

YOUTH EMPLOYMENT IN EUROPE: THE ROLE OF EDUCATION AND MARKETS REGULATION

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Motivation

- There are large differences across EU countries in terms of youth labour market performance
- On average, young people have been suffering from the crisis more than adults
- Across all age groups, those who have been more hit by the crisis are the low educated/low skilled ones...
 - ...but the impact of (low) education on unemployment is greater among the young than the adults
 - Furthermore, high heterogeneity across countries in terms of youth labour market performance by skill
- In most EU countries young women still face worse labour market conditions relative to young men, despite they have higher attainment rates in upper secondary and tertiary education than men.

Motivation (2)

- This evidence suggests that education *per se* is not sufficient to protect young people from unemployment
- Role of the economic and institutional context
- **Our main research hypothesis: Effect of high education on the youth labour market performance may depend on the degree of rigidity/flexibility that characterizes both labour and product markets.**
 - Particularly, if highly educated workers are complement to high technology and innovation, the incentives to acquire education (and the relative effect on youth conditions) depends on whether and how labour and product markets regulation fosters innovation and research (Bassanini and Ernst 2002).

Aim of this paper:

- To empirically investigate the joint **effect of high education and both labour and product market regulation** on youth labour market performance by gender and the corresponding gender gaps.

Literature Review

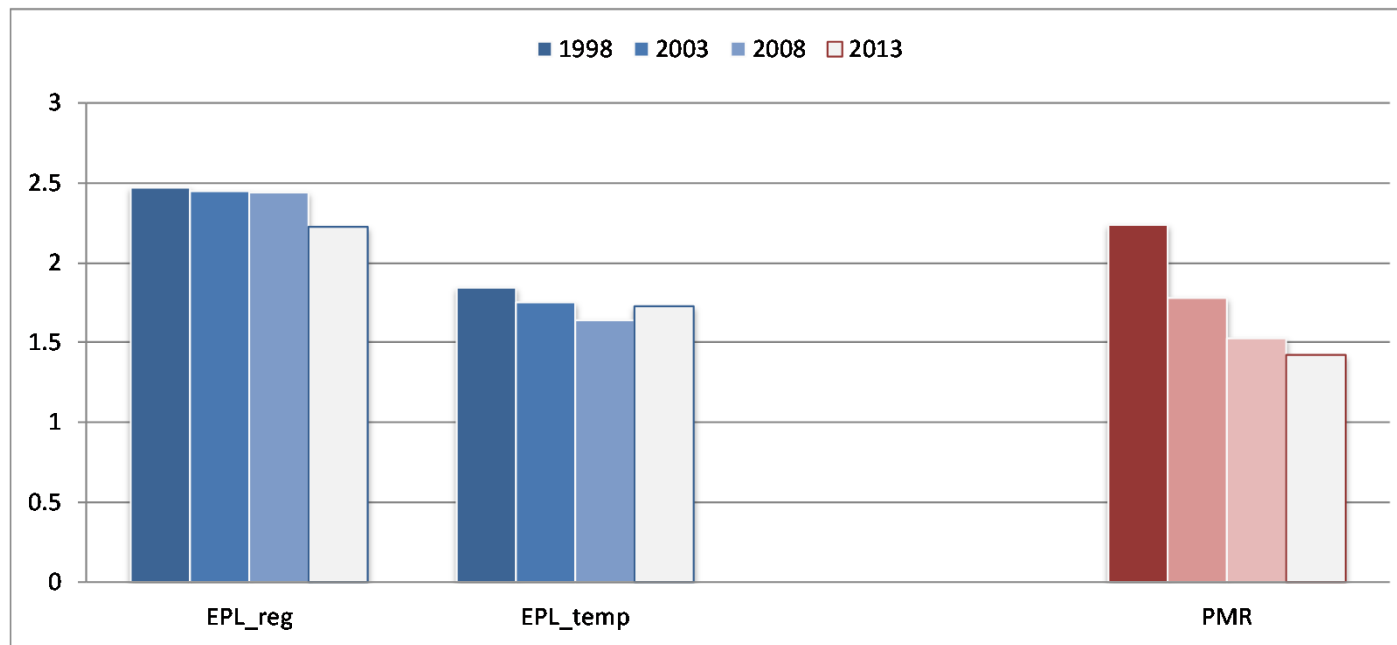
- Highly educated women are those exhibiting the most continuity in employment after childbirth (Dex et al. 1998); women with advanced degrees have shorter out of work spells than other women, also among those with children (Goldin 2006).
- The strictness of EPL negatively affects female participation rates, particularly in the case of young women (Genre et al 2010); gender gaps are influenced also by the asymmetry of employment protection between permanent and temporary contracts (Rubery 2011).
- Strict PMR does not affect (prime-age) men's employment, while it has a negative effect on women's employment, of a size comparable to that of unemployment benefits and the tax wedge (OECD 2006).
- Only few papers have considered the joint effect of education and markets regulation on labour market indicators (Charlot and Malherbert 2013).

Data

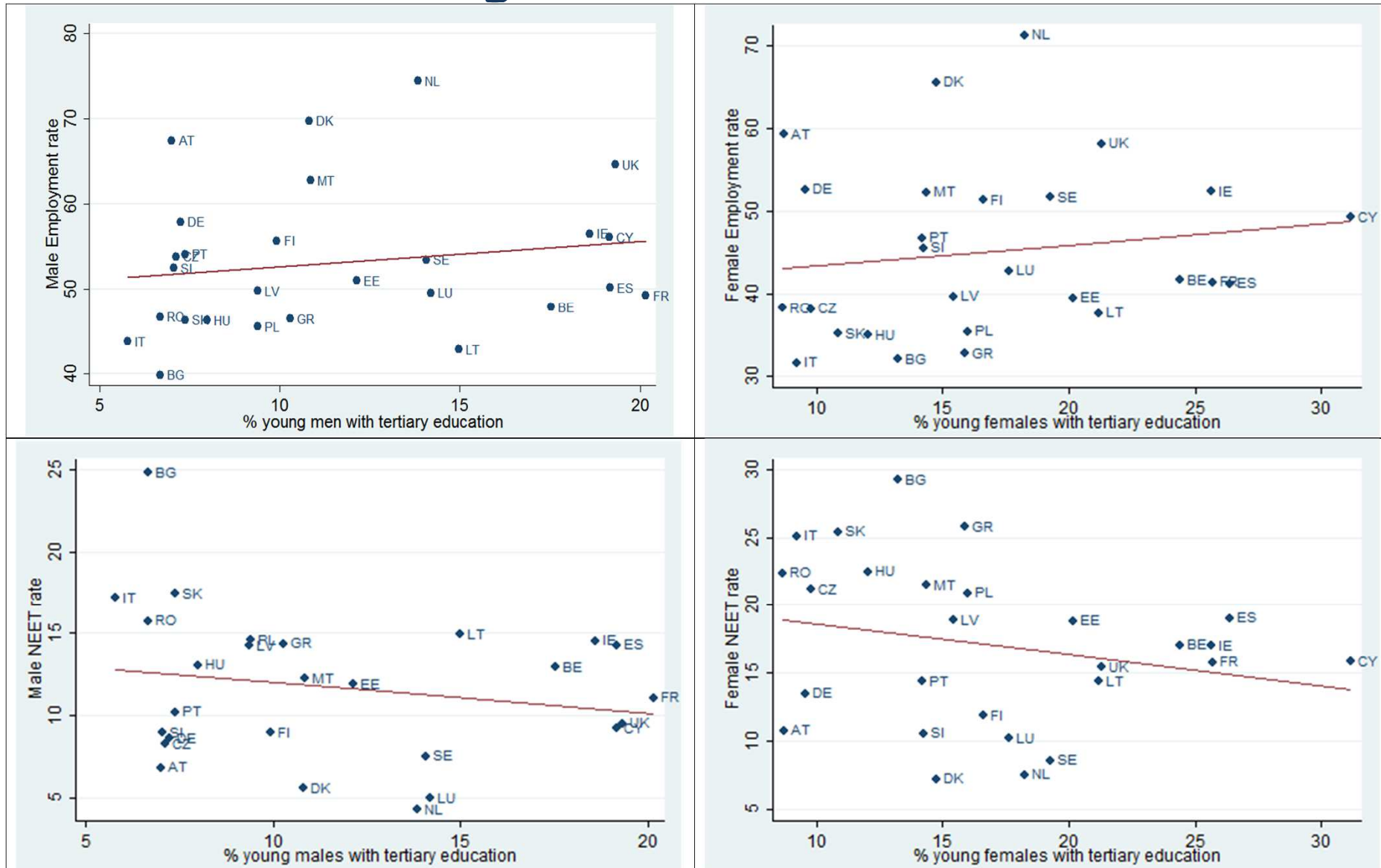
- Estimates are based on an original country-level panel dataset matching youth labour market indicators with policy and institutions indicators for all the OECD EU Member States over the 1998-2013 period.
- We focus our analysis on youth population aged 15-29 in OECD-EU countries.

Descriptive evidence: changes in regulation

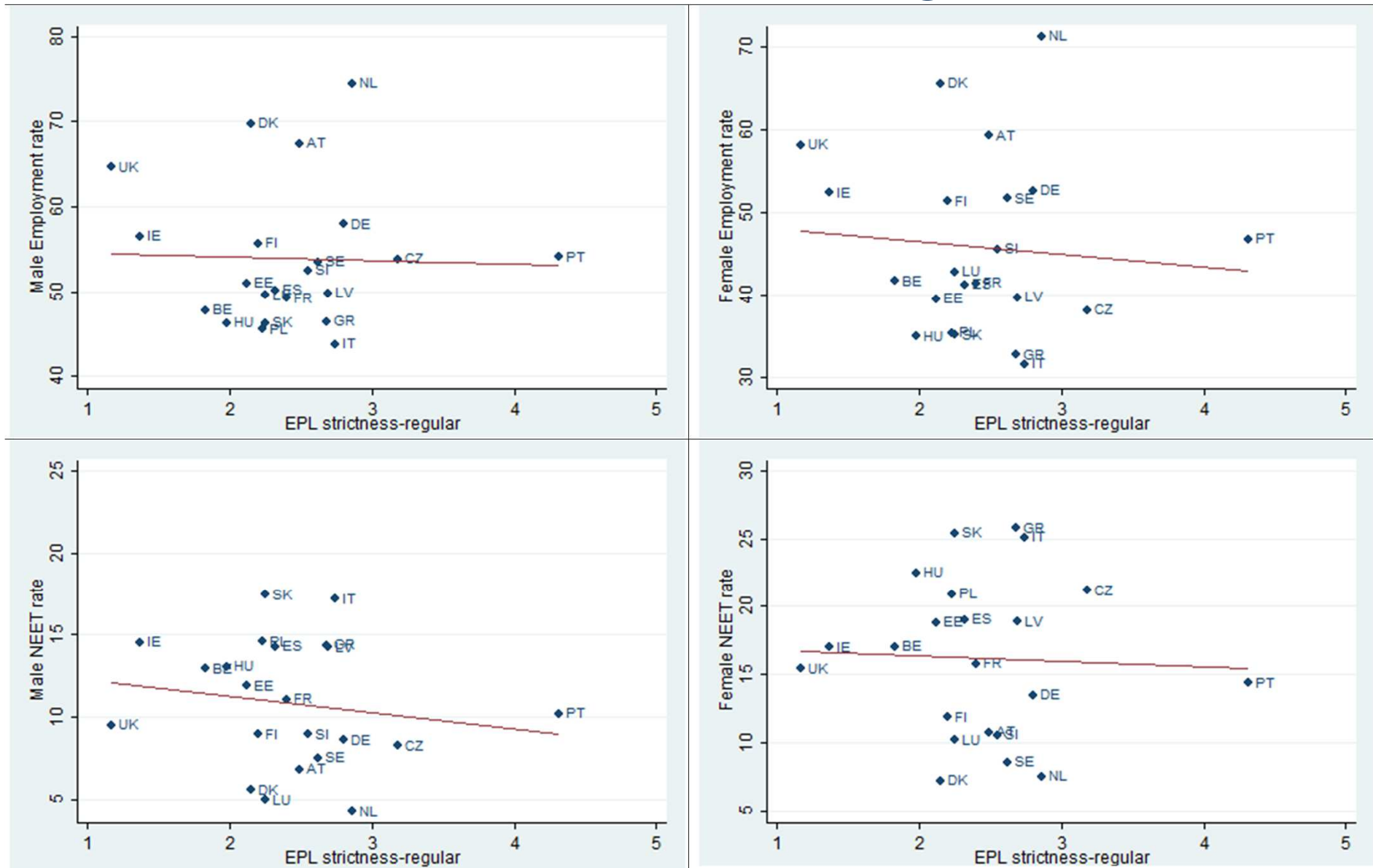
- OECD countries have extensively reduced strictness both in EPL than PRM.



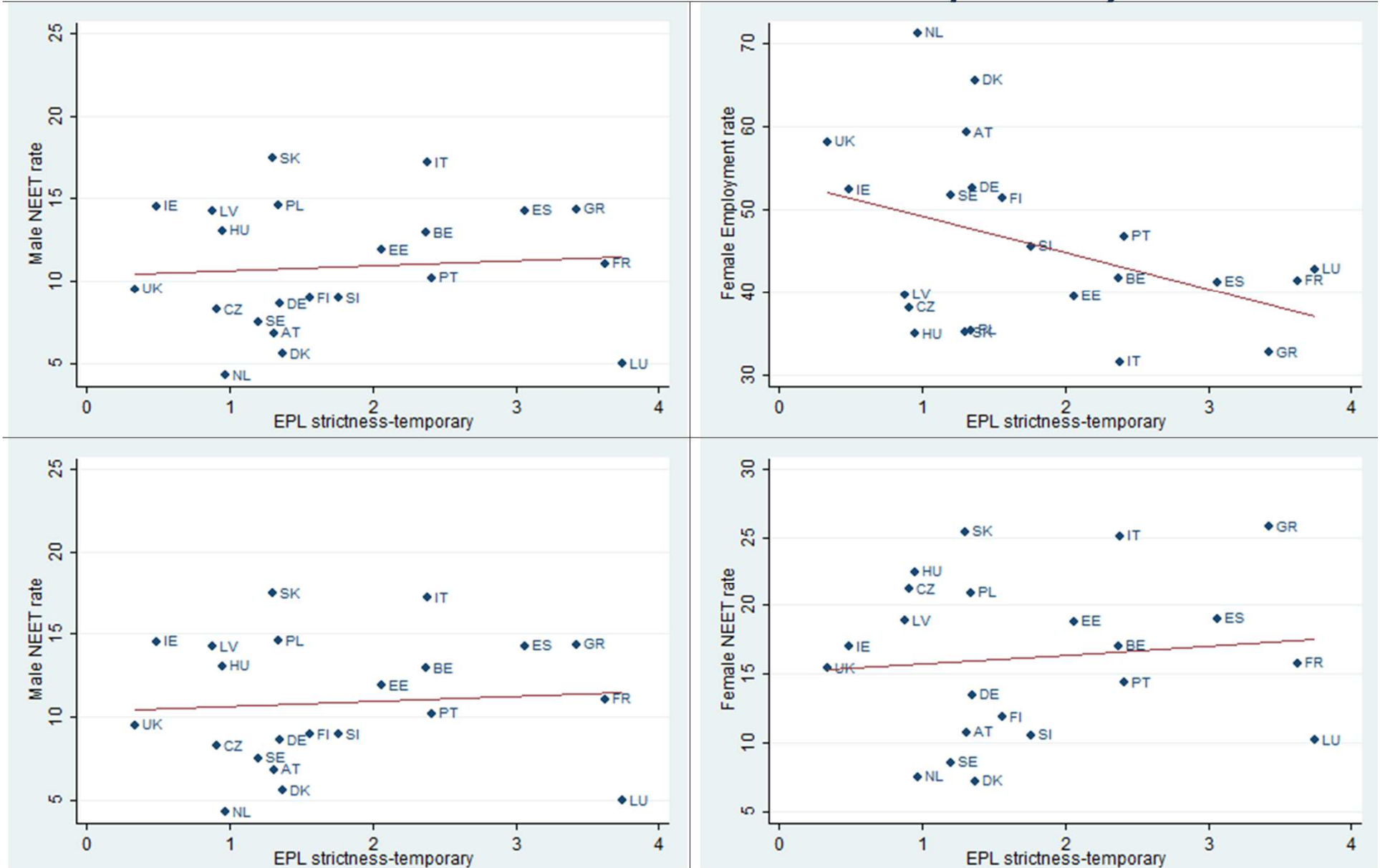
Descriptive evidence: correlations between ER, NEET rate and high education



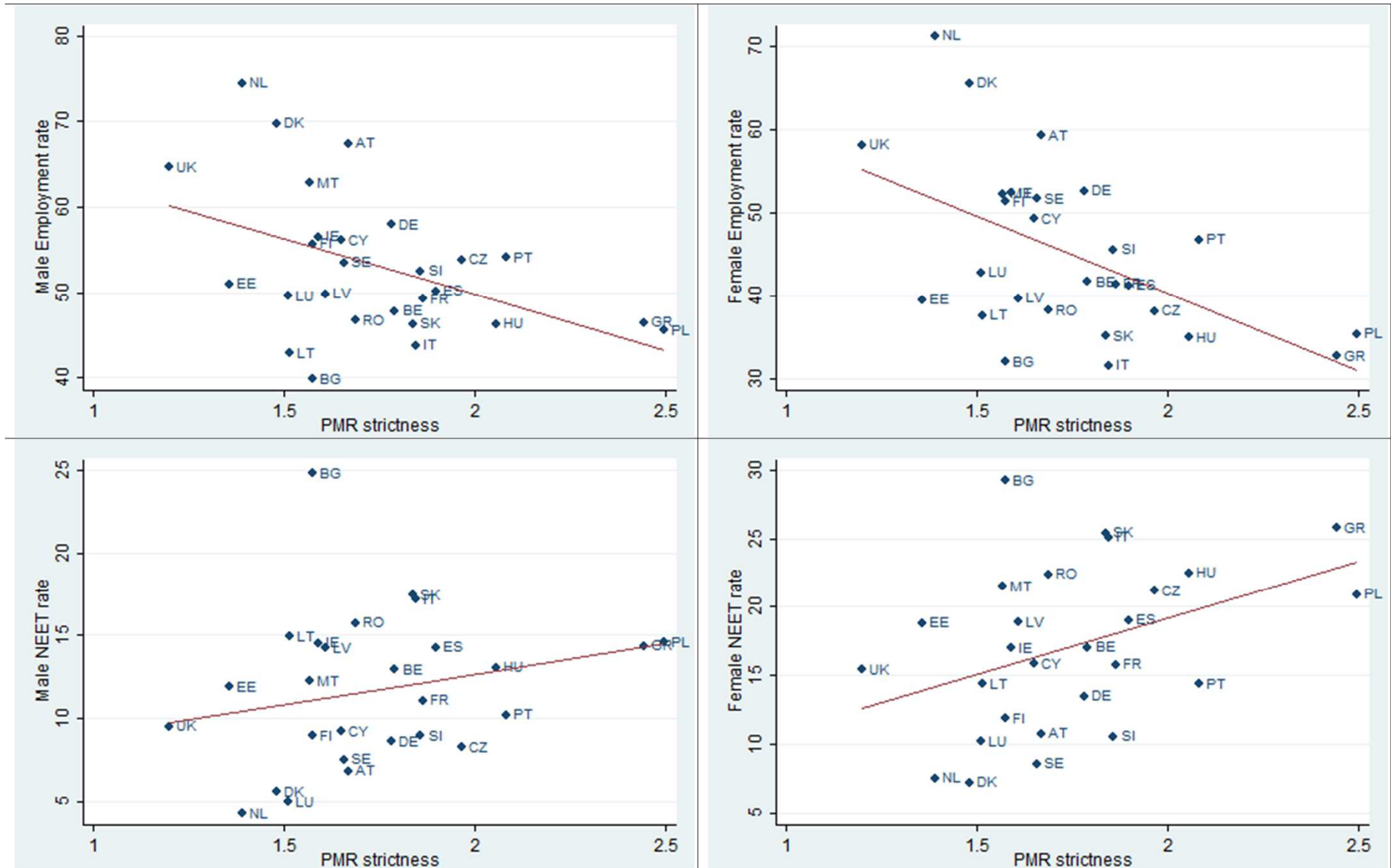
Descriptive evidence: correlations between ER, NEET rate and EPL strictness-regular



Descriptive evidence: correlations between ER, NEET rate and EPL strictness-temporary



Descriptive evidence: correlations between ER, NEET rate and PMR strictness



Empirical strategy

$$Y_{it} = \alpha + \beta_1 Educ + \beta_2 EPL_{it} + \beta_3 PMR_{it} + \beta_4 X_{it} + c_i + \tau_t + \varepsilon_{it}$$

Y is a gender-specific labour market indicator (Employment and NEET rates) in country i at time t ,

Educ is the share of the youth population with tertiary education,

EPL indicates the strictness of employment regulation,

PMR is the indicator of the strictness of product market regulation,

X is a vector of country-level time varying controls (the real GDP growth rate, Cohort dimension, the share of part-time,)

c_i are country fixed effects, **τ_t** are time fixed effects and **ε** the error term

Main estimates: Effect of the Tertiary Education and regulation on the labour market indicators

VARIABLES	Employment rate			Neet rate		
	Males	Females	M-F	Males	Females	F-M
% males with tertiary education	0.436*** [0.161]		0.185 [0.139]	0.003 [0.072]		0.125 [0.164]
% females with tertiary education		0.000 [0.088]	0.237** [0.097]		0.182*** [0.042]	0.122 [0.114]
Regulation:						
EPL_reg	6.701*** [1.521]	4.984*** [1.198]	1.925*** [0.719]	-1.278* [0.682]	0.367 [0.569]	1.592* [0.849]
EPL_temp	0.269 [0.554]	0.132 [0.444]	-0.048 [0.270]	0.118 [0.249]	0.061 [0.211]	-0.020 [0.319]
PMR	-3.449* [1.760]	-1.214 [1.361]	-2.331*** [0.830]	2.085*** [0.789]	1.058 [0.646]	-0.842 [0.979]
Time FE	yes	yes	yes	yes	yes	yes
Country FE	yes	yes	yes	yes	yes	yes
Structural controls	yes	yes	yes	yes	yes	yes
Constant	18.407*** [6.209]	17.072*** [4.830]	-0.107 [2.932]	26.255*** [2.784]	24.349*** [2.292]	-2.765 [3.460]
Observations	301	301	301	301	301	301
R-squared	0.902	0.956	0.898	0.912	0.965	0.791

Standard errors in brackets

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

Our main findings

- High education is quite important for males, since it significantly increases the male employment rate, while it seems to have no effect on the NEET rate.
- In the case of young women, high education seems to have no effect on the employment rate, while it significantly increase the NEET rate (probably due to increasing participation affecting the unemployment component of NEET)
- EPL of temporary contracts does not seem to significantly affect labour market performance of either young females or males, while EPL of regular employment positive affect the employment rate (both for men and women) and reduce the NEET rate for men.
- PMR seems relevant particularly for male employment, since more rigid product markets are associated with a lower male employment rate and increase also the NEET rate.

Main estimates: Effect of the Interaction between Tertiary Education and regulation on the labour market indicators

VARIABLES	Employment rate			Neet rate		
	Males	Females	M-F	Males	Females	F-M
% males with tertiary education	0.816** [0.377]		1.364*** [0.512]	0.633*** [0.162]		▼ -0.460 [0.628]
% females with tertiary education		0.567*** [0.185]	-0.966*** [0.337]		0.236*** [0.088]	▼ -0.008 [0.413]
Regulation:						
EPL_reg	7.874*** [1.831]	5.987*** [1.381]	1.233 [0.858]	▼ 0.930 [0.785]	1.493** [0.657]	▼ -0.044 [1.050]
PMR	-4.007** [1.995]	▼ -0.097 [1.560]	-3.460*** [0.914]	▼ 0.897 [0.855]	▼ -0.164 [0.742]	▼ -0.879 [1.119]
Educ(males)*EPL	▼ -0.151 [0.137]		▼ -0.212 [0.205]	-0.293*** [0.059]		0.509** [0.251]
Educ(males)*PMR	▼ -0.019 [0.112]		▼ -0.383 [0.250]	▼ 0.016 [0.048]		▼ -0.372 [0.307]
Educ(females)*EPL		▼ -0.089 [0.061]	▼ 0.166 [0.116]		-0.087*** [0.029]	▼ -0.189 [0.142]
Educ(females)*PMR		-0.178*** [0.067]	0.438** [0.190]		0.064** [0.032]	▼ 0.332 [0.233]
Time FE	yes	yes	yes	yes	yes	yes
Country FE	yes	yes	yes	yes	yes	yes
Structural controls	yes	yes	yes	yes	yes	yes
Constant	17.831*** [6.101]	13.852*** [4.749]	3.129 [3.036]	24.204*** [2.615]	24.650*** [2.260]	1.376 [3.717]
Observations	▼ 301	▼ 301	▼ 301	▼ 301	▼ 301	▼ 301
R-squared	▼ 0.903	▼ 0.958	▼ 0.908	▼ 0.920	▼ 0.967	▼ 0.799

Standard errors in brackets

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

Our main findings

Allowing for interactions between high education and regulation:

- For women high education has positive effect on employment, but decreasing with PMR strictness
 - A higher proportion of women graduates reduces the gender employment gap; however, this effect is reduced by the PMR;
- In the case of the NEET rate, the positive effect of high education for female is mitigated by EPL (regular) strictness;
- In general, interaction between PMR and high education seems more relevant for employment, while interaction between EPL and education particularly affects NEET rate (probably due to its effect on labour market participation).

Further estimates (1): The different components of PMR

VARIABLES	Employment rate			Neet rate		
	Males	Females	M-F	Males	Females	F-M
% males with tertiary education	0.566*** [0.159]		0.264** [0.126]	-0.043 [0.074]		0.106 [0.161]
% females with tertiary education		0.065 [0.089]	0.213** [0.088]		0.147*** [0.042]	0.134 [0.112]
Regulation:						
EPL_reg	6.196*** [1.467]	5.076*** [1.196]	1.371** [0.674]	-1.422** [0.685]	0.385 [0.559]	1.807** [0.858]
PMR_state	1.356 [0.909]	0.193 [0.736]	1.006** [0.419]	0.818* [0.425]	-0.093 [0.344]	-0.878 [0.533]
→ PMR_entrepreneurship	-7.345*** [1.269]	-3.275*** [1.032]	-4.134*** [0.580]	1.590*** [0.593]	2.154*** [0.482]	0.549 [0.738]
PMR_trade	0.180 [0.717]	0.533 [0.580]	-0.224 [0.329]	0.121 [0.335]	-0.254 [0.271]	-0.305 [0.418]
Time FE	yes	yes	yes	yes	yes	yes
Country FE	yes	yes	yes	yes	yes	yes
Structural controls	yes	yes	yes	yes	yes	yes
Constant	26.268*** [5.906]	21.275*** [4.819]	3.278 [2.726]	24.825*** [2.758]	22.012*** [2.252]	-3.505 [3.472]
Observations	301	301	301	301	301	301
R-squared	0.912	0.957	0.913	0.914	0.968	0.793

Standard errors in brackets

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

Further estimates (2): Quality of tertiary education (employment rate)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	er_1529_m	er_1529_m	er_1529_m	er_1529_f	er_1529_f	er_1529_f	er_1529_gap	er_1529_gap	er_1529_gap
% males with tertiary education		0.464*** [0.161]	0.564*** [0.165]					0.318** [0.130]	0.301** [0.129]
% males graduating in MST	0.178* [0.101]	0.200** [0.100]	0.593*** [0.200]				0.033 [0.080]	0.002 [0.073]	0.407** [0.158]
% females with tertiary education					0.005 [0.087]	0.050 [0.090]		0.171* [0.088]	0.207** [0.089]
% females graduating in MST				0.007 [0.106]	0.007 [0.106]	0.532* [0.297]	0.284*** [0.107]	0.357*** [0.097]	-0.379 [0.297]
EPL_reg	7.218*** [1.532]	7.235*** [1.511]	7.143*** [1.499]	5.040*** [1.185]	5.043*** [1.188]	5.196*** [1.185]	2.101*** [0.741]	2.159*** [0.673]	1.808*** [0.676]
PMR	-3.856** [1.759]	-2.517 [1.795]	0.024 [2.103]	-1.285 [1.359]	-1.269 [1.389]	0.056 [1.549]	-2.293*** [0.851]	-0.853 [0.802]	0.113 [0.977]
GradMTS(males)*PMR			-0.217** [0.095]						-0.265*** [0.093]
GradMTS(females)*PMR						-0.294* [0.156]			0.495*** [0.180]
Time FE	yes	yes	yes	yes	yes	yes	yes	yes	yes
Country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes
Structural controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	22.049*** [6.091]	12.179* [6.909]	9.103 [6.986]	17.367*** [4.481]	17.205*** [5.205]	14.027** [5.446]	3.752 [2.941]	-7.958** [3.082]	-7.294** [3.172]
Observations	301	301	301	301	301	301	301	301	301
R-squared	0.901	0.904	0.906	0.956	0.956	0.956	0.890	0.910	0.913

Standard errors in brackets

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

Further estimates (2): Quality of tertiary education (NEET rate)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	neet_rate_m	neet_rate_m	neet_rate_m	neet_rate_f	neet_rate_f	neet_rate_f	neet_gap	neet_gap	neet_gap
% males with tertiary education		▼ -0.009 [0.072]	▼ -0.006 [0.075]					▼ 0.221 [0.159]	▼ 0.199 [0.159]
% males graduating in MST	-0.106** [0.045]	-0.107** [0.045]	▼ -0.096 [0.090]				0.252*** [0.090]	0.238*** [0.089]	0.589*** [0.195]
% females with tertiary education					0.186*** [0.041]	0.185*** [0.043]		▼ 0.060 [0.108]	▼ 0.079 [0.110]
% females graduating in MST				▼ 0.038 [0.052]	▼ 0.047 [0.050]	▼ 0.034 [0.142]	▼ -0.098 [0.121]	▼ -0.057 [0.119]	-0.867** [0.367]
EPL_reg	-1.463** [0.674]	-1.463** [0.675]	-1.466** [0.677]	▼ 0.329 [0.583]	▼ 0.430 [0.563]	▼ 0.426 [0.565]	1.999** [0.840]	2.016** [0.826]	1.683** [0.834]
PMR	1.432* [0.774]	1.407* [0.802]	▼ 1.474 [0.949]	▼ 0.612 [0.669]	1.191* [0.658]	▼ 1.161 [0.739]	▼ -0.534 [0.963]	▼ 0.294 [0.983]	▼ 0.664 [1.205]
GradMTS(males)*PMR			▼ -0.006 [0.043]						-0.224* [0.115]
GradMTS(females)*PMR						▼ 0.007 [0.074]			0.517** [0.222]
Time FE	yes	yes	yes	yes	yes	yes	yes	yes	yes
Country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes
Structural controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	30.168*** [2.679]	30.354*** [3.087]	30.272*** [3.153]	29.165*** [2.205]	23.530*** [2.466]	23.603*** [2.598]	-3.149 [3.330]	-9.578** [3.780]	-8.007** [3.913]
Observations	▼ 301	▼ 301	▼ 301	▼ 301	▼ 301	▼ 301	▼ 301	▼ 301	▼ 301
R-squared	▼ 0.914	▼ 0.914	▼ 0.914	▼ 0.963	▼ 0.965	▼ 0.965	▼ 0.793	▼ 0.802	▼ 0.806

Standard errors in brackets

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

Conclusions

- Our estimates show that high education per se is not a guarantee of better labour market outcomes for the young, particularly in the case of females
- Employment opportunities are significantly negatively affected by PMR, particularly for young men;
- However, not all the PMR components have negative effects on youth labour market performance
- Our (first) attempts to control for the quality of education (proxied by the type of degree) confirm that high education per se is not sufficient to increase the youth employment rate
 - But quantity and quality of education are both important in increase the employment rate
- The interaction between the quality of education and PMR is particularly relevant for young women

Future research

- Country fixed effects allow to control for unobserved heterogeneity caused by time invariant cross-country differences, but not for potential inverse causality
→ IV estimates (candidate instruments, other than lags, R&D expenditure, public expenditure on tertiary education, % of adult with tertiary education)