-term workers; thus underscoring the importance of accounting for job mobility when examining the wage growth experienced by past fixed-term workers.

4.2. *Some descriptive evidence*

One of the major concerns with fixed-term work is the limited opportunity for advancement often characterizing these work arrangements, which may harm workers' ability to access better

¹² While work-related information, such as the type of work contract, is readily available in the labor force survey (or *Encuesta de Población Activa*) and other Spanish department of labor surveys (such as the *Encuesta de Coyuntura Laboral*), wage data are only collected in small, often non-representative, one-time surveys and in the periodic *Encuesta de Salarios*. The latter is a nationally representative survey of all occupations and industries, but its information revolves around industry, occupation, and wages; therefore, lacking information on individual level controls needed for this empirical analysis.

¹³ We carefully checked the data for outliers and decided neither to top-code nor bottom-code the data since the top and bottom 2 percent of the wage observations in our final data set (these are the extremes often coded in other data sets) appeared reasonable given the information contained in the individual records.

¹⁴ This is the national CPI series using 1992 as the base year from the Instituto Nacional de Estadística. It can be found at their web page: <http://www.ine.es/daco/ipc.htm>.

jobs paying higher wages in the near future. The figures in [Tables 1 and 2](#) illustrate this point by displaying transition rates into indefinite-term work as well as differences in average wage growth rates experienced by past fixed-term and indefinite-term employees.¹⁵

[Table 1](#) displays all transitions into and out of different labor force statuses by job stayers and job movers. We refer to ‘job-to-job’ wage growth as wage growth occurring via job mobility and not by simply signing or renewing a contract with the same employer. By the same token, we refer to ‘on-the-job’ wage growth as wage growth taking place while holding the same job, whether it is with the same contract or with a renewed one. We focus our attention to fixed-term and indefinite-term workers object of our analysis. However, we also briefly comment the results for other types of workers, as is the case with workers without a contract, but pay less attention to workers in the *other* contract category as we are simply unaware of who are the workers with non-specified contracts in the survey. A few findings are worth discussing from [Table 1](#).

First, turnover rates are in the range of 34 to 66 percent among fixed-term workers. The vast majority of these job movers (between 40 and 42 percent depending on the type of fixed-term contract held) transition to a new fixed-term job, thus perpetuating their temporary work status. Their next most frequent transition is to unemployment, with an average of 23 to 30 percent of them becoming unemployed one year later. Only 14 to 21 percent of fixed-term workers are working on a permanent basis a year later. As such, at a mere descriptive level, fixed-term employment does not seem to function as an immediate stepping-stone to more stable employment. Furthermore, only between 8 and 11 percent of past fixed-term workers moving out from their jobs exit the workforce, confirming the fact that most fixed-term workers are relatively young.

A second set of findings from [Table 1](#) refer to the very distinct job mobility pattern displayed by employees with indefinite-term contracts. Contrary to what we find for fixed-term employees, only 10 percent of employees with indefinite-term contracts in the past transition out of this labor force status. The majority of these job movers (32 percent of them) are holding a new indefinite-term contract a year later. The next most frequent transition is to out of the workforce (possibly into retirement). As such, only 17 percent of them become unemployed a year later relative to up to 30 percent of past fixed-term employees. In general, the aforementioned figures underscore the job security and stability characterizing indefinite work contracts, as very few permanent workers are willing to switch jobs and, if they do so, their most common transition is to a new indefinite-term contract.

Finally, the upper panel of [Table 1](#) also displays the labor force status transitions experienced by job movers without a contract a year ago –often referred to as informal sector employees to the extent that their work is undeclared to appropriate government authorities and, consequently, unregulated and untaxed. Approximately 39 percent of job movers previously lacking a contract transition to jobs where they formalize their work status within the period of one year. Yet, their most common transition is to unemployment (32 percent).

The bottom panel of [Table 1](#) shows contract and labor force transitions experienced by workers who manage to keep their jobs over the course of one year. Perhaps the most noticeable result is the fact that the majority of past fixed-term workers (between 51 and 68 percent) continue to be employed on a temporary basis one year later. Nonetheless, between 32 and 49 percent have been promoted and now hold an indefinite-term contract. Therefore, many of these temporary workers –

¹⁵ While our paper focuses on wage and salary workers, we display the entire employment-unemployment transition matrix to provide the reader with a point of reference when examining these fluxes. See [Amuedo-Dorantes \(2000\)](#) for a more detailed analysis of fixed-term employment hazard rates and fixed-term workers’ transition rates out of fixed-term employment and into new fixed-term jobs, indefinite jobs, other type of work, unemployment, and out of the workforce.

Table 1
Labor force transition rates for workers leaving their previous year job

Labor Force Status One Year Ago	Percent Leaving Previous Year Job	Labor Force Status One Year Later										
		Temporary Contract			Indefinite contract	No Contract	Other Contract	Training Contract	<15 Hours/Week	Self-employed	Unemployed	Out of Labor Force
		Six-months	One-year	One-year Plus								
Job Movers												
Indefinite Contract	9.95	0.54	10.96	0.34	31.72	0.79	1.06	3.0e-04	0.52	5.55	16.51	24.06
Six-months Contract	65.66	18.03	18.17	4.67	15.62	0.18	2.89	0.35	1.26	1.19	25.29	10.72
One-year Contract	51.52	10.55	21.71	9.63	21.16	1.69	1.25	0.15	1.36	2.26	22.47	7.77
One-year Plus Contract	34.03	7.75	16.89	15.12	13.73	0.52	1.65	0.94	0.46	3.73	30.18	9.05
Other Contract	32.6	9.47	12.12	1.83	6.88	15.34	3.48	0.85	2.87	1.70	32.24	13.20
No Contract	30.9	6.38	14.32	4.43	14.55	1.90	6.14	0.00	2.56	7.17	32.13	10.40
Job Stayers												
Indefinite Contract	–	0.09	0.39	1.00	97.48	0.42	0.62	–	–	–	–	–
Six-months Contract	–	16.23	21.32	20.34	32.31	6.70	3.11	–	–	–	–	–
One-year Contract	–	5.85	31.12	19.12	39.72	0.98	3.21	–	–	–	–	–
One-year Plus Contract	–	1.21	8.55	37.23	49.13	0.72	3.16	–	–	–	–	–
Other Contract	–	2.62	5.18	12.22	56.54	9.02	14.42	–	–	–	–	–
No Contract	–	5.58	4.38	5.34	22.30	50.07	12.33	–	–	–	–	–

Note: Number of Observations: 18,977 of which 2485 experience some job mobility.

Table 2

Average Hourly Wage Growth Rates by Type of Work Contract during the Previous Year (Comparison Group = Indefinite Contract Workers within Each Column Category)

Type of Work Contract One Year Ago	All		Job Movers		Job Stayers	
	Average	Difference	Average	Difference	Average	Difference
Indefinite Contract	6.22	–	10.59	–	5.95	–
Six-months Contract	17.95	11.73*** (2.23)	17.29	6.70* (4.17)	19.06	13.11*** (3.91)
One-year Contract	15.15	8.92*** (1.64)	14.15	3.57 (3.71)	15.98	10.03*** (2.55)
One-year Plus Contract	11.81	5.58*** (1.32)	13.12	2.53 (4.47)	11.36	5.41*** (1.38)
Other Contract	12.61	6.39*** (2.43)	27.37	16.79** (7.27)	7.81	1.86 (2.35)
No Contract	17.79	11.56*** (3.32)	13.65	3.07 (6.81)	19.44	13.49*** (3.94)
Number of Observations	19,063		2,853		16,210	

Note: *** denotes statistical significance at the 1% level, ** indicates statistical significance at the 5% level, and * represents statistical significance at the 10% level.

particularly those with contracts lasting less than 6-months– should be experiencing a significant wage growth. Finally, workers lacking a work contract in the past continue to be, for the most part, employed on an informal basis a year later. Yet, a non-negligible 37% of them sign either fixed-term or indefinite-term contracts.

How do fixed-term and indefinite workers compare in terms of wage gains a year later? [Table 2](#) displays the average hourly wage growth rates of past fixed-term and indefinite-term workers and assesses the significance of any differences between the two groups. Due to the recognized effect that job mobility might play on wages, we tabulate wage growth rates and their differences according to any recent job mobility practices. Overall, the figures in [Table 2](#) reveal the higher wage growth rates enjoyed by fixed-term workers relative to their counterparts in more stable work arrangements regardless of their job mobility. Yet, as we distinguish between job movers and job stayers, it becomes apparent that wage growth is more prominent on-the-job than via job mobility in the case of fixed-term employees, whereas the opposite is true for employees with indefinite-term contracts. Furthermore, these differences are accentuated the shorter the duration of the fixed-term contract. For instance, past fixed-term workers with 6-months contracts experience the largest wage growth rate, surpassing the wage growth rate enjoyed by employees with more permanent jobs by 7 to 13 percent depending on their job mobility practices. These differences reach 10 percent in the case of past fixed-term workers with a one-year contract and 5 percent for fixed-term workers with a one-year plus contract one year ago if they switch jobs. Finally, other workers with precarious employment situations, as is the case with informal sector employees, also have more to gain wage-growth wise from an extended employment relationship than their counterparts with indefinite-term contracts. As with fixed-term workers, this is not surprising as the continuation of their informal jobs beyond a one year period already signals employer satisfaction with workers' performance.

In sum, the repetitive nature of fixed-term employment and the relatively low transition rate into permanent employment displayed by [Table 1](#) (a maximum of 21 percent of 51 percent of job movers) cast doubt on the effectiveness of temporary jobs in serving as a stepping-stone into more stable employment. Yet, the figures in [Table 2](#) indicate that the wage gap between fixed-term and permanent workers may narrow at a relatively fast rate even without further consideration for the type of work contract held one year later. In what follows, we carry out a more rigorous analysis of the wage growth implications of past fixed-term employment of varying duration while distinguishing according to workers' recent job mobility patterns.

5. Empirical modeling and methodology

As previously discussed, the type of work contract held by employees at the beginning of any given period may affect their wage growth during that period through two different channels. First, fixed-term workers may face different intra-firm wage growth schedules than those of their permanent counterparts. Second, since fixed-term workers are exposed to higher turnover rates via contract expiration and voluntary separations, the wage effects of job mobility may differ for fixed-term versus indefinite-term workers. Accordingly, we model wage growth and job mobility as functions of the contract type held in the past by means of the following switching regression model:

$$\begin{cases} JM_{it} = 1 (\delta'_0 + \delta'_1 CT_{i,t-1} + \delta'_2 X_{it} + \delta'_3 X_{i,t-1} + u_{it} \geq 0) \\ \Delta w_{i0t} = \alpha_0 + \beta'_{01} CT_{i,t-1} + \beta'_{02} X_{it} + \beta'_{03} X_{i,t-1} + \lambda_i + \varepsilon_{i0t} & \text{if } JM_{it} = 0 \\ \Delta w_{i1t} = \alpha_1 + \beta'_{11} CT_{i,t-1} + \beta'_{12} X_{it} + \beta'_{13} X_{i,t-1} + \lambda_i + \varepsilon_{i1t} & \text{if } JM_{it} = 1. \end{cases} \quad (1)$$

JM_{it} indicates whether the i th employee switched jobs between $t-1$ and t , according to which workers are classified as *job movers* versus *job stayers*. CT is a set of contract type dummies at $t-1$, and X is a vector of personal and job-related characteristics.¹⁶ Δw_{i0t} and Δw_{i1t} refer to the wage growth rate between t and $t-1$ of employee i had she stayed in or moved from her job during that period, respectively. Obviously, we only observe one of those states (depending on the realization of JM_{it}) while the other remains latent. Unobserved time-invariant heterogeneity is captured by λ_i and $(u_{it}, \varepsilon_{i0t}, \varepsilon_{i1t})$ is a vector of idiosyncratic errors.

There are several estimation issues we need to take into account to obtain consistent estimates of the effect of contract type on wage growth for job stayers and movers (vectors β_{01} and β_{11} , respectively). First and foremost is the simultaneity of job mobility and wage growth, provided that wages (observed and latent) are a major factor in hiring and job separation decisions for both employers and employees. This simultaneity prevents us from estimating a linear regression model with *observed* wage growth as the dependent variable. Instead, the system of equations in (1) should be estimated using an endogenous switching regression model that allows for unobserved heterogeneity included in the error terms. One of such approaches is provided in Lee's (1976) two-step estimator.¹⁷ In the first step, the job mobility equation is estimated using a probit model for each period separately. The second step involves estimating the following equation by OLS:

$$\Delta w_{it} = \alpha_0 + (\alpha_1 - \alpha_0) \Phi(\hat{\delta}'_t Y_{it}) + \beta'_0 Y_{it} + (\beta'_1 - \beta'_0) Y_{it} \Phi(\hat{\delta}'_t Y_{it}) + \gamma \phi(\hat{\delta}'_t Y_{it}) + \eta_{it} \quad (2)$$

where $\phi(\cdot)$ and $\Phi(\cdot)$ respectively represent the standard normal pdf and cdf, $Y_{it} = (1, CT_{i,t-1}, X_{it}, X_{i,t-1})$, $\beta_h = (\beta_{h1}, \beta_{h2}, \beta_{h3})$ for $h=0,1$, and $\hat{\delta}_t$ represents the first-step estimate of $\delta = (\delta_0, \delta_1, \delta_2, \delta_3)$. The error term in (2) includes the unobserved heterogeneity (i.e. $\eta_{it} = \lambda_i + v_{it}$). The model is identified by the assumption that the joint distribution of $(u_{it}, \varepsilon_{i0t}, \varepsilon_{i1t})$ is normal with zero mean and $\text{var}(u_{it}) = 1$ (Campos et al., 2003).¹⁸

¹⁶ Personal characteristics include gender, marital status, family size, educational attainment, experience, experience squared, and health limitations. Job-related variables include occupation, industry, and type of sector (e.g. private or public). In addition, a set of region dummies is included to control for geographic differences in macroeconomic conditions affecting the Spanish labor market.

¹⁷ See Campos et al. (2003) for a detailed description of this approach, which they apply to the study of risk exposure and firms' legal form.

¹⁸ The latter is implicit in the first-step of the estimation by using a probit model to estimate the job mobility equation.

The estimates obtained from (2) are consistent only if λ_i is uncorrelated to the regressors in (2). Because the unobserved heterogeneity is likely to be correlated with some of the explanatory variables, especially with contract type, we instead estimate Eq. (2) by *fixed effects* as follows (Campos et al., 2003):

$$[\Delta w_{it} - \overline{\Delta w}_i] = (\alpha_1 - \alpha_0)[\Phi(\hat{\delta}'_i Y_{it}) - \overline{\Phi(\hat{\delta}'_i Y_i)}] + \beta_1[Y_{it} - \overline{Y}_i] + (\beta_1 - \beta_0)[Y_{it}\Phi(\hat{\delta}'_i Y_{it}) - \overline{Y_i\hat{\delta}'_i Y_i}] + \gamma[\phi(\hat{\delta}'_i Y_{it}) - \overline{\phi(\hat{\delta}'_i Y_i)}] + [v_{it} - \overline{v}_i] \tag{3}$$

In this manner, we control for the simultaneity of job mobility and wage growth while allowing the unobserved heterogeneity to be correlated with the explanatory variables and with the selection correction terms $\Phi(\hat{\delta}'_i Y_{it})$ and $\phi(\hat{\delta}'_i Y_{it})$.

6. Wage growth implication of fixed-term employment

Table 3 displays the coefficient estimates for fixed-term work from the two-step pooled specification (Eq. (2)) as well as from our final fixed-effects model (Eq. (3)). Yet, we know that, as the wage growth implications of fixed-term employment may vary substantially by contract duration, grouping all fixed-term workers masks the wage growth effects associated with different fixed-term work contracts. Therefore, Table 4 shows the results from the analysis when we distinguish by contract length. As in Table 3, we display the results from the two-step pooled and fixed-effects specifications. Much of the superior wage performance of past fixed-term employees relative to past employees with indefinite-term contracts (captured by the beta coefficients) disappears as we account for workers’ unobserved heterogeneity in the fixed-effects specification. Yet, we focus our discussion on this more complete model specification. Specifically, we group the estimated fixed-effects model coefficients from Tables 3 and 4 in Table 5 to facilitate the interpretation of our findings. As a result, Table 5 displays the wage growth implications of the fixed-term nature of the work contract held by the worker and for job mobility during the past year. These effects are computed using the coefficients on past fixed-term employment and job

Table 3
Estimated wage growth effects of past fixed-term employment (S.E.)

Independent Variables	Benchmark Model Pooled OLS	Final Fixed-Effects Model
Recent Job Movers ($\alpha_1 - \alpha_0$)	0.7694*** (0.2352)	0.8127** (0.3785)
Job Movers		
Fixed-term Contract One Year Ago ($\beta_{11}^{FT} - \beta_{01}^{FT}$)	-0.1359 (0.1081)	0.0140 (0.1410)
Other Contract One Year Ago ($\beta_{11}^{OC} - \beta_{01}^{OC}$)	-0.0199 (0.1983)	0.4529* (0.2453)
No Contract One Year Ago ($\beta_{11}^{NC} - \beta_{01}^{NC}$)	0.2708 (0.2785)	0.2920 (0.2873)
Job Stayers		
Fixed-term Contract One Year Ago (β_{01}^{FT})	0.0477*** (0.0120)	0.0387** (0.0172)
Other Contract One Year Ago (β_{01}^{OC})	0.0445 (0.0351)	-0.0203 (0.0388)
No Contract One Year Ago (β_{01}^{NC})	0.0698* (0.0423)	0.0889* (0.0474)
Number of Observations	19,442	19,442
Regression Fit Statistic	F(128, 19,313)=3.13	F(128, 13,365)=2.09

Note: *** denotes statistical significance at the 1% level, ** indicates statistical significance at the 5% level, and * represents statistical significance at the 10% level. The benchmark and final models are estimated as specified in Eqs. (2) and (3), respectively. The vector X contains the following information: marital status, family size, education, experience, experience squared, industry, occupation, a public sector employment dummy, a dummy indicative of any health limitations and region dummies. The reference category for the type of work contract held is an indefinite term contract.

Table 4

Estimated wage growth effects of past fixed-term employment by contract duration (S.E.)

Independent Variables	Benchmark Model Pooled OLS	Final Fixed-Effects Model
Recent Job Movers	0.8045*** (0.2195)	1.0138*** (0.3627)
Job Movers		
Six-months Contract One Year Ago	−0.2351 (0.1726)	−0.2727 (0.1819)
One-Year Contract One Year Ago	−0.2283** (0.1073)	0.0740 (0.1476)
One-Year Plus Contract One Year Ago	−0.1288 (0.1325)	−0.1608 (0.1805)
Other Contract One Year Ago	−0.0450 (0.1834)	0.3400 (0.2290)
No Contract One Year Ago	0.1937 (0.2652)	0.2062 (0.2769)
Job Stayers		
Six-Months Contract One Year Ago	0.1009*** (0.0333)	0.1045*** (0.0318)
One-Year Contract One Year Ago	0.0555*** (0.0173)	0.0175 (0.0229)
One-Year Plus Contract One Year Ago	0.0312** (0.0158)	0.0338 (0.0223)
Other Contract One Year Ago	0.0438 (0.0335)	−0.0178 (0.0376)
No Contract One Year Ago	0.0788* (0.0421)	0.0915* (0.0470)
Number of Observations	19,442	19,442
Regression Fit Statistic	F(132, 19,309)=3.36	F(132, 13,361)=2.09

Note: *** denotes statistical significance at the 1% level, ** indicates statistical significance at the 5% level, and * represents statistical significance at the 10% level. The benchmark and final models are estimated as specified in Eqs. (2) and (3), respectively. The vector X contains the following information on: marital status, family size, education, experience, experience squared, industry, occupation, a public sector employment dummy, a dummy indicative of any health limitations and region dummies. The reference category for the type of work contract held is an indefinite term contract.

mobility from the fixed-effects model in Table 3 as well as those in Table 4 when distinguishing by the duration of the fixed-term contract previously held. Additionally, Table 5 shows the corresponding joint significance tests.

According to the figures in Table 5, we find no significant differences in the wage growth profiles of past fixed-term and indefinite-term workers who switch jobs as they both benefit from

Table 5

Wage growth implications of past fixed-term employment of varying duration by recent job mobility

Group	Computation	Coefficient	Significance (F-Statistic)
Job Movers			
All Fixed-term vs. Indefinite-term Workers One Year Ago	$\beta_{01}^{FT} + (\beta_{11}^{FT} - \beta_{01}^{FT})$	0.0527	0.16
Six-months Contract vs. Indefinite-term Workers One Year Ago	$\beta_{01}^{6m} + (\beta_{11}^{6m} - \beta_{01}^{6m})$	0.0164	1.12
One-year Contract vs. Indefinite-term Workers One Year Ago	$\beta_{01}^{1y} + (\beta_{11}^{1y} - \beta_{01}^{1y})$	0.1785	0.48
One-year Plus Contract vs. Indefinite-term Workers One Year Ago	$\beta_{01}^{2y} + (\beta_{11}^{2y} - \beta_{01}^{2y})$	−0.0890	0.59
Other Contract vs. Indefinite-term Workers One Year Ago	$\beta_{01}^{oc} + (\beta_{11}^{oc} - \beta_{01}^{oc})$	0.3222	2.52
No Contract vs. Indefinite-term Workers One Year Ago	$\beta_{01}^{nc} + (\beta_{11}^{nc} - \beta_{01}^{nc})$	0.2977	1.49
Job Stayers			
All Fixed-term vs. Indefinite-term Workers One Year Ago	β_{01}^{FT}	0.0387**	5.05
Six-months Contract vs. Indefinite-term Workers One Year Ago	β_{01}^{6m}	0.1045***	10.80
One-year Contract vs. Indefinite-term Workers One Year Ago	β_{01}^{1y}	0.0175	0.58
One-year Plus Contract vs. Indefinite-term Workers One Year Ago	β_{01}^{2y}	0.0338	2.29
Other Contract vs. Indefinite-term Workers One Year Ago	β_{01}^{oc}	−0.0178	0.22
No Contract vs. Indefinite-term Workers One Year Ago	β_{01}^{nc}	0.0915*	3.79

Notes: *** Signifies statistically different from zero at the 1 percent level or better, ** at the 5 percent level or better and * at the 10 percent level or better. † Joint significance evaluated using chi-squared statistic.

job mobility. Past indefinite-term workers benefit the most from job mobility, which is not surprising considering the job security, fringe benefit, and salary advantages to having a more stable type of job. As such, workers with indefinite-term contracts are only expected to quit their jobs if they are offered better employment opportunities. Likewise, fixed-term and other informal sector employees should benefit from voluntary job mobility. Consequently, we find no statistically significant differences in the wage growth rates experienced by fixed-term relative to indefinite-term job movers. A similar result applies to informal sector employees switching jobs over the course of a year.

However, we do find significant wage growth differences between job stayers with fixed-term contracts and their counterparts with indefinite-term contracts a year earlier. After all, while employees with indefinite-term contracts experience most of their wage growth via job mobility, wage growth among fixed-term workers occurs both via job mobility as well as on-the-job. On-the-job wage growth among fixed-term employees may be the payoff to their greater effort in an attempt to keep their jobs (Alba-Ramírez, 1994) or a by-product of the conversion of their temporary work status to indefinite after a preliminary probationary or screening process (e.g. Loh, 1994; Wang and Weiss, 1998). As a result, wages of past fixed-term workers who are able to keep their jobs over a one year period grow by 4 percentage points more than those of similar job stayers with indefinite work contracts. When further distinguishing fixed-term workers according to the duration of their contractual agreements, we find that only employees with short-lived contracts of up to 6-months enjoy a 10.5 percentage points higher wage growth than their more permanent counterparts. The fact that this group of temporary workers is the one to benefit the most from keeping their jobs is not surprising considering they have been able to keep their jobs beyond the stipulated contract duration. Furthermore, the vast majority of them is promoted to a longer-lasting position within the firm; only 16 percent still hold a (renewed) 6-months contract one year later (see Table 1). Nonetheless, given the limited number of fixed-term workers with a contract lasting less than 6-months who manage to keep their jobs beyond their initial contractual agreement, the overall wage gap between past fixed-term and indefinite-term workers is likely to persist in the short-run.

Lastly, as for short-term workers, the figures in Table 5 confirm the fact that informal sector employees enjoy a 9 percentage points higher wage growth rates than similar counterparts with indefinite-term contracts a year earlier. As noted earlier, this finding is not surprising to the extent that these are employees whose work relationships have been extended over a one year – approximately 37 percent on a formal basis– despite their lack of a formally binding agreement.

7. Conclusions

This paper uses Spanish data from the European Community Household Panel to examine the wage growth implications of fixed-term employment depending on the job mobility patterns experienced by the worker. A couple of findings are worth summarizing. First, wage growth for indefinite-term workers primarily occurs via job mobility. To the extent that permanent workers enjoy jobs offering good working conditions, they should be less willing to switch jobs unless the job move implies a significant improvement as would be the case with wage gains. In contrast, fixed-term workers experience similar wage gains via job mobility and on-the-job. Consequently, we find no significantly different payoffs to job mobility between past indefinite and fixed-term workers. Nevertheless, we do find disparities in the wage growth rates enjoyed by past indefinite and fixed-term job stayers. Specifically, wages grow 4 percentage points faster for job stayers with fixed-term contracts a year ago than for their counterparts with indefinite-term contracts. As

noted by Alba-Ramírez (1994), Loh (1994), and Wang and Weiss (1998) among others, the greater wage gains enjoyed by fixed-term workers could be explained by their greater effort in an attempt to keep their jobs or by the promotion or conversion of their initial contracts into longer lasting ones after a preliminary screening process.

Secondly, we find that wage growth also varies with the duration of the fixed-term contract held by the worker. Specifically, on-the-job wage gains are 10.5 percentage points greater for workers holding contracts lasting less than 6-months than for their counterparts holding indefinite-term contracts in the past. Since wage growth is computed on a yearly basis, temporary job stayers holding contracts lasting less than 6-months one year ago are not surprisingly the ones to experience the largest wage gains. After all, they have been able to keep their jobs beyond their initial contractual agreement and, in most instances, with a new longer-lasting work contract (see Table 1). However, to the extent that: a) fixed-term contracts of less than 6-months duration only account for less than 20 percent of all fixed-term employment and b) only an average of 34 percent of workers with contracts lasting less than 6-months are able to keep their jobs beyond their initial contract period,¹⁹ the wage gap between past fixed-term and indefinite-term employees is unlikely to vanish in the near future.

Appendix A

A.1. Fixed-term contract categories

In addition to training and practical work contracts (typically lasting between 6 months and two years), four different types of fixed-term work contracts are currently contemplated by the Spanish legislation (Workers' Statute, article 15.1, Royal Decree Law 2720/1998, Law 12/2001):

- (1) Contracts for a specific task or service (*contratos para obra ó servicio determinado*): The reference to a specific purpose has a double meaning: to delimit the purpose of the contract as well as its duration. As a result, the contract often has uncertain duration, expiring upon completion of the service contracted by the firm.
- (2) Insertion contracts (*contratos de inserción*): This contract may be signed when the following circumstances are met: (a) the employee is registered as unemployed in the local employment office, (b) the employer is the public administration or a non-profit organization, and (c) the purpose of the contract is the completion of a task or service of public interest, or the acquisition of work experience through public programs that will increase the future employability of the worker. The contract duration may be uncertain, as in the case of the contract for a specific task or service. However, the worker cannot be re-hired in this contract category during the 3-year period following the expiration of the last insertion contract if the latter lasted more than 9 months.
- (3) Casual employment contracts (*contratos eventuales por circunstancias de la producción*): This contract is designed to meet unexpected changes in the firms' routine, such as an increase in export orders. It has a maximum duration of 6 months within a period of one year. However, in the case of seasonal activities, the duration may be modified through collective bargaining to a maximum of 12 months within a period of 18 months. If the contract has a shorter duration, it may be renewed once as long as the maximum duration is not exceeded.

¹⁹ Authors' tabulations using the European Community Household Panel (ECHP).

- (4) Fixed-term work contracts to fill a vacancy created by a worker on leave (*contratos de interinidad*): As in the case of the contract for a specific task or service or the insertion contract, the cause and duration of this fixed-term contract are determined by the vacancy created by a worker on leave. Additionally, the legislation allows the public administration to use this fixed-term contract to select workers for open positions within the public administration or to fill up the vacancy created by the early retirement of a worker. However, in these instances, its duration cannot exceed 3 months and 12 months, respectively.

A.2. Data

The Household Panel of the European Union is a longitudinal survey carried out in the members of the European Union by their respective National Bureaus of Statistics, coordinated by the EU Bureau of Statistics (EUROSTAT), with the purpose of providing to the European Commission an statistical instrument to analyze the labor market, living conditions, and social cohesion in the EU. The survey is conducted annually using a fixed Panel. The first wave was conducted in 1994 and the last one in the year 2001. The population being targeted is the Spanish private household settled in the entire Spanish territory, with the exception of Ceuta and Melilla, and born in or before 1977 as of the first wave. The survey counts with 8000 Spanish households, 70,000 for the whole European Union.

Table A
Variable descriptions, means, and standard deviations

Variables	Description	Mean (Std. dev.)
Wage Growth Rate	Wage growth rate from $t-1$ to t	0.0908 (0.0037)
Job Mover	Dummy variable indicative of recent job mobility	0.2103 (0.0035)
One Year Ago Indefinite contract	Indefinite contract in period $t-1$	0.6832 (0.0043)
One Year Ago Fixed-term Contract	Fixed-term contract in period $t-1$	0.2665 (0.0041)
One Year Ago Six-months Contract	Six-months contract in period $t-1$	0.0469 (0.0019)
One Year Ago One Year Contract	One-year contract in period $t-1$	0.0863 (0.0025)
One Year Ago One-Year Plus Contract	One-year plus or more fixed-term contract in period $t-1$	0.0683 (0.0023)
One Year Ago Other Contract	Other contract in period $t-1$	0.0212 (0.0015)
One Year Ago No Contract	No contract in period $t-1$	0.0244 (0.0014)
Age	Age of the respondent	37.3594 (0.0876)
Male	Dummy variable for being a male	0.6382 (0.0040)
Married	Dummy variable for marital status	0.5753 (0.0043)
Family size	Number of household members	4.0176 (0.0182)
Health Limitation	Dummy variable equal to one if having a health limitation to do the individual's regular daily activity.	0.0410 (0.0016)
Less than High School	Dummy variable for educational attainment: Less than high school degree	0.4754 (0.0042)
Professional Training	Dummy variable for educational attainment: Professional training degree	0.1733 (0.0030)
High School	Dummy variable for educational attainment: High school degree	0.1148 (0.0026)
College	Dummy variable for educational attainment:	0.2347 (0.0040)

Table A (continued)

Variables	Description	Mean (Std. dev.)
Experience	College degree or higher (Age in number of years-Starting to work Age in number of years)	18.4463 (0.1060)
Managers/Directors	Dummy variable for managerial and directing occupations	0.0281 (0.0014)
Professionals/Technicians	Dummy variable for professional and technical occupations	0.1476 (0.0033)
Professional/Technical Support Personnel	Dummy variable for professional and technical support related occupations	0.1166 (0.0028)
Office Workers	Dummy variable for administrative and office workers	0.1123 (0.0029)
Agriculture Workers	Dummy variable for agriculture and fishing occupations	0.0147 (0.0009)
Industry Workers	Dummy variable for manufacturing, construction and mining occupations	0.1885 (0.0032)
Service Workers	Dummy variable for service occupations	0.1340 (0.0026)
Operatives	Dummy variable for operatives	0.0977 (0.0024)
Nonqualified	Dummy variable for non-qualified positions	0.1603 (0.0031)
Agriculture	Dummy variable for the agriculture industry	0.0375 (0.0015)
Extractive	Dummy variable for the mining industry	0.0168 (0.0011)
Manufacturing	Dummy variable for the manufacturing industries	0.2116 (0.0033)
Construction	Dummy variable for the construction industry	0.1122 (0.0027)
Commerce	Dummy variable for the commerce and Tourism industries	0.1648 (0.0029)
Finance/Real State	Dummy variable for the finance and real state industries	0.1096 (0.0033)
Transport and Telecommunications	Dummy variable for the commerce and telecommunications industries	0.0558 (0.0018)
Social Services	Dummy variable for the social services industry	0.1341 (0.0030)
Education	Dummy variable for the education industry	0.0769 (0.0023)
Public Administration	Dummy variable for the public administration industry	0.0808 (0.0020)
Public Sector	Dummy variable for the public sector	0.2254 (0.0034)
Northwest	Dummy variable for living in the northwestern region	0.0946 (0.0022)
Northeast	Dummy variable for living in the northeastern region	0.1121 (0.0023)
Center	Dummy variable for living in the central region	0.2695 (0.0040)
East	Dummy variable for living in the eastern region	0.2955 (0.0039)
South	Dummy variable for living in the southern region	0.1798 (0.0031)
Canary Islands	Dummy variable for living in the Canary islands	0.0363 (0.0011)

Table B

Means, and standard deviations by type of contract

Variables	six-months	1-year	2+-year	Indefinite
Wages	1.7081 (0.3648)	1.7665 (0.3848)	1.9039 (0.4144)	2.2373 (0.5056)
Wage Growth Rate	0.1823 (0.5579)	0.1458 (0.6548)	0.1147 (0.3918)	0.0603 (0.3342)
Job Mover	0.6172 (0.4863)	0.4666 (0.4990)	0.2650 (0.4415)	0.0562 (0.2303)
Age	31.4761 (9.5738)	31.2285 (9.0251)	33.5453 (9.8111)	41.0386 (10.0681)
Male	0.5768 (0.4943)	0.6188 (0.4858)	0.6496 (0.4773)	0.6617 (0.4731)
Married	0.4398 (0.4966)	0.4351 (0.4959)	0.5088 (0.5001)	0.7415 (0.4378)
Family size	3.7977 (1.4438)	3.7271 (1.4451)	3.7073 (1.5168)	3.5684 (1.3159)
Health Limitation	0.0432 (0.2034)	0.0346 (0.1829)	0.0289 (0.1676)	0.0385 (0.1924)
Less than High School	0.5985 (0.4904)	0.5362 (0.4988)	0.4927 (0.5001)	0.4247 (0.4943)
Professional Training	0.2064 (0.4050)	0.2252 (0.4178)	0.2 (0.4001)	0.1761 (0.3809)
High School	0.0788 (0.2696)	0.0988 (0.2985)	0.0818 (0.2741)	0.1331 (0.3397)
College	0.1141 (0.3181)	0.1370 (0.3439)	0.2248 (0.4176)	0.2643 (0.4410)
Experience	13.1941 (11.3327)	12.7878 (10.549)	14.4970 (11.7631)	22.2894 (11.5995)
Managers/Directors	0.0021 (0.0456)	0.0067 (0.0819)	0.0106 (0.1023)	0.0347 (0.1829)
Professionals/Technicians	0.0561 (0.2303)	0.0720 (0.2585)	0.1675 (0.3736)	0.1747 (0.3797)
Professional/Technical	0.0676 (0.2511)	0.06749 (0.2509)	0.0958 (0.2945)	0.1421 (0.3492)

(continued on next page)

Table B (continued)

Variables	six-months	1-year	2+-year	Indefinite
Support Personnel				
Office Workers	0.0759 (0.2649)	0.0967 (0.2957)	0.0898 (0.2860)	0.1296 (0.3359)
Agriculture Workers	0.0322 (0.1767)	0.0124 (0.1106)	0.0113 (0.1058)	0.0120 (0.1091)
Industry Workers	0.2037 (0.4030)	0.2323 (0.4224)	0.2392 (0.4268)	0.1663 (0.3724)
Service Workers	0.1861 (0.3894)	0.2222 (0.4158)	0.1275 (0.3337)	0.1326 (0.3392)
Operatives	0.1206 (0.3258)	0.1175 (0.3222)	0.1034 (0.3046)	0.1108 (0.3139)
Nonqualified	0.2557 (0.4365)	0.1727 (0.3781)	0.1547 (0.3618)	0.0972 (0.2962)
Agriculture	0.0893 (0.2853)	0.0354 (0.1849)	0.0255 (0.1578)	0.0207 (0.1422)
Extractive	0.0031 (0.0558)	0.0135 (0.1154)	0.0124 (0.1107)	0.0211 (0.1437)
Manufacturing	0.2399 (0.4272)	0.2389 (0.4265)	0.1985 (0.3990)	0.2305 (0.4212)
Construction	0.1360 (0.3430)	0.1343 (0.3411)	0.1818 (0.3858)	0.0543 (0.2266)
Commerce	0.2700 (0.4442)	0.2754 (0.4469)	0.1664 (0.3726)	0.1523 (0.3593)
Finance/Real State	0.0561 (0.2302)	0.0686 (0.2528)	0.0905 (0.2870)	0.1040 (0.3053)
Transport and Telecommunications	0.0488 (0.2156)	0.0579 (0.2336)	0.0460 (0.2095)	0.0685 (0.2526)
Social Services	0.0935 (0.2912)	0.1012 (0.3017)	0.1204 (0.3256)	0.1262 (0.3321)
Education	0.0249 (0.1560)	0.0483 (0.2145)	0.0752 (0.2638)	0.0993 (0.2991)
Public Administration	0.0384 (0.1923)	0.0264 (0.1604)	0.0832 (0.2763)	0.1231 (0.3286)
Public Sector	0.1037 (0.3051)	0.1016 (0.3022)	0.2131 (0.4097)	0.3195 (0.4663)
No. Observations	948	1753	1325	13,749

References

- Alba-Ramírez, A., 1994. Formal Training, Temporary Contracts, Productivity and Wages in Spain. *Oxford Bulletin of Economics and Statistics* 56 (2), 151–170.
- Amuedo-Dorantes, Catalina, 2000. Work Transitions into and out of Involuntary Temporary Employment in a Segmented Market: Evidence from Spain. *Industrial and Labor Relations Review* 53 (2), 309–325.
- Bartel, Ann P., Borjas, George J., 1981. Wage Growth and Job Turnover: An Empirical Analysis. In: Rosen, S. (Ed.), *Studies in Labor Markets*. University of Chicago Press, Chicago, pp. 65–84.
- Belzil, Christian, 1995. Unemployment Duration Stigma and Re-employment Earnings. *Canadian Journal of Economics* 28 (3), 568–585.
- Bentolila, Samuel, Dolado, Juan J., 1994. Labor Flexibility and Wages: Lessons from Spain. *Economic Policy* 9 (18), 53–99.
- Booth, Alison, Francesconi, Marco, Frank, Jeff, 2002. Temporary Jobs: Stepping Stones or Dead Ends? *The Economic Journal* 112 (480), F189–F213.
- Bugarin, Alicia, 1998. Linking Welfare Recipients to Jobs: The Role of Temporary Help Agencies. California Research Bureau. Working Paper: CRB-98-017.
- Cain, Glenn C., 1976. The Challenge of Segmented Labor Market Theories to Orthodox Theory: A Survey. *Journal of Economic Literature* 14 (4), 1215–1257.
- Campos, Javier, Carrasco, Raquel, Requejo, Alejandro, 2003. Legal Form and Risk Exposure in Spanish Firms. *Spanish Economic Review* 5, 101–121.
- Delsen, Lei, 1995. Atypical Employment: an International Perspective - Causes, consequences and policy. Woltersgroep Groningen bv, The Netherlands.
- Dolado, Juan J., García-Serrano, Carlos, Jimeno, Juan F., 2002. Drawing Lessons from the Boom of Temporary Jobs in Spain. *The Economic Journal* 112 (480), F270–F295.
- Elliott, Robert F., 1991. *Labor Economics: A Comparative Text*. McGraw-Hill, London.
- Gregory, Mary, Jukes, Robert, 2001. Unemployment and Subsequent Earnings: Estimating Scarring Among British Men. *The Economic Journal* 111 (475), F607–F625.
- Güell, Maia, Petrongolo, Barbara, 2003. How Binding Are Legal Limits? Transitions from Temporary to Permanent Work in Spain. IZA Working Document, vol. 782.
- Handler, Joel F., 1995. *The Poverty of Welfare Reform*. Yale University Press, New Haven.
- Houseman, Susan N., 1997. Temporary, Part-Time, and Contract Employment in the United States: A Report on the W.E. Upjohn Institute's Employer Survey on Flexible Staffing Policies. Report to the U.S. Department of Labor. W.E. Upjohn Institute for Employment Research, Kalamazoo, MI.

- Jimeno, Juan F., Toharia, Luis, 1993. The Effects of Fixed-term Employment on Wages: Theory and Evidence from Spain. *Investigaciones Económicas* 17 (3), 475–494.
- Keith, Kristen, McWilliams, Abigail, 1995. The Wage Effects of Cumulative Job Mobility. *Industrial and Labor Relations Review* 49 (1), 121–137.
- Keith, Kristen, McWilliams, Abigail, 1999. The Returns to Mobility and Job Search by Gender. *Industrial and Labor Relations Review* 52 (3), 460–477.
- Lane, Julia, Mikelson, Kelly S., Sharkey, Patrick T., Wissoker, Douglas A., 2003. Pathways to Work for Low Income Workers: The Effect of Work in the Temporary Help Industry. *Journal of Policy Analysis and Management* 22 (4), 581–598.
- Lee, L.F., 1976. Estimation of Limited Dependent Variables by Two-Stage Methods. Ph.D. Dissertation. University of Rochester.
- Lockwood, Ben, 1991. Information Externalities in the Labour Market and the Duration of Unemployment. *Review of Economic Studies* 58 (4), 733–753.
- Loh, Eng Seng, 1994. Employment probation as a sorting mechanism. *Industrial and Labor Relations Review* 47 (3), 471–486.
- Mincer, Jacob, 1974. *Schooling, Experience and Earnings*. The National Bureau of Economic Research, New York.
- Mincer, Jacob, 1986. Wage Changes and Job Changes. In: Ehrenberg, Ronald G. (Ed.), *Research in Labor Economics: A Research Annual*, vol. 8, No. A, pp. 171–197.
- Oi, Walter Y., 1995. Labor as a Quasi-Fixed Factor. In *Labor Economics*. Volume 1. Labor Supply and Labor Demand, pp. 191–208. Elgar Reference Collection. International Library of Critical Writings in Economics, Vol. 47. Aldershot, U.K.: Elgar; distributed in the U.S. by Ashgate, Brookfield, Vt.
- Peck, Jamie A., Theodore, Nikolas, 2000. Commentary: ‘Work First’: Workfare and the Regulation of Contingent Labour Markets. *Cambridge Journal of Economics* 24 (1), 119–138.
- Segal, Lewis M., Sullivan, Daniel G., 1998. Trends in Homeownership: Race, Demographics, and Income. *Federal Reserve Bank of Chicago Economic Perspectives* 22 (2), 53–72.
- Spence, Michael, 1973. Job Market Signaling. *Quarterly Journal of Economics* 87 (3), 355–374.
- Toharia, Luis, Ojeda, Antonio, 1999. The Management of Redundancies in Europe: The Case of Spain. *Labour* 13 (1), 237–267.
- Toharia, Luis, Cruz, Jesús, Calvo, Javier, Albert, Cecilia, Cebrián, Inmaculada, García, Carlos, Hernanz, Virginia, Malo, Miguel A., Moreno, Gloria, 2001. *El Problema de la Temporalidad en España: Un Diagnóstico*. Instituto Nacional de Empleo, España.
- Vishwanath, Tara, 1989. Job Search, Stigma Effect and the Escape Route Out of Unemployment. *Journal of Labor Economics* 7 (4), 487–502.
- Wang, Ruqu, Weiss, Andrew, 1998. Probation, Layoffs, and Wage-Tenure Profiles: A Sorting Explanation. *Labour Economics* 5 (3), 359–383.