ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Master Thesis Policy Economics

The effects of regulating temporary contracts on employment and job stability for young employees. Evidence from Spain.

Student name: Anna Pujals Escuer

Student ID number: 698480

Supervisor: Elisabeth Leduc

Second assessor: Olivier Marie

Date final version: 21/07/2024

Abstract

Temporary contracts are at the centre of political debate, as they have gained importance in the European labour markets in the past decades. Their implications for employment conditions and for the economy have pushed governments to regulate them in some European countries. This work aims to shed light on the impacts of rolling back temporary contracts on employment and job stability for young employees. It is specifically focused on examining the effects of Royal Decree-Law 32/2021 implemented in Spain in 2021, that aimed to reduce temporary employment by regulating temporary contracts.

Acknowledgments

Table of contents

1. Introduction

Temporary employment is at the centre of the political debate in Europe, especially in countries with high temporality rates like Spain. There is a coexistence of permanent and temporary employment in European labour markets, where temporary contracts have gained importance in the las decades. This has prompted an extensive debate about their impact on the economy and workers conditions. The core question of this thesis is whether regulating temporary contracts can improve job stability without altering employment for young workers. This work is focused specifically on examining the effects for the young population of Royal Decree-Law 32/2021 implemented in Spain in 2021, that aimed reduce temporary employment by regulating temporary contracts.

This study addresses the gap in the existing research by providing empirical evidence on the rollback of temporary contracts, contrasting with the extensive literature on labour market flexibilization. It aims to assess the outcomes of recent policy changes designed to reduce temporality rates and enhance job stability. From the best of my knowledge, only Cahuc et al. (2022) has done so by evaluating a policy reform implemented in Portugal in 2009.

From a policy perspective, the study offers insights for policymakers on youth employment and labour market reforms. It is the first paper that aims to causally evaluate the effects of the Royal Decree-Law 32/2021 implemented in Spain. Verd et al. (2024) did a preliminary evaluation, but their methodology did not lead to identification. The intention of the present work is not only to provide evidence for the Spanish context, but to serve as a reference for policymakers in other European countries with dual labour markets.

The analysis is carried with data from the Labour Force Survey (LFS) from the second quarter of 2021 to the fourth quarter of 2023, covering approximately 160,000 individuals per period. For the young population subsample, the survey includes roughly 30,000 individuals per quarter. It is a rich dataset, with information of individual characteristics and labour market aspects. Furthermore, a set of macroeconomic indicators at a country and regional level is incorporated.

The study employs a Differences-in-Differences (DiD) methodology, comparing Spain with Italy as a control group, since both countries present similar labour market and macroeconomic

characteristics. The DiD methodology leads to identification if the parallel trends assumption holds. A graphical and a formal test are provided to assess the validity of this identification assumption.

The main findings indicate a significant decrease in temporary employment among young workers following the introduction of Royal Decree-Law 32/2021, shifting towards more permanent contracts. However, the increase in permanent employment mainly involved intermittent-permanent contracts rather than the standard ones. Given that this type of contracts ensures more stability than the temporary ones, it can be said that the reform increased employment stability for young workers. However, to further improve employment outcomes for young workers more actions need to be taken as a complement to this policy.

Another key finding from this paper is that the reform did not significantly alter the overall employment rate, suggesting that tougher regulations did not adversely affect job creation. Additionally, it did not impact duration of job-seeking among the unemployed nor the job-related training, indicating that while it influenced contract types and job stability, other labour market dynamics remained unchanged.

This study provides a comprehensive evaluation of the effectiveness of the reform, enhancing the understanding of labour market dynamics in Spain. It highlights the benefits and limitations of regulatory approaches to temporary employment and offers guidance for future policies aimed at improving job stability for young workers.

The present work is structured as follows: Section 2 presents an exhaustive literature review on the field of employment protection legislation (EPL). Section 3 provides a historical background and explains the Royal Decree-Law 32/2021. Section 4 describes the LFS, and the final dataset used to carry the analysis. Section 5 explains the methodology employed, and Section 6 presents the results and a formal test for the identification assumption. Finally, Section 7 concludes.

2. Literature review

Throughout the past decades, there have been several attempts to model the labour market responses to employment protection legislation (EPL), and specifically, the effects of contract regulation on unemployment, and other relevant factors such as productivity. A stronger EPL is perceived to have negative effects on employment and on productivity, as it introduces rigidities to the labour market[1].

Bentolila and Bertola (1990) modelled the effects on unemployment of the strong labour regulations in Europe in the last decades of the nineteenth century. They found that high firing costs explain the persistence of unemployment in the largest European economies in the 1970's and 1980's. On the same lines, Botero et al. (2004) concluded that heavier regulation of labour is associated with a lower labour force participation and higher unemployment. Furthermore, the authors stated that young workers are the ones particularly affected by hiring and firing rigidities, as they might face stronger barriers entering the labour market. Thus, more labour market flexibility is seen as an instrument to enhance employment and labour market dynamics, and the implementation of stronger employment protection laws could imply the reverse effects.

However, Blanchard and Landier (2002) found that the labour market flexibilization achieved through partial labour market reforms[2] can also have perverse effects. The authors explored this argument both theoretically and empirically by developing a formal model and looking at the effects of such a reform implemented in France. The results of their theoretical model and their empirical assessment confirmed their initial hypothesis. Theoretically, a partial reform leads to higher worker turnover and possibly lower welfare, as the coexistence of different types of contracts can offset the gains of improved flexibility. Empirically, they found evidence of this increased turnover among young workers, and they concluded that the effect of fixed-term contracts on welfare appears to be negative for the young population. In a more recent

---

[1] Employment Protection Legislations encompass all types of policies that aim to protect workers, such as Unemployment Insurance (UI) benefits, firing costs, social security schemes, etc. Hence, the implied rigidities, the mechanisms and the resulting effect in the economy depend on which type of policy is introduced. Alvarez and Veracierto (1999) and Botero et al. (2004) provided some evidence around the effects of different EPL.

[2] Considering the weak performance of European labour markets in the mid-1970s -the so-called Eursclerosis-, entrepreneurs and policymakers saw labour market flexibility as a remedy to boost job creation (Bentolila and Dolado, 1994). Partial labour market reforms were implemented to achieve a more flexible labour market i.e. policies and legislation only affecting temporary employees, while leaving permanent employment conditions unchanged.

study, Daruich et al. (2023) evaluated the effects of a partial reform in Italy. Their conclusions were that the reform increased the share of temporary contracts without rising employment. Furthermore, they stated that firms were the ones benefiting from the increase in flexibility, and through a decrease in labour costs, they saw their benefits increased. However, young workers were the big losers of the reform, as their earnings decreased substantially after the reform. Achieving labour market flexibilization by introducing fixed-term contracts has other negative effects. Arulampalam et al. (2004) found that fixed-term contracts are negatively associated with training, and Damiani et al. (2016) concluded that the deregulation of temporary employment had negatively affected Total Factor Productivity (TFP) growth in the European economies.

Spain has been a case study to test the effects of temporary work on the economy and on workers, as it was one of the first countries introducing fixed-term contracts. According to Dolado et al. (2002), it is not clear whether enhancing temporary employment to boost labour market flexibility has improved the labour market functioning. Besides the benefits of the increased flexibility, some negative effects arose in the Spanish labour market because of such reforms; worker and job turnover increased, and employment was lower for those holding a fixed-term contract. Regarding unemployment, they could not state one solely effect, as the evidence was mixed. While it is true that lower firing costs lead to an increase in employment, the resulting dual labour market implied a reduction on human capital investment, and an increase on wage pressure, as well as negative distributional effects such as a larger wage dispersion. Focusing on the implications for the young population, García-Pérez et al. (2019) found negative consequences of temporary contracts among young and low-skilled workers. The authors stated that temporary employment leads to lower earnings and lower job opportunities in the long term. The latter not only implies negative effects for individuals but has also negative consequences for the economy in the long term, as temporary employment is associated with lower productivity (Bentolila et al., 2019).

The evidence testing the effects of labour market flexibilization and temporary employment is extensive, however, to the best of my knowledge, the evidence about the effects of rolling back temporary contracts is scarce. The reason might be that these regulations came up recently, as policymakers noticed some of the negative implications that labour market deregulation might has had for workers and the economy. Cahuc et al. (2022) examined a labour market reform implemented in Portugal in 2009 that aimed to restrict fixed-term contracts to reduce labour

market segmentation. They achieved identification through a regression discontinuity design. Their findings concluded that the reform was successful in reducing fixed-term contracts, but it did not increase the number of permanent contracts and decreased employment in large firms. Finally, Verd et al. (2024) compared the situation of young workers before and after the labour market reform implemented in Spain in 2021, which is the policy that the present work intends to evaluate. Although their methodology did not lead to identification, they concluded that the reform is associated with a reduction of temporary employment. However, after the reform, temporary work and precariousness is more concentrated among the most disadvantaged.

3. Historical background and the reform

3.1. An overview of the labour market reforms in Spain

The Statute of Labourers (*Estatuto de los Trabajadores*) in Spain was approved in 1980 with a wide consensus between the Government and the labour unions. It was modified several times after its approval, with the objective of reducing unemployment and enhancing job creation[3]. At that time, the strong labour market regulation was seen as one of the main hindrances for employment generation. The Spanish economy was suffering from high labour costs, low productivity and an extremely high unemployment. Hence, already in the first labour reform in 1984, temporary contracts were introduced to improve labour market flexibility and increase employment (Gómez et al., 2009). The reform accomplished its objective and increased hirings substantially, however the employment created as a result was mainly temporary, thereby leading to high temporality rates. The latter added one more factor of complexity in the following reforms, which had the aim to decrease unemployment and temporality at the same time. The consequent labour market reforms partially accomplished its objectives in the period 1994-2012, as unemployment decreased, and temporary employment was modestly reduced in favour of open-ended contracts. Nevertheless, both were substantially higher than the European standards (Conde-Ruiz et al., 2011; Gómez et al., 2009; Jiménez, 2016), being those the chronical diseases of the Spanish labour market.

---

[3] There have been eight labour reforms in Spain since 1980: 1984, 1994, 1996, 2001, 2006, 2010, 2012 and 2021. More information about their content, objectives and effects can be found in Conde-Ruiz et al. (2011), Gómez et al. (2009) and in Jiménez (2016).

At the time of the labour market reform in 2021, the Spanish labour market was among the ones with the highest unemployment rate within the OECD countries[4] (14.79%) which was 34.9% among the young population (OECD, 2024a). It was undoubtedly a dual labour market, with a high and anomalous temporary employment rate, that reached 25.1% in that year (OECD, 2024b). It is worth to mention that temporary contracts were usually relatively short, with a considerable proportion lasting only one week (Piasna and Myant, 2020). It was a volatile labour market with a high employment elasticity to GDP changes i.e. extremely sensitive to changes in the economic cycle, thereby leading to high employment destruction when negative demand shocks occur (Piasna and Myant, 2020).

All these factors enhanced the government action to regulate temporary employment. Thus, on the 28th of December of 2021, the Royal Decree-Law 32/2021 on urgent measures for labour reform, employment stability and labour market transformation was approved.

3.2.   The Royal Decree-Law 32/2021

The Royal Decree-Law 32/2021 (the reform/the law) was approved in December 2021, but it became effective on the 31st of March of 2022 i.e. in the second quarter of 2022.

The reform introduced several measures to accomplish its objectives, that were increasing employment stability and the labour market transformation. Among those, the temporary employment regulation was one of the main branches of the reform, as well as the enhance of productivity, through measures that aim to enhance dual training, or the modernisation of collective bargaining.

On the field of temporary employment regulations, the reform reduced the contractual options, thereby simplifying the choices for companies and employees. It established only three types of contracts, the permanent (open-ended) contract, that was defined as the default option, and the temporary and traineeship contract.

The use of temporary contracts was restricted to specific scenarios, which only included the worker replacement in case of leave (for sickness or other factors), and temporary hirings for specific production needs. However, this type of contract could not last more than six months and could not be extended more than one year.

A new regulation for permanent contracts was introduced, as the laws governing intermittent-permanent contracts were updated. These are a permanent contract form that is only allowed for activities with a seasonal nature i.e. activities related to tourism, among others, that do not

---

[4] Only Costa Rica (16.43%) had a higher unemployment rate, and Greece had an equal one (14.79%).

experience a constant demand throughout the year. Although this contract is more flexible than the standard version of permanent contracts, it establishes a permanent relation between the employee and the employer and gives the worker the right to perceive the unemployment benefit during suspension periods. Furthermore, the firing compensation is calculated based on the open-ended contract standards, which are more beneficial for the employee than the ones that apply for temporary contracts (Balaguer, 2023). Despite its advantages in terms of worker rights compared to temporary contracts, it is undeniable that the intermittent-permanent contract conforms a form of flexibility and in a sense, temporary employment. Hence, the success of the reform in increasing employment stability will depend on the substitutability between the regular and the intermittent permanent contracts, and on the capacity of the intermittent option to increase stability compared to temporary contracts (Doménech, 2022).

4. Data and descriptive statistics

The dataset used in this study is the Labour Force Survey (LFS). It is a continuous and quarterly survey aimed at families and designed to provide data on the labour market. It collects data on the labour force and on the population outside of the labour market (inactive) and contains information for 65.000 households and roughly 160.000 individuals per period. More specifically, this dataset provides information about the level of education, employment status, type of contract, secondary jobs, length of the unemployment spell, individual characteristics (age, sex, civil status, migrant status, etc.), and region within the country. The period of interest in this study goes from the second quarter of 2021 to the fourth one of 2023.

As already mentioned, the law was implemented at the same time in the whole country. This means that no control group within the country can be found. Thus, this study will rely on the comparison with another country, Italy, as a control group. The Labour Force Survey is standardised across the European Union (EU), hence, it can be obtained also for any other EU member state. To conduct the study both datasets, the Spanish and the Italian, have been merged through a process of variable homogenisation[5]. Most of the variables were standardised among both datasets, but in some cases the format or scale differed between sources. A detailed explanation of this process is provided in the Appendix.

---

[5] Eurostat publishes every year the EU Labour Force Survey, that in essence is the merged version of the LFS at the European level, with some additional variables. However, for the present study it could not be used, since the microdata is only available for research entities employees or senior PhD students.

Additionally, some macro-economic indicators have been added at a country-period, such as GDP growth, GDP and population. Furthermore, regional-year GDP and population have also been included.

The analysis will be focused on the young population, defined as those who are between 16 to 29 years old. Whereas the OECD sets the cut-off for young population at 24 years old in all its statistics, there are several reasons to believe that people aged between 25 and 30 present more similarities to the young population group than to the adult one in Spain. The average age of emancipation, which could be used as a proxy for economic stability of the young, was 30 years old in 2023 in Spain (Spanish Youth Council, 2023). Furthermore, recent reports about the county, such as Rodríguez-Vargas (2023), define the young population as those who are between 15 and 29 years old. Finally, the age eligibility criteria of subsidies targeted at the young population, has been expanded to 30 years old by the Spanish government in the recent years. Thus, there seems to be a consensus around the 15-29 age interval to identify the young population in the country.

The resulting dataset is an unbalanced panel data set, and it is detailed in Table 1, where summary statistics by country are provided for relevant variables.

Both countries are balanced in terms of gender. Regarding the nationality of the individuals, the vast majority of the observations are from people who have the nationality of the respective country (either Spanish or Italian). The sample population is distributed uniformly across the three age groups, although the last interval (25 to 29 years old) has a slightly lower weight in the dataset compared with the other two. This holds for both countries. In terms of education, there are some notable differences that is worth to remark. In Spain there is a significantly higher proportion –4%– of people who have not achieved the mandatory schooling level (secondary education) compared Italy where this percentage is 0.9%. Consequently, a higher proportion of individuals hold secondary education in Italy (8 p.p. higher) compared to Spain. However, regarding post-secondary education, the percentage of achievement is higher in Spain, where 64% of the population has reached one of the three non-mandatory educational levels (60% in Italy). Lastly, the proportion of the population holding a bachelor's degree (or a higher education level) in Spain doubles the one in Italy (26.3% vs. 13.6%).

Table 1: Descriptive statistics

Variables	Spain N: 202,937		Italy N: 178,387	
	Mean (1)	SD (2)	Mean (3)	SD (4)
Demographic characteristics				
Gender (men)	0.513	0.500	0.516	0.500
Spanish/Italian Nationality	0.925	0.264	0.905	0.293
Age				
16 to 19 years old	0.336	0.472	0.366	0.482
20 to 24 years old	0.373	0.484	0.338	0.473
25 to 29 years old	0.291	0.454	0.296	0.457
Education				
Uncompleted primary education/Non-educated	0.00594	0.0769	0.00195	0.0441
Primary Education	0.0330	0.179	0.00731	0.0852
Secondary Education	0.317	0.465	0.393	0.488
Post-Secondary non-Tertiary Education	0.283	0.451	0.420	0.494
Short-cycle tertiary education	0.0974	0.297	0.0416	0.200
Tertiary Education	0.263	0.440	0.136	0.343
Labour market				
Active (Labour force)	0.468	0.499	0.372	0.483
Employed	0.356	0.479	0.307	0.461
Unemployed	0.112	0.315	0.0650	0.247
Unemployment rate (Active=yes)	0.239	0.426	0.175	0.380
Employment characteristics				
Temporary contract	0.491	0.500	0.472	0.499
Permanent-Intermittent contract	0.0586	0.235	0.0311	0.174
Part time	0.267	0.442	0.232	0.422
Secondary Job	0.0238	0.153	0.00336	0.0579
Unemployed characteristics				
Professional experience (if unemployed)	0.304	0.460	0.156	0.363
Time unemployed				
0-2 years	0.859	0.348	0.817	0.386
3-7 years	0.136	0.343	0.165	0.371
More than 7 years	0.00435	0.0658	0.0174	0.131
Job seeking (yes)	0.187	0.390	0.156	0.363
Time seeking a job				
Less than a month	0.158	0.365	0.0790	0.270
1 to 3 months	0.234	0.423	0.163	0.369
4 to 6 months	0.159	0.365	0.136	0.343
6 months to 1 year	0.157	0.364	0.118	0.323
1 to 1.5 f years	0.0970	0.296	0.163	0.369
1.5 to 2 years	0.0557	0.229	0.0259	0.159
2 to 4 years	0.0955	0.294	0.173	0.378
More than 4 years	0.0446	0.206	0.143	0.350

Thus, it is difficult to state any conclusion about the overall educational level in each country, since drop-out rates are significantly lower in Italy, but there is a much higher proportion of people with tertiary education in Spain.

The active population (labour force), which includes those who either have a job or that are actively seeking one[6], is higher in Spain than in Italy. The proportion of people employed (among the whole sample) is higher in Spain than in Italy. However, the unemployment rate, defined as the proportion of the labour force who do not have a job, is roughly 24% in Spain, compared to a 17.5% in Italy. Note that unemployment rates are usually higher for the young population compared to the general ones, however, the rate in both countries is unusually large even for this population group, especially in Spain.

Temporality is slightly larger in Spain among those who have a job, as well as the proportion of people with a permanent-discontinuous contract, and those working part-time.

It should be noted that Spain also presents a much higher rate of people with a secondary job (2.3% vs 0.3% in Italy). Among those who are unemployed, 30% have already worked in Spain, and only 15.6% have done so in Italy. The length of unemployment spells is quite similar between countries, although proportion of people looking for a job is higher in Spain. On average, the time to find a job is lower in Spain where the 55% of the sample finds a job in less than six months (38% in Italy).

5. Methodology

The main objective of this paper is to shed light on the effects of regulating temporary employment on young employees in Spain, after the new labour market reform implemented in 2021. The main goal is to understand whether the regulation has led to a decrease on employment, and to a lower temporality, putting the focus specifically on the intermittent-permanent contracts. Furthermore, this work will also look at the possible rigidities that the law may has introduced in the labour market. On those lines, the aim is to check whether the law introduced rigidities that could have hindered the entrance to the labour market for those who are unemployed. Finally, this work also pretends to empirically evaluate whether the law

---

[6] The active population is the sum of the employed and the unemployed. The employed are the ones who worked during the reference week or the ones who did not, but they had a job. The unemployed are those who did not worked during the reference week, but they were at the same time seeking a job and available to start working in the following weeks. These are the standard definitions for the three concepts. For more clarification, please visit the respective national statistics institutes of each country websites (INE in Spain or ISTAT in Italy).

has had any benefits it terms of labour capital investment by companies, by using the training received related to the job as a proxy.

The goal is to identify the causal effect of the law on the mentioned factors. To achieve identification, a Differences in Differences (DiD) strategy is used. Since the labour reform is a state law, it affected the whole country at the same time. Hence, no control group can be found within the country. Thus, Italy is used as a control group, as it presents significant similarities to Spain, in terms of labour market characteristics, macroeconomic indicators, regulation, institutions and cultural treats.

The following equation will be used to estimate the causal effect of the regulation of temporary employment on employment, type of employment (temporary or permanent) and type of permanent contract:

$$Y_{ict} = \beta_0 + \beta_1 Country + \beta_2 Period + \beta_3(Country \times Period) + \gamma_t + \mathbb{X}_{ict}\boldsymbol{\beta} + e_{ict} \quad (1)$$

where Y_{ict} represents each outcome variable, which we observe per individual (i), country (c) and quarter (t). The outcome variable "employment" is an unconditioned dummy that equals 1 if the individual is employed and 0 otherwise. The type of employment is captured through two dummies, both conditioned on the individual being employed. Hence, the dummy "temporary" takes value 1 if the individual has a temporary contract and 0 otherwise, conditioned on having a job. Likewise, the dummy "open-ended" equals 1 if the individual is hired with a permanent contract (that can be either standard or intermittent), and 0 otherwise, conditioned on being employed. Finally, there are two outcome dummies that indicate the type of permanent contract that the individual holds. The "standard" one, takes value 1 if the individual has a permanent standard contract and 0 otherwise, conditioned on being employed and having a permanent contract. The analogous variable for intermittent-permanent contract takes value 1 if the individual has this type of contract and 0 otherwise, also conditioned on having a job and a permanent contract.

$Country$ equals 1 if the country is Spain, and 0 if Italy. $Period$ equals 1 if the period is posterior at the implementation of the policy, that is, after the first quarter of 2022. $(Country \times Period)$ is an interaction of the two dummies and indicates the treatment. Hence, β_3 is the coefficient of interest i.e. the DiD coefficient. γ_t are quarter fixed effects, and control for time-varying factors affecting both countries. Furthermore, a set of control variables ($\mathbb{X}_{ict}$) at the individual, region and state level is included. The former will increase the precision of the estimates. The last two aim to control for time-state varying factors that could possibly bias

the estimations, if they are both correlated with the treatment (the law) and the outcome (Angrist and Pischke, 2009). In that sense, the gross nominal GDP and the population are included at the regional level, and the GDP growth, the population and the gross nominal GDP are included at a country level. Furthermore, at the individual level, it is controlled for age, gender, education and nationality.

Equation number (2) is used to estimate the causal effect of the regulation of temporary employment on two additional factors: the time to find a job and the job-related training that the worker receives.

$$Y_{ict} = \beta_0 + \beta_1 Country + \beta_2 Period + \beta_3 (Country \times Period) + \gamma_t + \mathbb{X}_{ict}\boldsymbol{\beta} + e_{ict} \quad (2)$$

All the elements are the same as in equation (1) except for the outcomes (Y_{ict}) and the controls at the individual level ($\mathbb{X}_{ict}$). The first outcome variable, "job seeking duration" is defined as a categorical variable that takes values from 1 to 8, each value indicating an interval of the number of months the individual has spent actively seeking for a job. This variable is conditioned on active job seeking, and it can either exist for those who were looking for a job in the reference week, or for those who were doing so in the las 4 weeks and that had already found a job. Thus, it is not strictly conditioned on employment, although most individuals asked are unemployed. The final variable is "job-related training" and is a dummy variable that intends to capture the investment on labour capital. This variable takes value 1 if the individual has received non-formal training related to his or her job four weeks prior to the survey, and 0 otherwise. However, it is asked to everyone, hence, is not conditioned on having an employment. Finally, in specification (2) more control variables are included at the individual level, in addition to the ones mentioned in equation (1). For job seeking, the length of the unemployment spell is included. For the training related to the job, the type of contract (temporary or permanent) and the professional activity are included. The macroeconomic controls at the regional and country level are the same as in equation (1).

The advantage of the DiD strategy is that it does not require the control and the treatment groups to be similar in the pre- and post- treatment periods, but to evolve similarly. The latter is known as the Parallel Trends assumption, and it is the requirement to achieve identification with DiD. Thus, the state-period varying factors are the ones that can potentially threaten identification if they do not evolve similarly for both countries. Even with panel data, it is hard

to control for them all. Furthermore, using a different country as a control group increases this risk, as it is more plausible that the trends differ between countries than within a country. This is the main caveat of the study. To assess it, a preliminary test for the Parallel Trends assumption is provided in Figure 1, analysing the pre-treatment evolution of the outcome variables for both countries.

Figure 1: Pre-trends of outcome variables
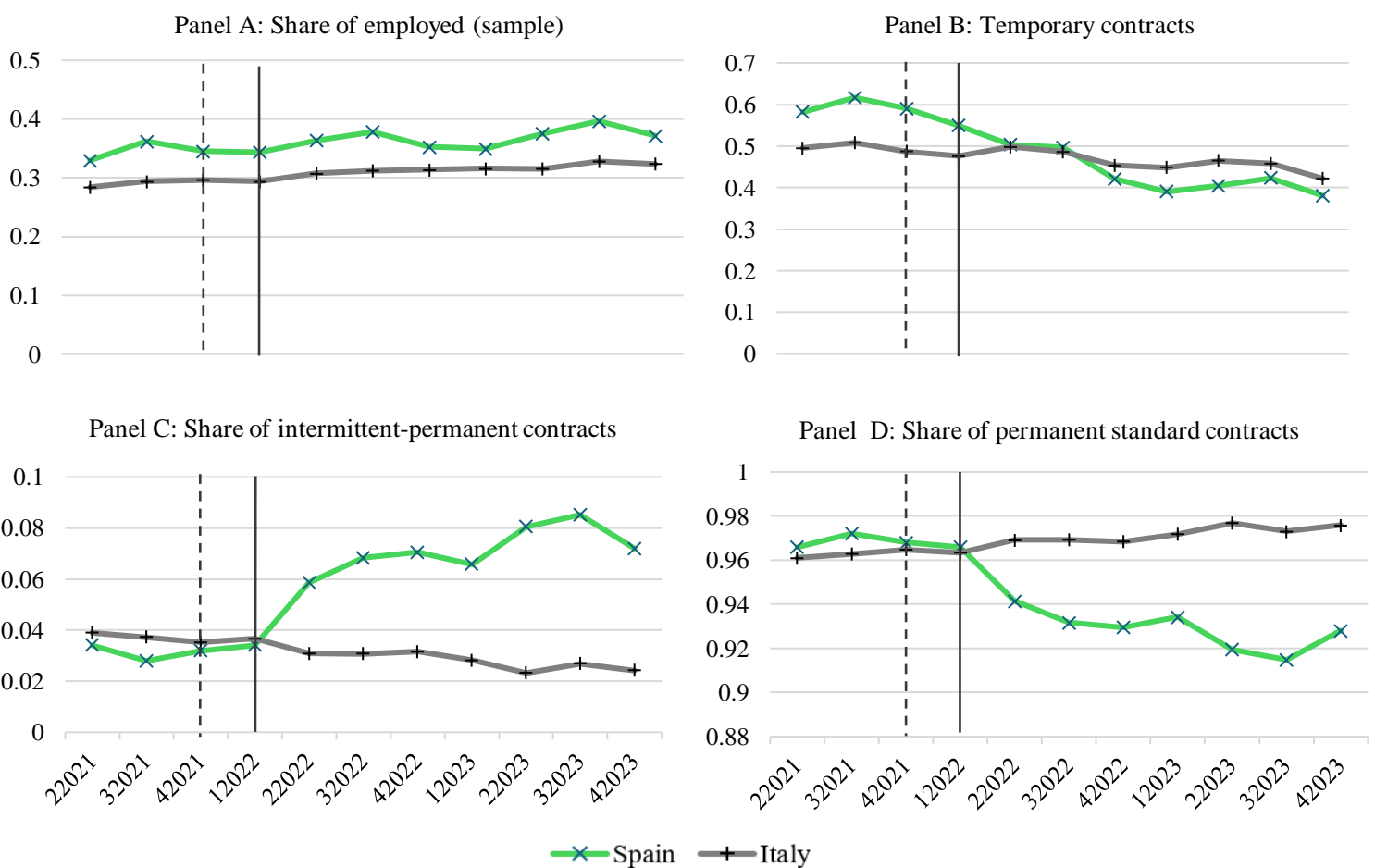
The dashed line indicates the period in which the law was approved, and the solid one, when it was effective. This implies that we observe three pre-treatment periods per each variable. In general, the trends seem quite similar between countries in the pre-treatment period, which indicates that Italy can be a proper counterfactual for Spain. This figure is also useful to observe the behaviour of the variables of interest in the post-treatment period, and to envision which

16

effects could be expected after the implementation of the policy. There is no deviation from the trend of employment (Panel A), which can indicate that perhaps the law did not affect this variable. However, note that temporary employment (Panel B) declined during the studied period. However, it started to decrease already when the law was approved, before its practical implementation. This could be either due to anticipation effects or due to other factors that might affected the temporality already before the law was effective. Furthermore, one can observe a sharp increase of permanent-discontinuous contracts (Panel C) and a decrease in open-ended permanent contracts (Panel D). The deviation from the trend happened right after the law was effective, which can indicate that companies relied on permanent-intermittent contracts these are undeniably more flexible than the standard permanent contracts.

6. Results

6.1. The Differences in Differences results

The resulting OLS estimates from equation (1) are reported in Table 2.

The first column referring to each variable shows the raw effect of the reform. Regarding employment, the estimations in column (1) show that the law led to an increase 0.007 percentage points, everything else constant. The coefficient is statistically significant at the 95% confidence level; however it is a small effect, which can be considered non-economically significant. Furthermore, this effect becomes insignificant as period fixed effects, individual and macroeconomic controls are included. Hence, the results confirm that employment was not affected by the introduction of the regulation. Although positive, these results are surprising, as one would expect the law to had influenced employment given the available evidence. One possible mechanism that could had led to no-effects on the overall employment, is the fact that companies were abusing the use of temporary contracts. It could be that they were hiring employees for permanent needs on a temporary basis, to ensure themselves the possibility to adjust to negative demand shocks by firing employees without any cost. If that was the case, then the reform would not imply employment destruction. Unfortunately, the empirical evidence provided in the present work does not allow to conclude anything in that direction, and this undoubtedly presents an opportunity for further research on the topic.

Once employment is proved to be unchanged, it is interesting to understand whether there were shifts between types of employment or types of permanent contracts after the law was

implemented. In that regard, columns (4) to (6) show the effects of the law on temporary employment, and (7) to (9) the effects on permanent employment. One can observe that the law led to a decrease in temporary employment that shifted to permanent employment. Concretely, the introduction of the law implied, ceteris paribus, a reduction of 0.064 percentage points of temporary employment, thereby increasing the permanent employment by the same amount. The effects are significant at the 99% confidence level. This is an economically significant effect, since compared to the baseline, temporary employment decreased by 2.25% as a result of the reform.

Finally, the effects on the type of permanent contracts are reported in columns (10) to (15). This analysis is interesting to understand how permanent contracts have been behaving after the introduction of the law, and to ultimately see whether the decrease in temporality has been only through intermittent-permanent contracts. In columns (10) and (13) the estimates of the raw coefficients show that the law led to a decrease in standard permanent contracts and to an increase of the intermittent-permanent ones. The magnitude of the effect is 0.049 percentage points for both types of contracts (but in an opposite direction), and it is significant at the 99% level. When introducing controls (columns 13 and 15), the effect is still significant, but its magnitude decreases to 0.0272 percentage points. To do a comparative analysis between the treatment and the control group these coefficients have been divided by the constant. The latter shows that the standard permanent contracts decreased by 1.04% whereas the intermittent-permanent ones increased 1.68% compared to the baseline. Hence, the results confirm that, indeed, the decrease in temporary contracts was led by the increase of the intermittent-permanent ones instead of the standard form.

Table 2: Results for employment, employment type and contracts

	Employment			Temporary employment			Permanent employment			Permanent standard contracts			Intermittent-permanent contracts		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
RDL 32/2021	0.00692**	0.000143	0.00412	-0.117***	-0.123***	-0.0648***	0.117***	0.123***	0.0648***	-0.0491***	-0.0489***	-0.0272***	0.0491***	0.0489***	0.0272***
	(0.00312)	(0.00323)	(0.00541)	(0.00616)	(0.00633)	(0.0118)	(0.00616)	(0.00633)	(0.0118)	(0.00303)	(0.00317)	(0.00602)	(0.00303)	(0.00317)	(0.00602)
Period	0.0243***	0.0600***	-0.00847	-0.0303***	-0.0479***	-0.211**	0.0303***	0.0479***	0.211**	0.00902***	0.0104*	0.0246	-0.00902***	-0.0104*	-0.0246
	(0.00230)	(0.00515)	(0.0372)	(0.00475)	(0.0101)	(0.0823)	(0.00475)	(0.0101)	(0.0823)	(0.00194)	(0.00551)	(0.0422)	(0.00194)	(0.00551)	(0.0422)
Country	0.0460***	0.0528***	0.333**	0.0878***	0.0928***	-0.105	-0.0878***	-0.0928***	0.105	0.00497**	0.00487*	-0.361**	-0.00497**	-0.00487*	0.361**
	(0.00242)	(0.00255)	(0.161)	(0.00487)	(0.00508)	(0.354)	(0.00487)	(0.00508)	(0.354)	(0.00245)	(0.00263)	(0.180)	(0.00245)	(0.00263)	(0.180)
Constant	0.292***	0.261***	-2.203***	0.491***	0.464***	2.876*	0.509***	0.536***	-1.876	0.963***	0.964***	2.623***	0.0369***	0.0362***	-1.623**
	(0.00181)	(0.00430)	(0.692)	(0.00381)	(0.00855)	(1.514)	(0.00381)	(0.00855)	(1.514)	(0.00156)	(0.00495)	(0.765)	(0.00156)	(0.00495)	(0.765)
Time period FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Individual controls	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Macro controls	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Observations	381,324	381,324	381,324	114,23	114,23	114,23	114,23	114,23	114,23	80,679	80,679	80,679	80,679	80,679	80,679
R-squared	0.004	0.004	0.266	0.013	0.017	0.083	0.013	0.017	0.083	0.008	0.009	0.015	0.008	0.009	0.015

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3: job seeking rigidities and training

	Job seeking duration			Training related to the job		
	(1)	(2)	(3)	(4)	(5)	(6)
RDL 32/2021	-0.151***	-0.0798*	-0.115	0.000272	-0.000133	-0.00507
	(0.0458)	(0.0470)	(0.111)	(0.00108)	(0.00112)	(0.00600)
Period	-0.290***	-0.647***	-0.614	0.00119	0.00633***	0.0316
	(0.0375)	(0.0697)	(0.751)	(0.000795)	(0.00178)	(0.0417)
Country	-0.967***	-1.035***	-0.0529	-0.00553***	-0.00512***	-0.149
	(0.0349)	(0.0364)	(3.284)	(0.000836)	(0.000884)	(0.179)
Constant	4.778***	5.091***	-1.519	0.0294***	0.0276***	0.639
	(0.0290)	(0.0546)	(14.14)	(0.000628)	(0.00149)	(0.767)
Time period fixed effects	No	Yes	Yes	No	Yes	Yes
Individual controls	No	No	Yes	No	No	Yes
Macro controls	No	No	Yes	No	No	Yes
Observations	39,642	39,642	24,218	381,324	381,324	114,23
R-squared	0.058	0.061	0.201	0.000	0.001	0.020

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

In Table 3 additional OLS estimates of equation (2) are provided. The effects of the law on the time to find a job are estimated in columns (1) to (3). The goal is to check whether the possible rigidities introduced by the law in the market led to an increase in the number of months that those unemployed had to spend to find a job. Although the raw coefficient in column (1) is statistically significant at all confidence levels, it becomes insignificant after adding period fixed-effects and the set of macroeconomic and individual-specific controls.

One additional effect that the theory predicts, mentioned in Section 2, is the decrease on labour capital investment when EPL becomes more flexible. Companies are less prone to invest on training temporary employees, as the returns from that investment are low. Thus, decreasing temporality could increase investment on labour capital by companies. Columns (4) to (6) of Table 3 report the effects of the law on the share of people that received any non-official training related to their jobs in the reference week. Given the results, one can conclude that the law did not trigger any effect on the probability of receiving such training. However, one should be cautious when interpreting the results. First, if companies were hiring temporary employees for permanent needs before the introduction of the law, maybe those employees were already

receiving the level of training needed. Second, labour capital investment comprises many more factors other than non-formal training that unfortunately cannot be observed in the used dataset. Hence, these results do not allow to conclude whether labour investment has been affected by the law, but only that training related to the job has not changed as a result. Finally, maybe a more exhaustive work needs to be done in this regard, as company characteristics play a prominent role for this factor and there is no such information available in the dataset.

6.2. Parallel trends formal test

This sub-section aims to provide reliability to the results presented in this study. Even if the pre-treatment trends for the different outcome variables seem parallel in both countries, as seen in Figure 1 (Section 5), a further robustness check has been performed to assess the reliability of the parallel trends assumption. A commonly used strategy is to regress the outcomes on pre-treatment periods dummies interacted with the country dummy. This enables to test whether there are significant differences in country trends before the implementation of the policy. Formally, the following equation has been estimated:

$$Y_{ict} = \beta_0 + \beta_1 Country + \beta_2 Quarter + \beta_3 (Country \times Quarter) + e_{ict} \quad (3)$$

where $Country \times Quarter$ is the set of interactions between quarter-specific dummies and the country dummy. The pre-treatment period considered goes from 2017 until 2021, but 2020 has been omitted as it can be considered an outlier due to the Covid-19 effects. The reference period has been defined as the 2nd quarter of 2022, i.e. when the policy was effective.

For the outcomes, four variables are considered: employment, type of employment (temporary or permanent) and job seeking duration. Note that the type of permanent contract (standard or intermittent) is missing due to data unavailability. As this contract form was recently created and incorporated to the datasets of both countries, the variable capturing it is not available in the older versions of the Labour Force Survey. This represents a caveat for this study, as the type of permanent contract is one of the main interests of the study. Furthermore, the variable indicating the informal training received related to the job is not available either.

	Employment	Temporary employment	Permanent employment	Job seeking duration
	(1)	(2)	(3)	(4)
Country x T12016	-0.0288***	0.109***	-0.109***	0.769***
	(0.00729)	(0.0148)	(0.0148)	(0.0991)
Country x T22016	-0.0428***	0.0794***	-0.0794***	0.527***
	(0.00743)	(0.0149)	(0.0149)	(0.101)
Country x T32016	-0.0225***	0.101***	-0.101***	0.724***
	(0.00734)	(0.0145)	(0.0145)	(0.101)
Country x T42016	-0.0113	0.103***	-0.103***	0.771***
	(0.00738)	(0.0149)	(0.0149)	(0.0997)
Country x T12017	-0.00281	0.0703***	-0.0703***	0.634***
	(0.00730)	(0.0148)	(0.0148)	(0.0995)
Country x T22017	-0.00316	0.0699***	-0.0699***	0.453***
	(0.00736)	(0.0147)	(0.0147)	(0.101)
Country x T32017	0.00903	0.0681***	-0.0681***	0.286***
	(0.00738)	(0.0145)	(0.0145)	(0.102)
Country x T42017	-0.00758	0.0570***	-0.0570***	0.563***
	(0.00743)	(0.0147)	(0.0147)	(0.102)
Country x T12018	-0.00167	0.0407***	-0.0407***	0.489***
	(0.00698)	(0.0141)	(0.0141)	(0.0993)
Country x T22018	0.00435	0.0195	-0.0195	0.244**
	(0.00706)	(0.0140)	(0.0140)	(0.101)
Country x T32018	0.0226***	-0.00353	0.00353	0.124
	(0.00704)	(0.0140)	(0.0140)	(0.102)
Country x T42018	0.0126*	0.0172	-0.0172	0.478***
	(0.00742)	(0.0147)	(0.0147)	(0.104)
Country x T12019	0.000856	0.0164	-0.0164	0.247**
	(0.00740)	(0.0147)	(0.0147)	(0.104)
Country x T22019	0.00668	0.0262*	-0.0262*	0.0335
	(0.00733)	(0.0145)	(0.0145)	(0.105)
Country x T32019	0.0119	0.0205	-0.0205	0.0632
	(0.00732)	(0.0142)	(0.0142)	(0.104)
Country x T42019	0.00363	0.0202	-0.0202	0.248**
	(0.00739)	(0.0145)	(0.0145)	(0.105)
Country x T12021	0	0	0	0
	0	0	0	0
Country x T22021	-0.00416	0.0131	-0.0131	0.0481
	(0.00716)	(0.0144)	(0.0144)	(0.106)
Country x T32021	0.0182**	0.0354**	-0.0354**	0.00718
	(0.00723)	(0.0142)	(0.0142)	(0.110)

Table 4: Paralell trends formal test

Country x T42021	-0.00123	0.0298**	-0.0298**	0.123
	(0.00718)	(0.0142)	(0.0142)	(0.109)
Constant	0.294***	0.476***	0.524***	4.909***
	(0.00357)	(0.00746)	(0.00746)	(0.0614)
Observations	915,923	268,599	268,599	160,512
R-squared	0.004	0.015	0.015	0.033

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4 presents the whole set of the interaction OLS coefficients resulting from estimating equation (3). Regarding employment, one can conclude that, in general, there were no significant differences in trends between countries in the pre-treatment period, as almost all the coefficients are insignificant. For the type of employment (temporary or permanent) and for the job seeking duration, the results show that for the period 2018-2021, the trends were similar for both countries. However, previously, in 2016 and 2017, the coefficients are significant, meaning that the trends were significantly different then. However, as both countries present similar trends in all outcome variables in the periods that are closer to the implementation of the law, the validity of the parallel trends assumption seems plausible. Thus, one can conclude that these results reinforce the validity of the identification assumption, and hence, the results presented in this study.

7. Conclusion

This paper analyses the causal effects on employment and temporality of the Royal Decree-Law 32/2021 implemented in Spain in 2021. Furthermore, it presents an extra analysis for the effects of the law on job-seeking duration and job-related training.

The main results show that the law did not significantly lead to a reduction of employment, which contradicts the available empirical evidence, that states that introducing rigidities to the labour market will imply a reduction of employment. Furthermore, it can be concluded that temporary employment decreased substantially (2.25% compared to the baseline) as a result of the law. However, as it was suspected, the results confirm that this temporality reduction was led by the increase in permanent-intermittent contracts. The latter are a permanent contract form, but they imply more instability for the worker than the standard one and give more

flexibility to the company. However, this contract form is more stable than the standard temporary contract. Hence, it can be said that job stability was enhanced by the law, but through a second-best mechanism, as the preferred one would have been to transform all the temporary contracts to permanent standard ones. Finally, the results show no effect on the job seeking duration for the unemployed, nor on labour capital investments, measured as job-related training. However, the latter effect should be taken cautiously due to data unavailability.

The results of this work imply that regulation can help to reduce temporality in the labour market for young employees, without altering employment. However, policymakers should take labour market regulation as a complement of other policies to enhance and improve labour market outcomes for young employees. In Spain, further action needs to be taken that goes beyond the scope of EPL. This encompasses many elements, such as improving the educational system so that it achieves high-quality standards in the whole country, ensuring an improvement in labour factor productivity, and even reconsidering the economic model of the country, which is labour intensive and mainly relying on services and tourism.

This work presents some limitations and room for improvements and extensions. First, due to the relatively recent implementation of the policy, the findings of this paper need to be considered as short- or medium-term results. It will be interesting to repeat this analysis in the long run, to see whether the positive effects of the policy imply a structural change in temporality trends. Furthermore, this study can be extended by performing a heterogeneity analysis of the results, testing whether the impact had been the same across genders, educational level or professional activity, for example. Finally, from a methodological perspective, comparing two different countries might imply some risks for identification, that this paper addresses by providing a formal test for the identification assumption. However, it could be interesting to perform the analysis using other approaches, such as a synthetic control or even a synthetic differences-in-differences. However, due to data availability these could not be performed. The European Labour Force survey could provide the data to do so, once it is published including more recent periods.

The results of this paper present a preliminary evaluation of the Royal Decree-Law 32/2021. However, the reform needs to be further evaluated. It is important to produce further research to see whether its effects on reducing temporality translate to better labour conditions for the young employees both in the short and in the long term. Furthermore, it will be interesting to see whether it has an impact on reducing employment destruction in the context of an economic shock.

8. References

Alvarez, F., & Veracierto, M. (1999). Labor-market policies in an equilibrium search model. *NBER Macroeconomics Annual, 14*, 265-304.

Angrist, J., & Pischke, J.S. (2009). Mostly Harmless Econometrics: An Empiricist's Companion.

Arulampalam, W., Booth, A. L., & Bryan, M. L. (2004). Training in Europe. *Journal of the European Economic Association, 2*(2-3), 346–360.

Bentolila, S., & Bertola, G. (1990). Firing costs and labour demand: How bad is Eurosclerosis? *The Review of Economic Studies, 57*(3), 381-402.

Bentolila, S., & Dolado, J. J. (1994). Labour flexibility and wages: Lessons from Spain. *Economic Policy, 9*(18), 53-99. https://doi.org/10.2307/1344458

Bentolila, S., Dolado, J. J., & Jimeno, J. F. (2019). Dual labour markets revisited (IZA Discussion Paper No. 12126). Institute of Labor Economics. https://www.iza.org/publications/dp/12126/dual-labour-markets-revisited

Bernal-Verdugo, L. E., Furceri, D., & Guillaume, D. (2012). Labor market flexibility and unemployment: New empirical evidence of static and dynamic effects (IMF Working Paper 12/64). https://www.imf.org/external/pubs/ft/wp/2012/wp1264.pdf

Blanchard, O., & Landier, A. (2002). The perverse effects of partial labour market reform: Fixed-term contracts in France. *The Economic Journal, 112*(480), F214–F244. https://doi.org/10.1111/1468-0297.00047

Botero, J. C., Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2004). The regulation of labor. *The Quarterly Journal of Economics, 119*(4), 1339–1382. https://doi.org/10.1162/0033553042476215

Cahuc, P., Carry, P., Malherbet, F., & Martins, P. S. (2022). Employment Effects of Restricting Fixed-Term Contracts: Theory and Evidence (IZA Discussion Paper No. 14999). Institute of Labor Economics. https://www.iza.org/publications/dp/14999/employment-effects-of-restricting-fixed-term-contracts-theory-and-evidence

Conde-Ruiz, J. I., Felgueroso, F., & García-Pérez, J. I. (2011). Reforma laboral 2010: una primera evaluación y propuestas de mejora [The 2010 labour reform: a preliminary evaluation and possible improvements]. *Revista de economía aplicada, XIX*(57), 147-180. http://www.redalyc.org/articulo.oa?id=96922243006

Damiani, M., Pompei, F., & Ricci, A. (2016). Temporary employment protection and productivity growth in EU economies. *International Labour Review, 155*(4), 587-622.

Daruich, D., Di Addario, S., & Saggio, R. (2023). The effects of partial employment protection reforms: Evidence from Italy. *The Review of Economic Studies, 90*(6), 2880–2942. https://doi.org/10.1093/restud/rdad012

Dolado, J. J., García-Serrano, C., & Jimeno, J. F. (2002). Drawing lessons from the boom of temporary jobs in Spain. *The Economic Journal, 112*(480), F270–F295. https://doi.org/10.1111/1468-0297.00048

Doménech, R. (2022). La reforma laboral de 2021: una evaluación preliminar [The 2021 labour market reform: a preliminary evaluation]. *Cuadernos de Información Económica, 287*, 9-17.

García-Pérez, J. I., Marinescu, I., & Vall Castello, J. (2019). Can fixed-term contracts put low skilled youth on a better career path? Evidence from Spain. *The Economic Journal, 129*(620), 1693-1730. https://doi.org/10.1111/ecoj.12621

Gómez, S., Contreras, I., & Gracia, M. D. (2009). *Las reformas laborales en España y su impacto real en el mercado de trabajo en el periodo 1985-2008* [The labor reforms in Spain in the 1985-2008 period and their real efect in the labour market]. IESE. Cátedra SEAT de Relaciones Laborales. https://www.iese.edu/media/research/pdfs/ESTUDIO-82.pdf

Jiménez, Á. L. G. (2016). Protección del empleo y flujos del mercado de trabajo en España: efectos de las reformas de 2010 y 2012 [Employment protection and labour market flows in Spain: effects of the 2010 and 2012 reforms]. *Revista de Economía Laboral, 13*(1), 34-62. https://doi.org/10.21114/rel.2016.01.02

López Balaguer, M. (2023). El nuevo contrato fijo-discontinuo [The new permanente-discontinuous contract]. *Lex Social: Revista De Derechos Sociales, 13*(1), 1–31. https://doi.org/10.46661/lexsocial.7794

OECD. (2024a). Labour market statistics. *Main Economic Indicators* (database). https://doi.org/10.1787/data-00046-en (accessed June 10, 2024).

OECD. (2024b). Labour Market Statistics: Employment by permanency of the job: incidence. *OECD Employment and Labour Market Statistics* (database), https://doi.org/10.1787/data-00297-en (accessed on 10 June 2024).

Piasna, A., Myant, M. (2020, November 05). *Myths of employment deregulation: how it neither creates jobs nor reduces labour market segmentation*. ETUI, The European Trade Union Institute. Retrieved June 10, 2024, from https://www.etui.org/publications/books/myths-of-employment-deregulation-how-it-neither-creates-jobs-nor-reduces-labour-market-segmentation

Pries, M., & Rogerson, R. (2005). Hiring policies, labor market institutions, and labor market flows. *Journal of Political Economy, 113*(4), 811-839.

Rodríguez-Vargas, A. (2023). Increasing opportunities for the young in Spain. *OECD Economic Surveys: Spain 2023*. OECD. https://doi.org/10.1787/5b50cc51-en

Spanish Youth Council. (2023, August 11). *Young people emancipate at 30.3 years of age on average in Spain, the highest figure in the last twenty years* [Press release]. https://www.cje.org/en/las-personas-jovenes-se-emancipan-a-los-303-anos-de-media-en-espana-la-cifra-mas-alta-de-los-ultimos-veinte-anos/

Verd, J. M., Godino, A., González-Heras, A., & Rodríguez-Soler, J. (2024). Escaping the trap of temporary employment: Precariousness among young people before and after Spain's 2021 labour market reform act. *International Journal of Social Welfare*, 1–24. https://doi.org/10.1111/ijsw.12645

9. Appendix

Variable homogenisation

The Labour Force Survey is a homogeneous dataset produced in all the European countries. However, even if the core information is the same across countries, variable definition slightly differs. A process of variable homogenisation has been performed to merge both, the Spanish and the Italian dataset to conduct the analysis. In this Appendix section, Table A1 is provided, in which the original variables are presented in columns (1) and (2), and the resulting homogenised one is included in Column (3). Column (4) explains some details about the homogenisation process.

Overall, the main changes where in terms of category definitions, but no major changes have been done.

Table A1: Variable homogenisation across datasets

Variable	Spain (1)	Italy (2)	Final variable (3)	Description of the homogenisation process (4)
Quarter	Values: 194 (T1-2021), 195 (T2-2021), 196 (T3-2021),... 203 (T2-2023), 204 (T3-2023), 205 (T4-2023	Values: 012021, 022021, 032021… 0223, 042023	Values: 194 (T1-2021), 195 (T2-2021), 196 (T3-2021),... 203 (T2-2023), 204 (T3-2023), 205 (T4-2023	The Italian dataset was adapted to the Spanish values, as they present a more convenient form for the analysis.
Country	Generate a variable that equals 1	Generate a variable that equals 0	Dummy that equals 1 if Spain and 0 if Italy.	Creating a variable in each dataset so that when merging it was a dummy

				indicating the country.
Region	Each region has a code from 1 to 17 (Ceuta and Melilla defined as 51 and 52)	Each region has a code from 1 to 20.	Each region has a unique code that equals: (countryregion).	Concatenate country (1,0) with the region code, to obtain a unique code for each region.
ID	Each individual has a unique code	Each individual has a unique code	Each individual has a unique code that equals: (countryindividual_code).	Concatenate country (1,0) with the individual code, to obtain a unique code for each individual. It is checked whether the ID variable identifies only one person per period and the test is OK.
Age	14 values: 0, 5, 10, 16, 20, 25, … 55, 60, 65 each one indicating a 5-year interval. People older than 65 are all included in	17 values from 1 to 17 each one indicating a 5-year interval.	14 values: 0, 5, 10, 16, 20, 25, … 55, 60, 65 each one indicating a 5-year interval. People older than 65 are all included in the 65 intervals.	The Italian dataset was adapted to the Spanish values, as they present a more convenient form for the analysis.

		the 65 intervals.			
Gender		Dummy variable (1 male, 6 female)	Dummy variable (1 male, 2 female)	Dummy variable (1 male, 0 female)	Homogenisation of values across datasets.
Nationality		Categorical variable: 1 if Spanish, 2 if double nationality including the Spanish one, 3 foreigner.	Dummy variable:1 if Italian, 2 if foreigner	Dummy that equals 1 if Spanish or Italian and 0 otherwise.	For Spain, code 2 considered as Spanish (coded 1 in the final variable).
Education		Categorical with 7categories. Alphabetical code indicating the level of education, from illiteracy to tertiary.	Categorical with 6 categories. Numerical code from 1 to 6 from primary education to tertiary education.	Categorical with 6 categories. Numerical code from 1 to 6 from primary education to tertiary education.	The Spanish dataset was adapted to the Italian values, as they present a more convenient form for the analysis. Illiteracy, only present in the spanish dataset, coded as 1.
Job-related training	Non-formal training	Categorical variable coded 0 to 2. Equals 1 if yes, 2 if the	Categorical variable coded 1 to 3. Equals 1 if informal	Dummy variable (1 if training received for professional interest, 0 otherwise). Conditioned on receiving training.	For Spain, the dummy equals 1 if training was received (non-formal training=

		respondent is a student and 0 if no training was received.	training received for personal interest, 2 if formal training received for professional interest and 3 if non-informal training received.		1) and the objective was job related (non-formal training objective 1). In Italy, the
	Non-formal training objective	Categorical variable coded from 1 to 3. Equals 1 if job-related training equals 2 if training related to a possible future job and equals 3 if training done for personal interest.			dummy equals one if the categorical "non-formal training" equals 2. Note that in the Italian dataset, the two variables are coded as one single variable that indicates both, doing training and its objective.
Employed	Working	Dummy equals 1 if working 6 otherwise.	Dummy equals 1 if working 2 otherwise.	Dummy equals 1 if working 0 otherwise.	Employed: dummy variable defined as 1 if any of the three variables (working, helping family or not working but having a job) equal 1. It is 0 otherwise.
	Helping Family	Dummy equals 1 if working helping a family business (even without	Dummy equals 1 if working helping a family business (even without	Dummy equals 1 if helping a family business (even without remuneration) and 0 otherwise.	

		remuneration) 6 otherwise.	remuneration) 2 otherwise.		This definition is aligned with the employed definition provided by the national statistics agencies (INE and Istat) in each country.
	Not working but having a job	Dummy equals 1 if having a job but not have worked in the reference week and 6 otherwise.	Dummy equals 1 if having a job but not have worked in the reference week and 2 otherwise.	Dummy equals 1 if having a job but not have worked in the reference week and 0 otherwise.	
Professional Activity		Coded from 0 to 9 indicating professional category consistent with the NACE standards.	Categorical coded from 1 to 9 indicating a professional category consistent with the Italian Standards.	Categorical variable from 1 to 9 consistent with the Italian standards, which are analogous to the NACE ones. .	Spanish codes adapted to the Italian ones, as they are more detailed. No discrepancies across datasets, only different coding of each professional sector. Each category includes the occupations.
Permanent/Temporary contract		Dummy equals 1 if temporary contract, 6 if permanent.	Dummy equals 1 if temporary contract, 2 if permanent.	Dummy equals 1 if temporary contract, 0 if permanent.	Homogenisation of values across datasets.
Type of permanent contract		Dummy equals 1 if standard-	Dummy equals 2 if standard-	Dummy equals 1 if standard-permanent and 0 if intermittent-permanent.	Homogenisation of values across datasets.

	permanent and 6 if intermittent-permanent.	permanent and 1 if intermittent-permanent.		
Duration of job seeking	Categorical with 8 categories indicating a non-homogeneous moth interval of the duration of the job seeking.	Duration of the job seeking in months	Categorical with 8 categories indicating a non-homogeneous moth interval of the duration of the job seeking.	Italian codes adapted to the Spanish codes, as they are more restrictive.