Long-term impacts of facilitating temporary contracts:
A comparative analysis of Italy and Spain using birth cohorts

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I. Motivation - Preliminaries

- Labour market reforms facilitating temporary contracts are reforms "at the margin":
  - New entrants into the labour market (young people).
  - New hires in general (workers with higher job mobility,, as low skilled workers).

- Are there long-term impacts on employment, unemployment and employment 'quality'?

I. Motivation - Objective

- Our objective: evaluating the impact of this type of labour market reform at the margin **on the whole workers' career** in Italy (1997) and Spain (1984).

- Problem: Control group?

- Solution: Comparing the labour market history of generations entering into the labour market before and after the implementation of the legal reform.

  - Dependent variables:
    - Employment rates (ER)
    - Unemployment rates (UNER)
    - Temporary Employment Rates (TER)

I. Motivation - Caveats

- Previous research on Spain using this research design:

Cuadernos de economía (2013) 36, 5-19

Cuadernos de economía

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ARTÍCULO

Temporary Contracts across Generations: Long-term effects of a labour market reform at the margin

Miguel Á. Malo[a,*], Begoña Cueto[b]

- Previous research using birth cohorts in Italy:
    - Bison, I., Rettore, E. and Schizzerotto (2010): "La riforma Treu e la mobilità contrattuale in Italia: un confront tra coorti", chapter 9 in D. Checchi (ed.), *Immobilità diffusa: perché la mobilità intergenerazionale è così bassa in Italia,* Bologna: Il Mulino, 267-296. Link to the book: http://www.lavoro.gov.it/Strumenti/StudiStatistiche/Documents/QRS21_immobilita_diffusa.pdf
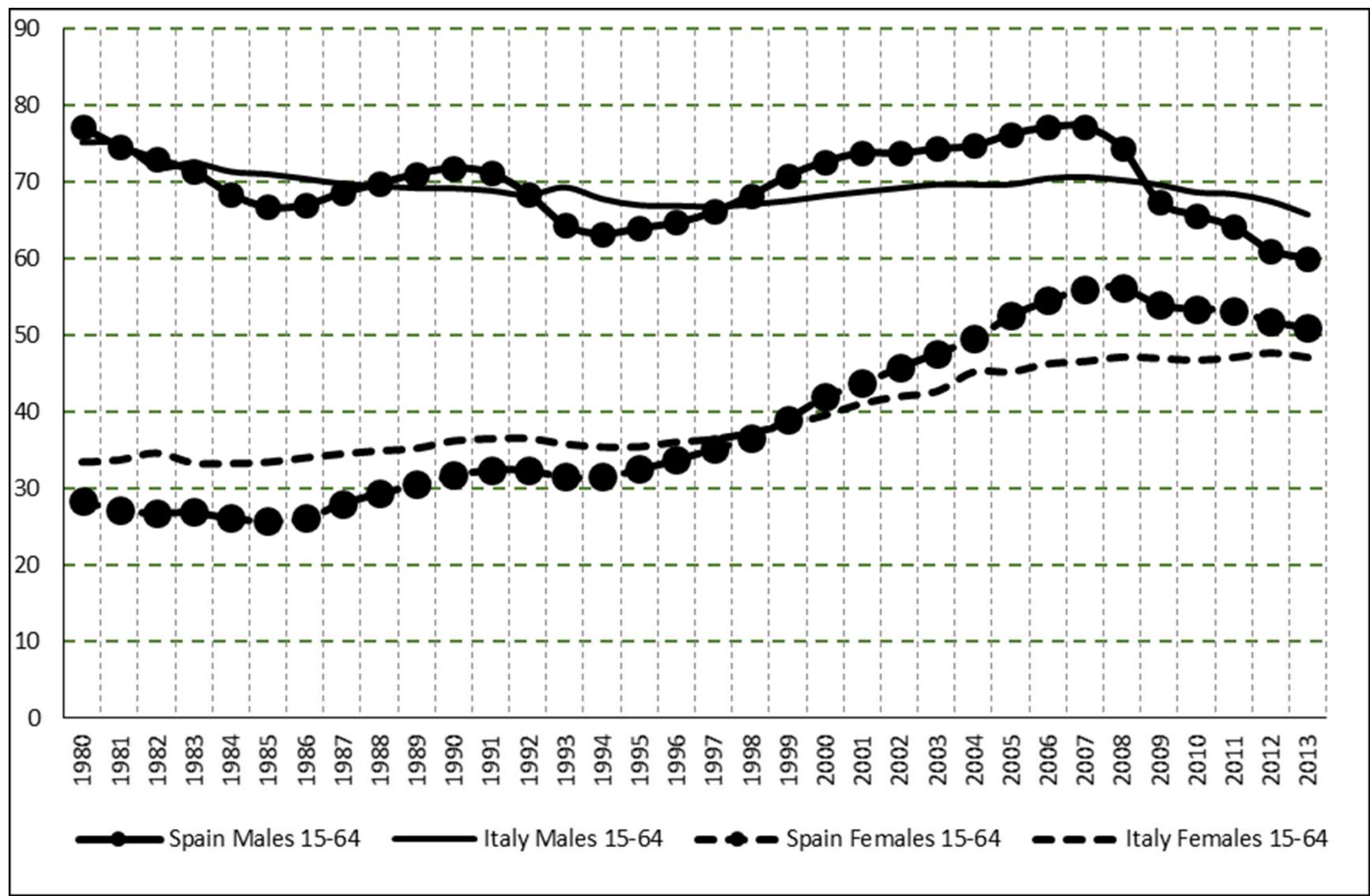
II. Data
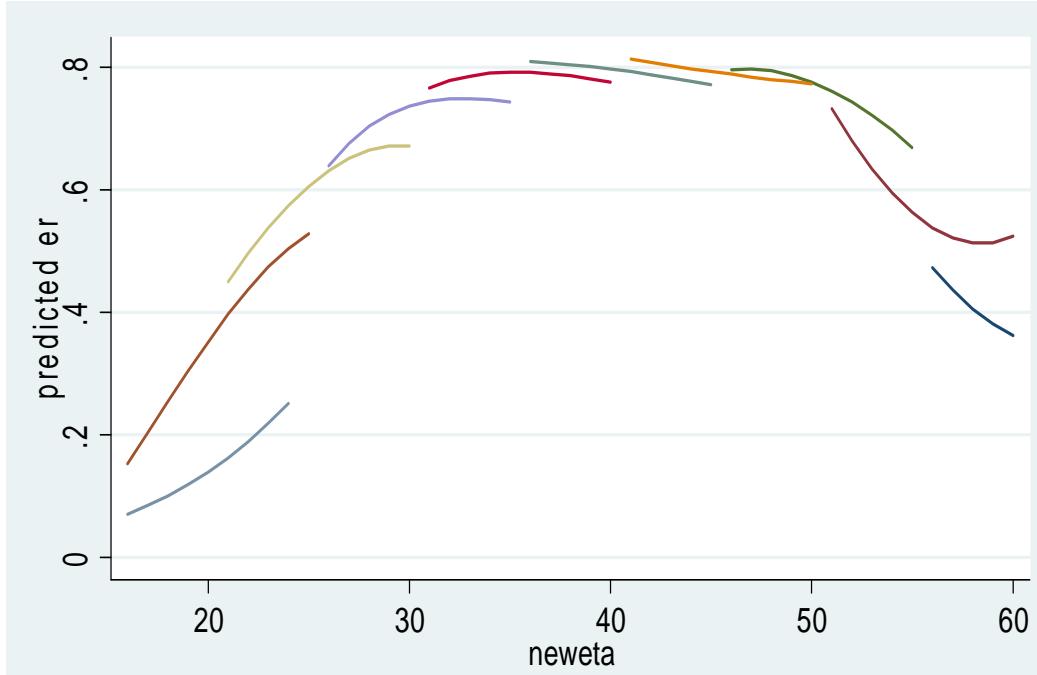
- Labour Force Survey: Italy 2004-2013; Spain 1977(1987)-2013
- We cannot follow individuals for so long, but we can define <u>artificial cohorts</u>. An example:

Birth year	…	LFS2000	LFS2001	LFS2002	LFS2003	…
…	…	…	…	…	…	…
1980-84	…	16-20	17-21	18-22	19-23	…
1985-89	…	21-25	22-26	23-27	24-28	…
1990-94	…	26-30	27-31	28-32	29-33	…
etc.	…	etc.	etc.	etc.	etc.	…
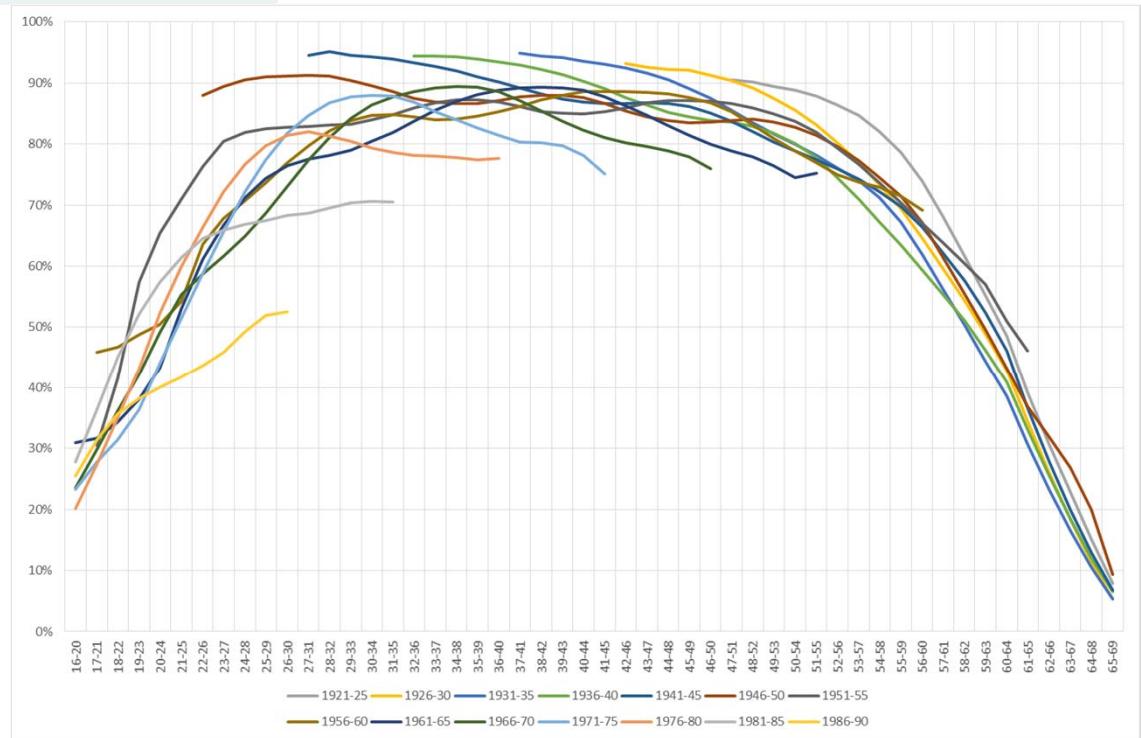
- As the LFS is based on a representative sample of the population we can follow birth-cohort groups ("generations").

Employment Rate (ER)

Legend: Spain Males 15-64 — Italy Males 15-64 — Spain Females 15-64 — Italy Females 15-64

ITALY (ALL)

SPAIN (MALES)

Legend: Spain Males 15-64 · Italy Males 15-64 · Spain Females 15-64 · Italy Females 15-64
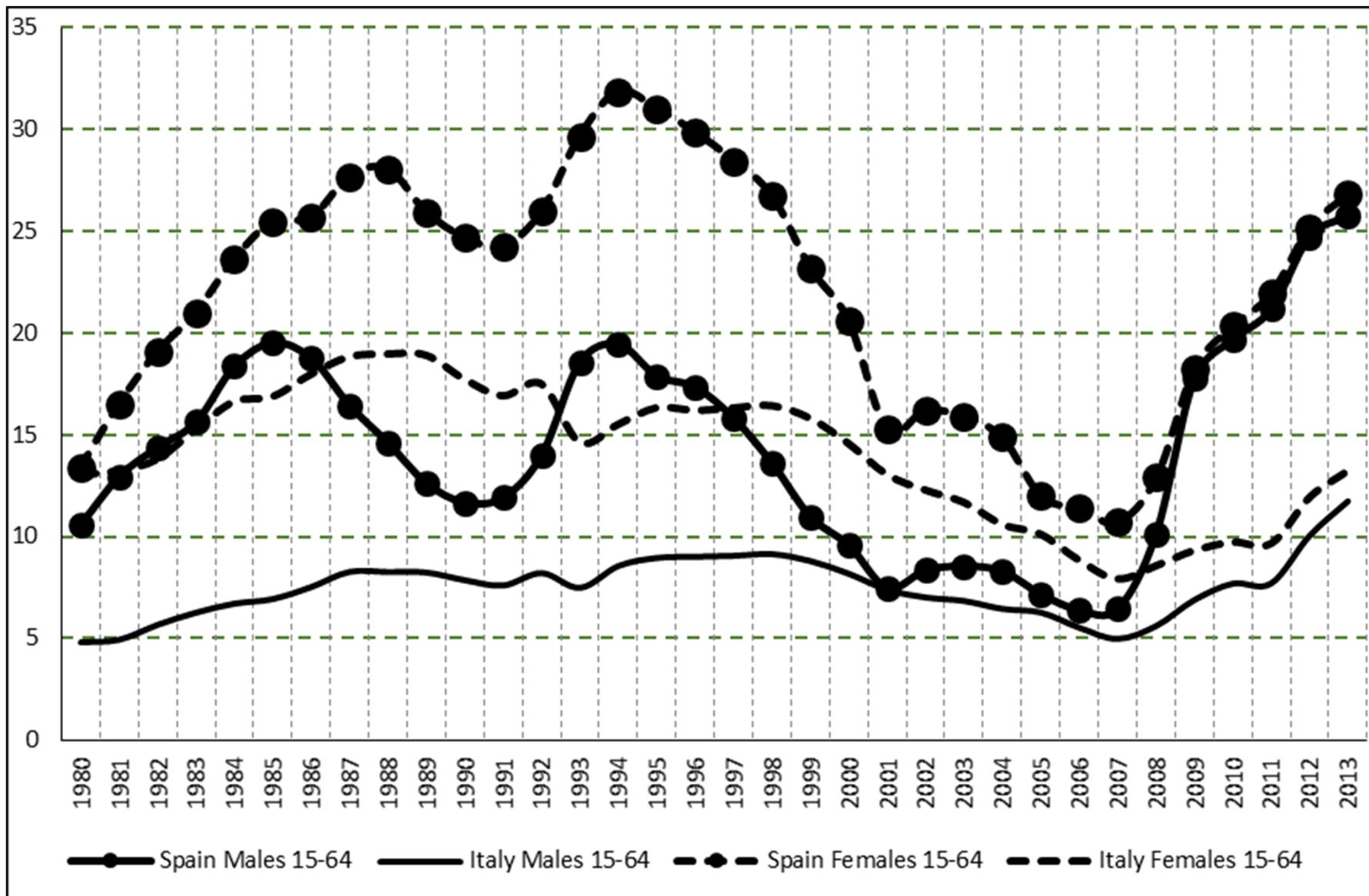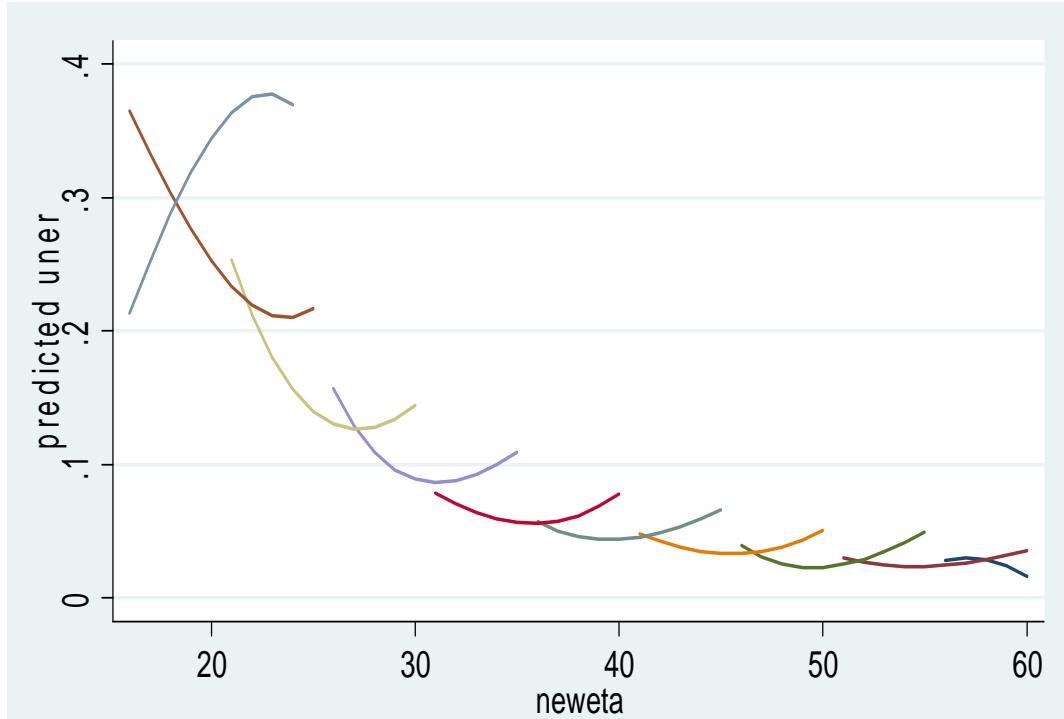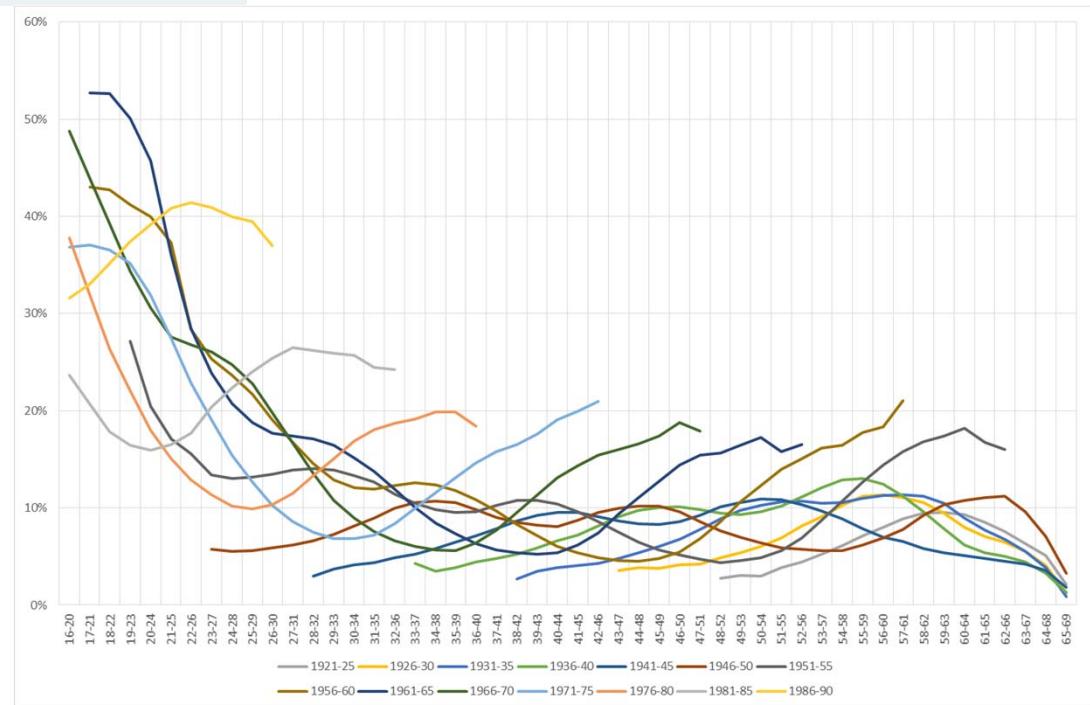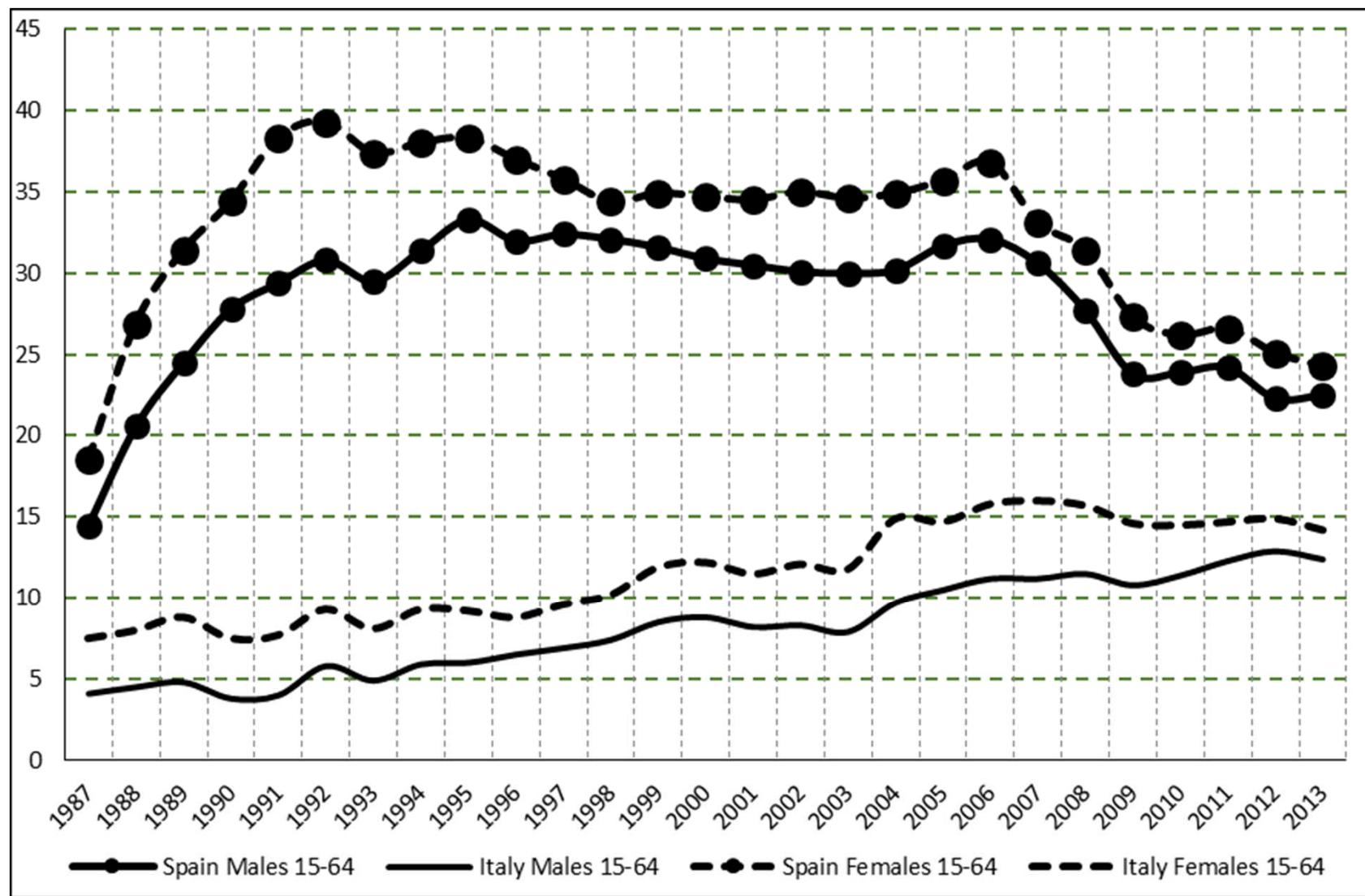
Unemployment Rate (UNER)

ITALY (ALL)

SPAIN (MALES)

Temporary Employment Rate (TER) =
= Workers with a temporary contract / All wage and salary workers
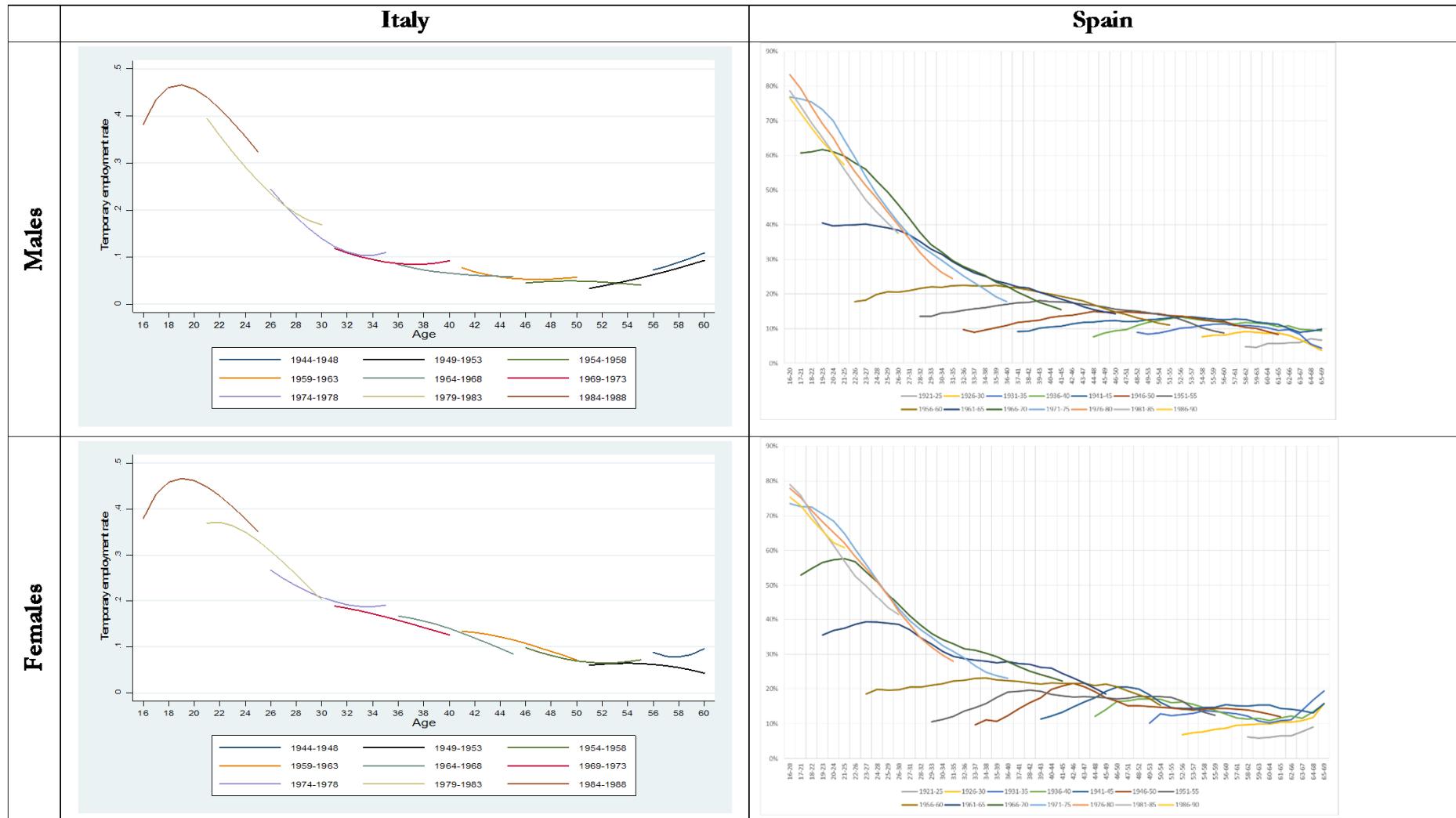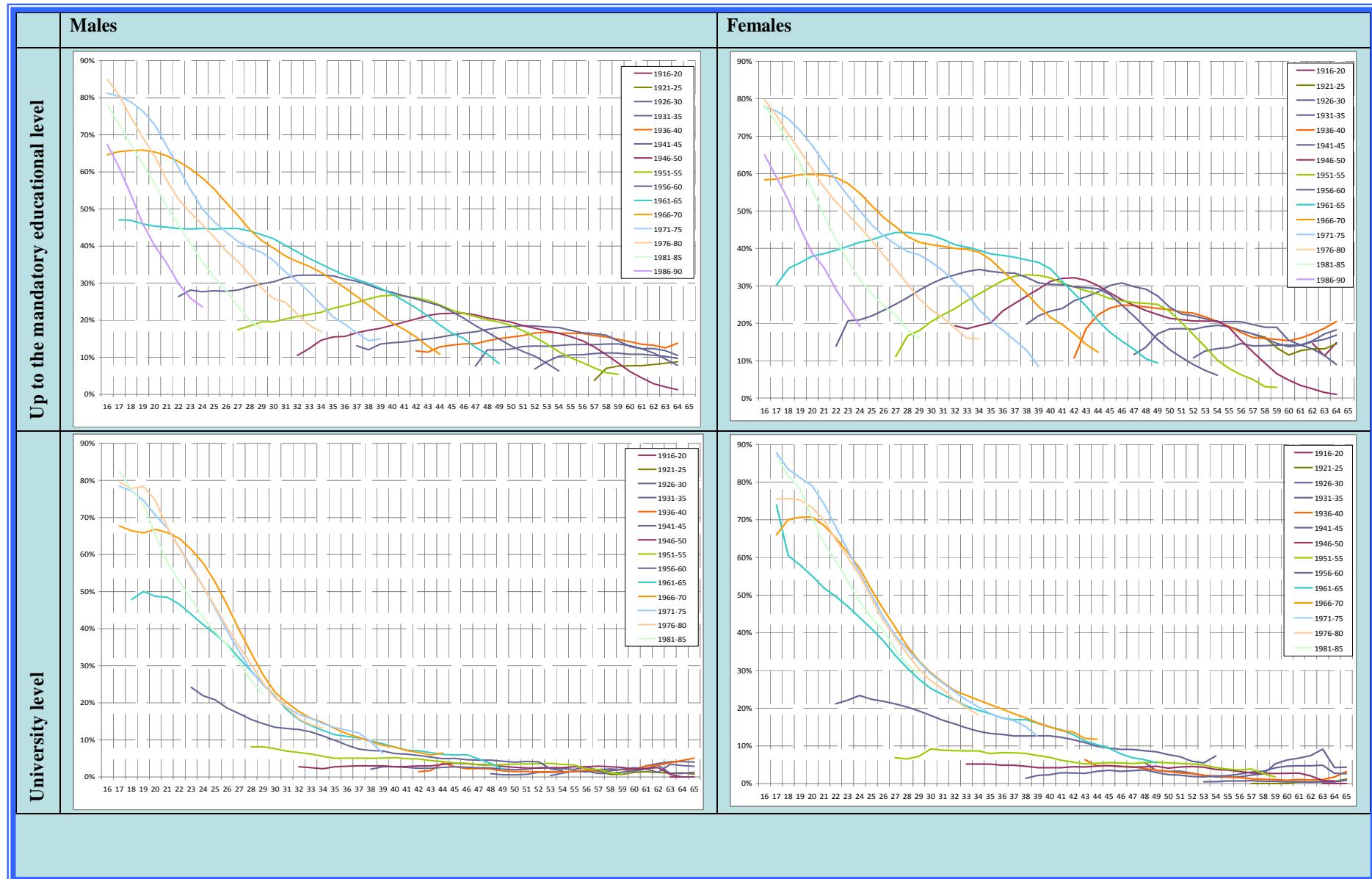
Figure 6. Temporary Employment Rate in Spain and Italy, by birth cohort and gender. Source: Italian and Spanish Labor Force Survey and authors' calculations.

SPAIN

III. Estimations

- Regression Discontinuity Design (RDD) [Lee & Lemieux (*Journal of Economic Literature* 2010)]

    - In the RDD, randomization is trivially satisfied if the discontinuity separating treated and non-treated groups (i) is really exogenous and (ii) agents do not sistematically manipulate their assignment.

    - Randomization is only strictly guaranteed in the vicinities of the cut off ➔ When chosing the bandwith, there is a trade off with precision.

III. Estimations

$$Y_{acjt} = \boxed{\beta_1} AgeCutoff_{acjt} + \beta_2 AgeCutoff_{acjt} * Age_{acjt} + \beta_3 (1 - AgeCutoff_{acjt}) * Age_{acjt} + \alpha X'_{acj} + \varepsilon_{acjt}$$

- OLS regressions (by gender and by educational level) [Robust standard errors, clustered when possible by birth cohort]
- Dependent variable: Y_{acjt}
  - Y: Temporary Employment Rate:
    - a: age group (groups of 5 years)
    - c: generation (9 birth cohorts for Italy; 12 birht-cohorts for Spain, defined as 5 years groups)
    - j: educational level (3)
    - t: year
- RHS variables:
  - AgeCutoff: 16, 19, 24 for Italy; 16, 18, 23 for Spain.
  - Age*(1-AgeCutoff) & Age*(AgeCutoff)
  - *Educational level:*
    - *Educ1: Up to mandatory educ. Level*
    - *Educ2: Secondary level*
    - *Educ3: University level*
  - Linear time trend
  - Step dummies of other labour market reforms: 2005 for Italy; 1994, 1997, 2006 for Spain.
- The 'main' coefficient is **β_1**

Table 1. Regression discontinuity on the employment rate (ER) in Italy and Spain (weighted data and clustered errors by birth cohort). Source: Labor Force Survey and authors' calculations.

ITALY														
MALES	ALL		EDUC LOW		EDUC MED		EDUC MED		EDUC UNIV		EDUC UNIV		EDUC UNIV	
Cutoff 16	-0.202		-0.228	*	-0.200	*			-0.114					
Cutoff 19							-0.125	*			-0.099	*		
Cutoff 24													0.007	
Age*(1- Cutoff)	-0.003		-0.009	*	0.001		-0.005		0.006		0.001		-0.003	
Age*(Cutoff)	-0.049	***	-0.059	***	-0.040		-0.046	***	-0.073	***	-0.057	***	-0.046	***
FEMALES	ALL		EDUC LOW		EDUC MED		EDUC MED		EDUC UNIV		EDUC UNIV		EDUC UNIV	
Cutoff 16	-0.182		-0.154	**	-0.176	**			-0.074					
Cutoff 19							-0.073				-0.079			
Cutoff 24													0.000	
Age*(1- Cutoff)	-0.003		-0.008	***	-0.001		-0.005		0.005		0.000		-0.004	
Age*(Cutoff)	-0.029	***	-0.032	***	-0.033	***	-0.041	***	-0.061	***	-0.048	***	-0.039	***
SPAIN														
MALES	ALL		EDUC LOW		EDUC MED		EDUC MED		EDUC UNIV		EDUC UNIV		EDUC UNIV	
Cutoff 16	-0.010		-0.010		0.007				0.003					
Cutoff 18							0.006				0.004			
Cutoff 23													0.001	
Age*(1- Cutoff)	-0.002		-0.004	**	0.000		0.000		0.004	**	0.004	**	0.004	**
Age*(Cutoff)	-0.006	**	-0.003		-0.008	***	-0.007	***	-0.010	***	-0.009	***	-0.008	***
FEMALES	ALL		EDUC LOW		EDUC MED		EDUC MED		EDUC UNIV		EDUC UNIV		EDUC UNIV	
Cutoff 16	-0.005		0.015		-0.005				-0.029					
Cutoff 18							-0.008				-0.030			
Cutoff 23													-0.030	*
Age*(1- Cutoff)	-0.004	***	-0.005	***	-0.005	***	-0.006	***	0.001		0.000		-0.001	
Age*(Cutoff)	0.000		0.006	***	0.002		0.003		-0.005	*	-0.004	*	-0.004	***

Spain: 14 clusters.
Italy: 10 clusters.
All estimations include a linear time trend, step dummies for additional labor market reforms (2005 and 2013 for Italy, 1994, 1997 and 2006 for Spain), and a set of dummies for educational levels in estimations for all individuals (first column estimations).
*** Statistically different from zero at the 1% level or better,**at the 5% level or better and *at the 10% level or better.

Table 2. Regression discontinuity on the unemployment rate (UNER) in Italy and Spain (weighted data and clustered errors by birth cohort). Source: Labor Force Survey and authors' calculations.

ITALY														
MALES	**ALL**		**EDUC LOW**		**EDUC MED**		**EDUC MED**		**EDUC UNIV**		**EDUC UNIV**		**EDUC UNIV**	
Cutoff 16	-0.016		-0.021		-0.051	**			0.037					
Cutoff 19							-0.019				0.031			
Cutoff 24													0.021	**
Age*(1- Cutoff)	-0.003	***	-0.003	**	-0.003	***	-0.023	***	-0.004	***	-0.003	**	-0.001	***
Age*(Cutoff)	0.028	***	0.027	***	0.034	***	0.023	***	0.019	***	0.015	***	0.012	***
FEMALES	**ALL**		**EDUC LOW**		**EDUC MED**		**EDUC MED**		**EDUC UNIV**		**EDUC UNIV**		**EDUC UNIV**	
Cutoff 16	-0.020		-0.011		-0.043	*			-0.036					
Cutoff 19							-0.031	*			0.014			
Cutoff 24													-0.001	
Age*(1- Cutoff)	-0.005	***	-0.005	***	-0.004	***	-0.003	***	-0.005	***	-0.004	***	-0.002	***
Age*(Cutoff)	0.029	***	0.024	***	0.033	***	0.024	***	0.039	***	0.023	***	0.017	***
SPAIN														
MALES	**ALL**		**EDUC LOW**		**EDUC MED**		**EDUC MED**		**EDUC UNIV**		**EDUC UNIV**		**EDUC UNIV**	
Cutoff 16	-0.011		-0.014		-0.017				-0.002					
Cutoff 18							-0.002				0.011			
Cutoff 23													-0.019	
Age*(1- Cutoff)	-0.003	***	-0.003	***	-0.003	***	0.000		-0.008	***	-0.008	***	-0.009	***
Age*(Cutoff)	0.007	***	0.009	***	0.008	***	-0.008	***	0.007	***	0.007	***	0.008	***
FEMALES	**ALL**		**EDUC LOW**		**EDUC MED**		**EDUC MED**		**EDUC UNIV**		**EDUC UNIV**		**EDUC UNIV**	
Cutoff 16	-0.025	**	-0.023	*	-0.021	*			-0.009					
Cutoff 18							0.007				0.015			
Cutoff 23													0.031	**
Age*(1- Cutoff)	-0.008	***	-0.008	***	-0.007	***	-0.003	**	-0.012	***	-0.012	***	-0.012	***
Age*(Cutoff)	0.002		0.004	*	0.002		0.001		0.006	**	0.006	**	0.007	***

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*** statistically different from zero at the 1% level or better,**at the 5% level or better and *at the 10% level or better.

Table 3. Regression discontinuity on the temporary employment rate (TER) in Italy and Spain (weighted data and clustered errors by birth cohort). Source: Labor Force Survey and authors' calculations.

ITALY

MALES	ALL		EDUC LOW		EDUC MED		EDUC MED		EDUC UNIV		EDUC UNIV		EDUC UNIV	
Cutoff 16	0.072		0.043	**	0.003				-0.005					
Cutoff 19							-0.013				0.052			
Cutoff 24													-0.018	
Age*(1- Cutoff)	-0.004	**	-0.001		-0.005	**	-0.002	***	-0.011	***	-0.008	***	-0.005	***
Age*(Cutoff)	0.033	***	0.030	***	0.053	***	0.044	***	0.078	***	0.052	***	0.041	***

FEMALES	ALL		EDUC LOW		EDUC MED		EDUC MED		EDUC UNIV		EDUC UNIV		EDUC UNIV	
Cutoff 16	0.085		-0.004		0.102	**			0.022					
Cutoff 19							-0.013				0.092	**		
Cutoff 24													0.025	
Age*(1- Cutoff)	-0.005	***	-0.002	***	-0.006	***	-0.005	***	-0.015	***	-0.012	***	-0.010	***
Age*(Cutoff)	0.024	***	0.026	***	0.035	***	0.041	***	0.034	*	0.024	***	0.028	***

SPAIN

MALES	ALL		EDUC LOW		EDUC MED		EDUC MED		EDUC UNIV		EDUC UNIV		EDUC UNIV	
Cutoff 16	0.019		0.011		0.026				0.045	**				
Cutoff 18							0.031				0.031			
Cutoff 23													0.021	
Age*(1- Cutoff)	-0.011	***	-0.010	***	-0.012	***	-0.012	***	-0.011	***	-0.010	***	-0.008	***
Age*(Cutoff)	0.012	***	0.005	***	0.014	***	0.014	***	0.026	***	0.025	***	0.023	***

FEMALES	ALL		EDUC LOW		EDUC MED		EDUC MED		EDUC UNIV		EDUC UNIV		EDUC UNIV	
Cutoff 16	0.026		0.046	*	0.004				0.018					
Cutoff 18							0.021	**			0.027			
Cutoff 23													0.026	*
Age*(1- Cutoff)	-0.010	***	-0.008	***	-0.011	***	-0.011	***	-0.013	***	-0.012	***	-0.010	***
Age*(Cutoff)	0.012	***	0.001	**	0.009	***	0.009	***	0.020	***	0.019	***	0.019	***
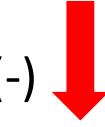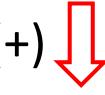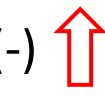
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IV. Final summary of results

- **Long-term impacts:**

  (-) ↓   – **On mean employment rates:** workers with low educational level in Italy ('large' impacts), and for Spanish women with university level.

  (+) ⇓   – **On mean unemployment rates:** male workers with university education and female workers with secondary level in Italy, and women with low educational level in Spain.

  (-) ⇑   – **On mean temporary employment rates**: male workers with low educational level in Italy, and female workers irrespetive of their educational level in Spain.

Thank you very much!

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