What the NEETs Need?
The Effect of Combining Activation Policies and Cash Transfers in the French Youth Guarantee

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Overview

Research Question

What the NEETs Need?

1. Youth Not in Employment, Education or Training (NEETs) have been seen as a problem in 2010s, possibly reviving with Covid-19 crisis

- **Some EU countries**: high rate of young NEETs, booming in the crisis
  France: NEET rates have been more stable, but remain higher than closest comparables, especially for foreign-born youths Data
- **NEET periods can become a poverty trap** for fragile youths.
  - Poorly educated and less advantaged youths are more likely to be NEET (Carcillo and Königs, 2015)
  - Unemployment has "scarring" permanent consequences on employment (Oreopoulos et al., 2012; Schwandt and Von Wachter, 2019; Rothstein, 2019; Mroz and Savage, 2006) and health (Roulet, 2017)
  - Long-lasting difficulties for individuals who end up out of education prematurely (Brunello and De Paola, 2014)

$\Rightarrow$ how can policy break the loop?
$\Rightarrow$ relevant question for labor economics: are NEETs – at least in part – a supply-side failure (leaving some excess demand)?

Research Question

What the NEETs Need?

2. Active Labor Market Policies are a primary response, but...

- **... effectiveness of activation policies is uncertain**:
  - sometimes zero or even negative (Aeberhardt et al., 2020)
  - depending on the mix of actions: in meta-analysis, formal training has larger effects after one year, job-search assistance and *work-first* programs have an impact also in the short-run (Card et al., 2018)
  - depending on target population: youths (Kluve, 2010), behavioural traits (Babcock et al., 2012), market conditions (Crépon et al., 2013), ...
- **... cash transfers seen as a solution to low take-up** as well as a way to finance search costs, but they can decrease search effort.
  - Strongly advocated by policy institutions (OECD, 2013)
  - Heckman et al. (1999) stress the importance of financial constraints and opportunity costs in job search
  - Cash transfers might also reduce search effort, for example due to moral hazard or liquidity effects (Card et al., 2007; Chetty, 2008)

$\Rightarrow$ The effective mix of activities and the right balance with cash transfers is difficult to assess ex-ante in a particular context

This paper

This paper evaluates an innovative French program, *Garantie Jeunes*:

- targeting fragile NEETs between 16 and 25 years old
- combines cash transfers with intensive soft-skills training, counseling for a year and short work experiences
- designed based on previous insights (Gurgand and Wargon, 2013)

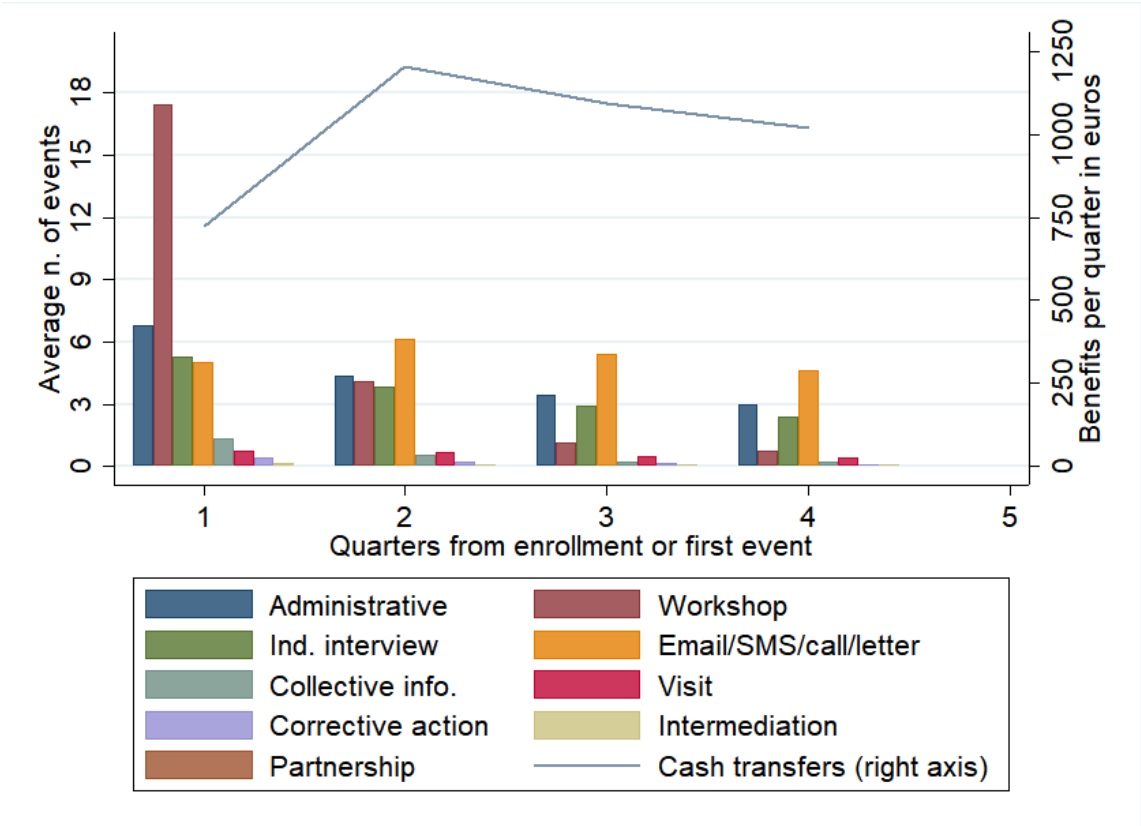
Results:

- **I highlight significant and strong positive effects of the program** on employment, earnings and hours worked:
  - after one year of exposure to *Garantie Jeunes*, the probability of employment increased by 1.7 points, hours worked by 5, and earnings by 62 euros on a quarterly basis
  - in terms of LATE on takers, +28 percentage points in the probability of employment, +80 hours worked and +1004 Euros of earnings
  - no evidence of lock-in, no significant effect on employment in the first year of exposure or enrollment
  - Effect concentrated in temporary contracts and agency jobs
- **The costs of Garantie Jeunes balance out the benefits**: MVPF $\simeq 1$
- **I develop a tailored diff-in-diff methodology** which generalizes to settings with staggered adoption where units enter the population of interest in group-cohort cells, and are exposed to treatment at different tenures

Overview

Garantie Jeunes: the Program

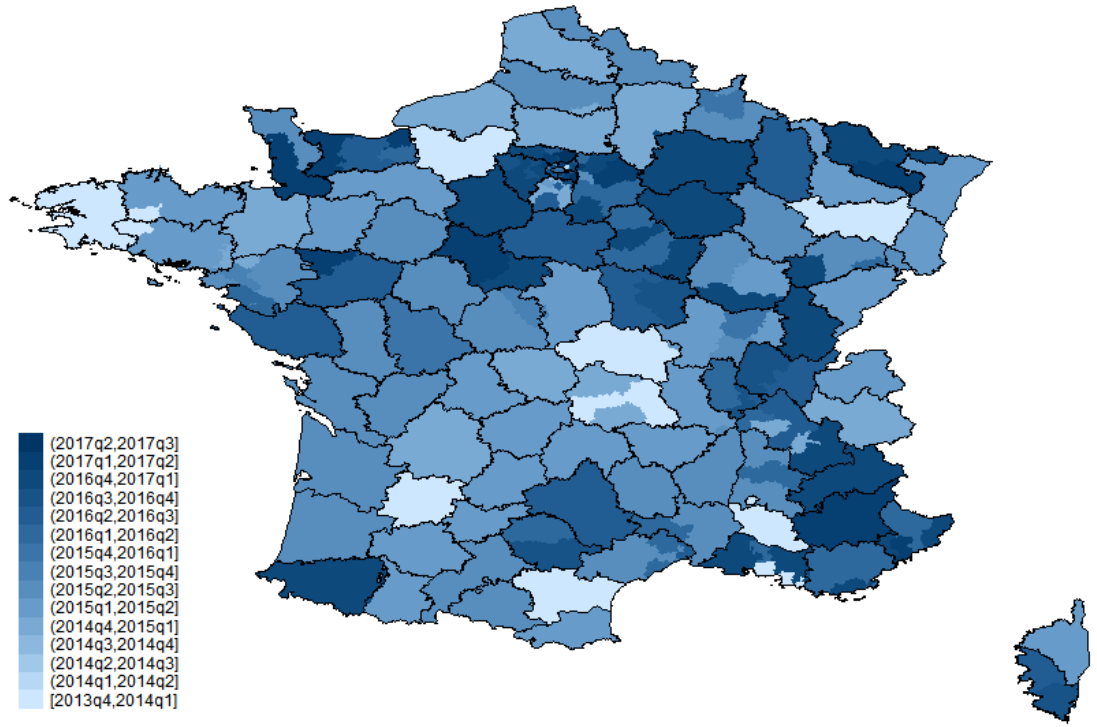
- Co-financed by EU omonimous hat-initiative "Youth Guarantee"
- The French version of the program:
  - 6 weeks of collective courses + regular counseling and "immersions" in firms
  - cash transfers equivalent to 484,82 Euros in April 2018.



- More generous and more demanding than other programs (standard YEC program, club jeunes, RCA). Comparison with standard YEC program

Garantie Jeunes: Adoption and Enrollment

- Pilot in Oct. 2013, expanded progressively after evaluation (Gaini et al., 2018)



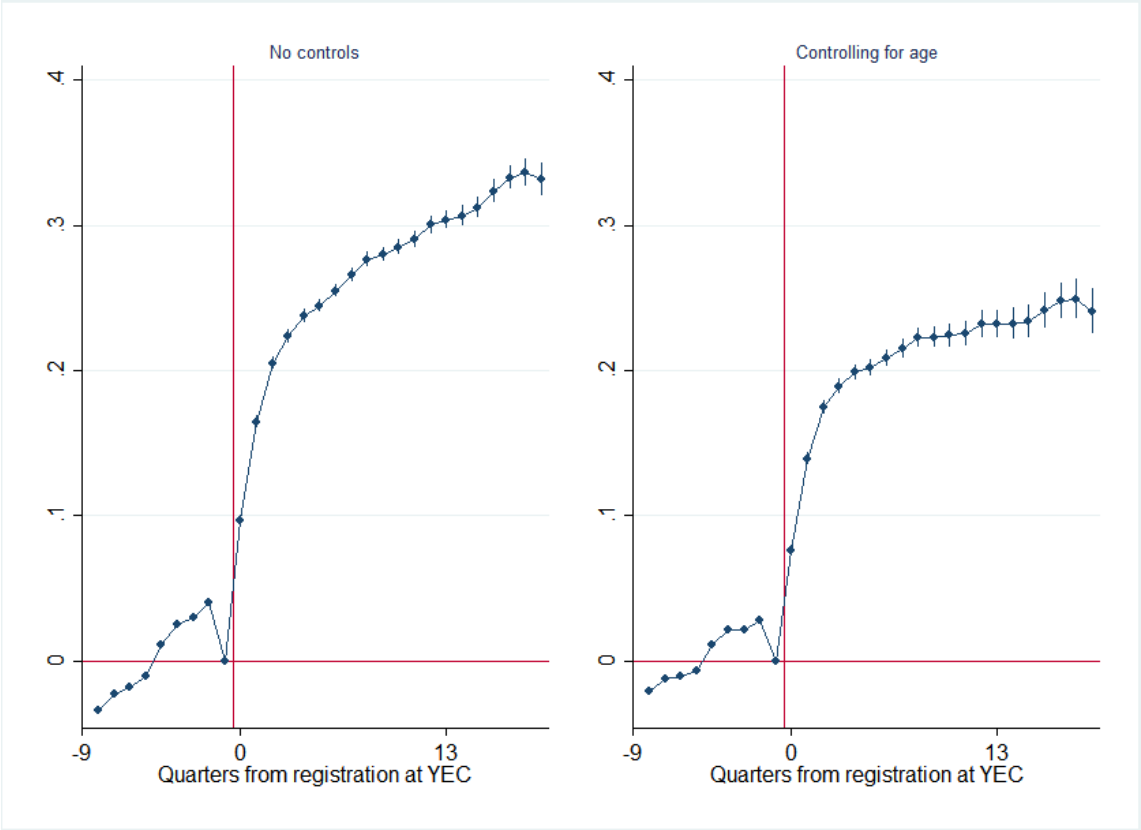
DOM: Guadeloupe - 2015q2; Martinique - 2015q2; Guyane- 2015q4; La Réunion - 2013q4; Mayotte - 2017q1.

- Selection process for enrollment: earning threshold + condition of "fragility" and "motivation" assessed by local commissions

Our Population: Youths at YECs

- Youth employment centers (YECs, *Missions Locales*) are in charge of the implementation. Large population of interest ($\sim$ 500.000 new youths each year). Two points to keep in mind:
  1. Time since registration is related to potential outcomes

Average employment rates in the quarters precedent/following registration at YEC, controlling or not for age



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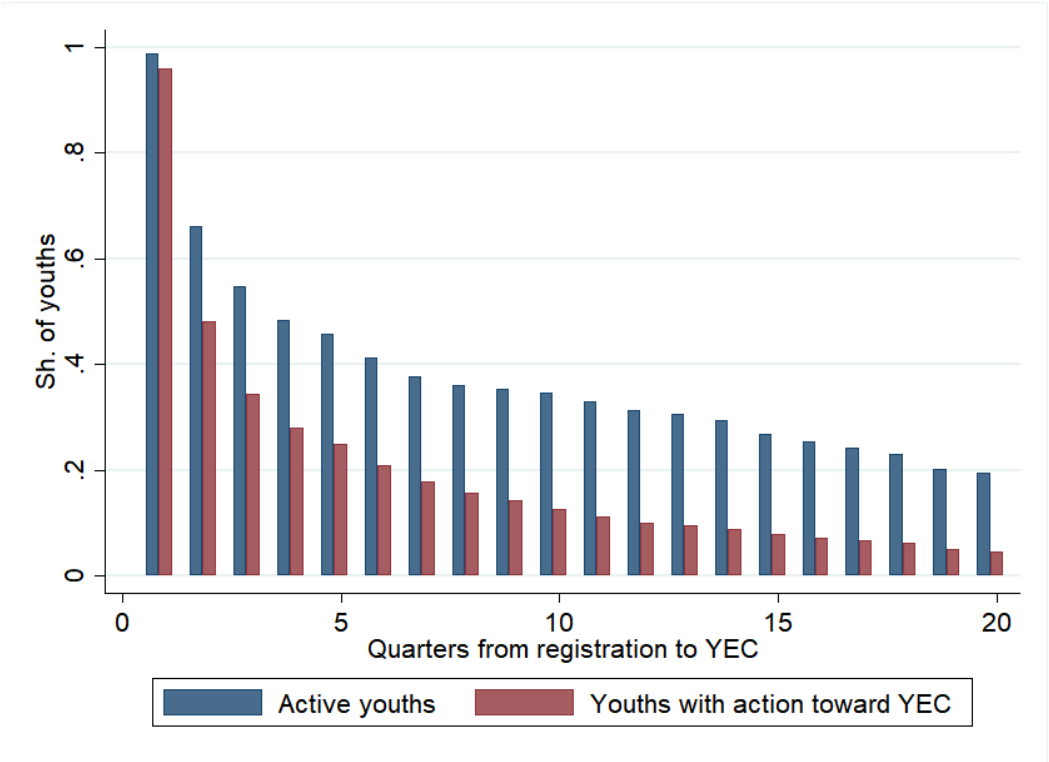
  1. Time since registration is related to potential outcomes
  2. Time since registration is a potential source of selection into treatment

Share of youths considered active at the YEC and youths who actually undertake action toward YEC over time from registration



Overview

Data

Two different administrative sources:

- **I-Milo:** Administrative dataset of *Missions Locales* (YEC). Includes detailed information youths at YECs, including housing, marital and family status, citizenship, mean of transportation (even skills, hobbies, languages, only for non-random samples); detalied information on activities proposed to youths, information on counselors and YECs structure.
- **Acoss dataset (from DADS/DSN):** information on any contract (employment status, wage, hours) signed by any of the youths that were registered at YECs in 2013-2016, over 2013-2017.

Sample selection:

- Drop individuals older than 25 in January 2013, or that created an ID after Dec. 31st 2016;
- Drop those who registered before 2013;
- Trim extreme values ($> p99$) in wages and hours.

The resulting dataset is a "big" panel: about 2 million individuals over 2013-2017, with information aggregated quarterly

Descriptives of the sample

Population of interest is low-educated, gender-balanced, and tends to be premature in "adulthood" activities

Characteristics of the overall population, of youths in YECs (sample observed), and of youths registering in YECs standard program CIVIS and in GJ

	All youths 16-25 (Census) (1)	Youths in YECs (2)	Youths in std. prog. (3)	Youths in GJ (4)
Number of youths (stock)	9327476	1967000	444309	113085
Number of youths (quarter inflow)		125689	41471	14899
Lower than secondary educ.	0.394	0.373	0.424	0.467
Upp. secondary edu. diploma	0.434	0.519	0.541	0.507
Avg. age	20.3	20.1	19.7	18.8
Female	0.491	0.491	0.511	0.463
French nat.	0.915	0.912	0.919	0.929
Empl. last quarter	0.297	0.349	0.335	0.212
Lives independently	0.230	0.365	0.369	0.354
Has kids	0.0390	0.0838	0.0878	0.0496

Notes. The table compare the characteristics of youths in different population. The first column concerns all youths aged 16-25 in France, as reported by the Census in years 2013-2016. The second column reports all youths in the sample, namely all youths who registered at YECs in the 2013-2016 period. The third and fourth column reports respectively information on youths enrolling in the standard program offered at YECs, CIVIS, and enrolling in *Garantie Jeunes*. All lines report the characteristics of youths in the sample, except the second line which reports the inflow of youths, on average over 2013-2016 for column 2, in the first quarter of 2014 for column 3 and in the first quarter of 2017 for the last column.

Schematization of the Setting

- Staggered adoption in time (t) and waves (w)
- Units enter the population of interest in group (w)-cohort (c) cells, and have tenure in the YEC h

$h = 1$

$t = 1$	$t = 2$	$t = 3$	$t = 4$	...
$i : (c = 1, w = 1, g = 0)$	$i : (c = 2, w = 1, g = 0)$	$i : (c = 3, w = 1, g = 1)$	$i : (c = 4, w = 1, g = 1)$	...
$i : (c = 1, w = 2, g = 0)$	$i : (c = 2, w = 2, g = 0)$	$i : (c = 3, w = 2, g = 0)$	$i : (c = 4, w = 2, g = 1)$	...
$i : (c = 1, w = 3, g = 0)$	$i : (c = 2, w = 3, g = 0)$	$i : (c = 3, w = 3, g = 0)$	$i : (c = 4, w = 3, g = 0)$	...
$i : (c = 1, w = 4, g = 0)$	$i : (c = 2, w = 4, g = 0)$	$i : (c = 3, w = 4, g = 0)$	$i : (c = 4, w = 4, g = 0)$	...
$i : (c = 1, w = 5, g = 0)$	$i : (c = 2, w = 5, g = 0)$	$i : (c = 3, w = 5, g = 0)$	$i : (c = 4, w =, g = 0)$	...
...	...	...	...	...

$h = 2$

$t = 2$	$t = 3$	$t = 4$	$t = 5$	...
$i : (c = 1, w = 1, g = 0)$	$i : (c = 2, w = 1, g = 1)$	$i : (c = 3, w = 1, g = 2)$	$i : (c = 4, w = 1, g = 2)$	...
$i : (c = 1, w = 2, g = 0)$	$i : (c = 2, w = 2, g = 0)$	$i : (c = 3, w = 2, g = 1)$	$i : (c = 4, w = 2, g = 2)$	...
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...	...	...	...	...

$h = ...$

Treated cells

$\Rightarrow$ Treatment exposure g (and possibly treatm. effect) depends on treatment group (wave), cohort of entrance in the population, and tenure in the population.

Identification: Tailored Diff-in-Diff

- An extension of De Chaisemartin and D'Haultfœuille (2020), which adapts to two facts:
  - Youths who registered before the introduction of GJ can still enroll in GJ at later tenure
  - Youths who register when GJ is already offered share the same treatment dynamic over tenure in YEC (not over cardinal time)

Define potential outcomes in terms of exposure to treatment $G^h_{w,c}$:

$$Y_i^h(G^h_{w,c}) = \begin{cases} Y_i^h(g) & \forall\, g > 0 \\ Y_i^h(0) & \end{cases}$$

Tailored Diff-in-Diff: cell-level ITT

3 propositions:

1. **Unbiased estimator of group-cohort-tenure ITT:**

$$DID^h_{w,c} = Y^h_{w,c} - Y^h_{w,c'} - \sum_{w' \in \Omega_w} \frac{n_{w',c}}{N_{\Omega_{w,c}}} (Y^h_{i,w',c} - Y^h_{i,w',c'})$$

$$\forall\, given\, (w, c, h) : G^h_{w,c} > 0$$

Where

- w are waves of treatment by date of adoption, c are cohorts of entrance in the population, h is tenure in the YEC (time from first registration)
- $Y^h_{w,c} = \mathbb{E}(Y^h_i | W_i = w, C_i = c)$ is the average outcome of interest (take-up, employment, earnings, hours) in cell h, w, c
- c' is s.t. $G^h_{w,c'} = 0$ but $G^h_{w,c'+1} = 1$
- $\Omega_{w,c}$ is the set of waves such that $G^h_{w',c} = G^h_{w',c'} = 0$, for each $w' \neq w$ and $c' \neq c$. $n_{w'}$ is the number of individuals of cohort c in wave w' while $N_{\Omega_{w,c}}$ is the total number of individuals of cohort c in all waves $w' \in \Omega_{w,c}$

Under assumptions of independent groups, strong exogeneity, no anticipation and common trends (Balance checks), $DID^h_{w,c}$ is an unbiased estimator of

$$\Delta^{ITT}(h, w, c) = Y^h_{w,c}(g) - Y^h_{w,c}(0) \qquad \forall\, given\, (w, c, h) : G^h_{w,c} > 0$$

Example of results

Tailored Diff-in-Diff: aggregation of ITT

3 propositions

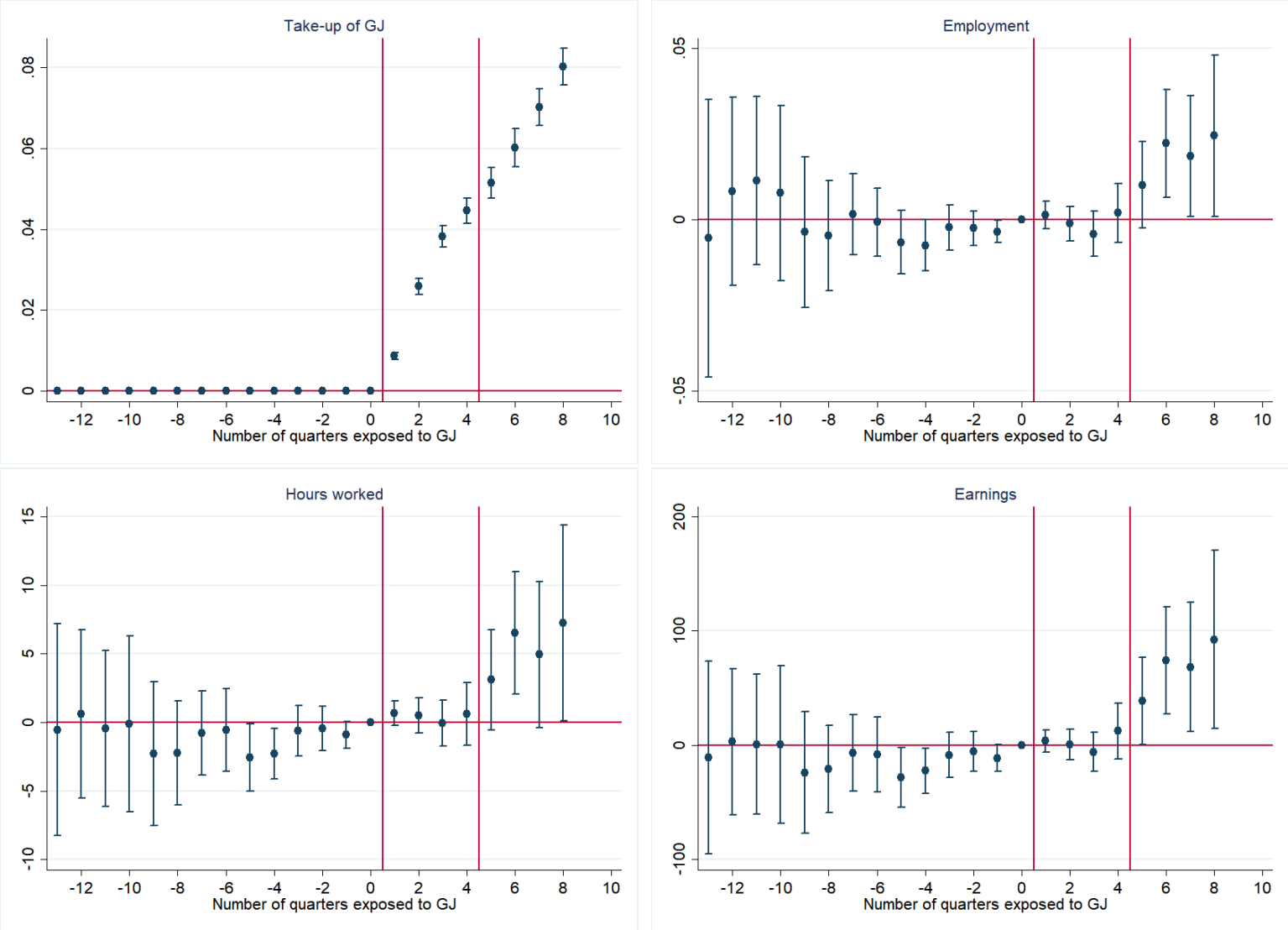
2. **Aggregate into unbiased estimator of average dynamic ITT** Given a seto of cell-specific estimators $DID^h_{w,c}$

$$DID^g := \sum_{(w,c|h):G=g} \frac{n_{w,c}}{\sum_{(w,c|h):G=g} n_{w,c}} DID^h_{w,c}$$

Is an unbiased estimator of the ITT effect of being exposed g quarters

$$\Delta^{ITT}(g) = \quad \mathbb{E}(Y^h_{w,c}(g) - Y^h_{w,c}(0)) \qquad (w,c,h) : G^h_{w,c} = g > 0$$

Results: dynamic by quarter



Notes. The figure reports results of the tailored diff-in-diff approach. The upper right panel reports the first stage effect, where the dependent variable is a dummy equal to one from the quarter of enrollment in GJ onward and the independent variable a dummy for exposure to GJ. The other three panel report the reduced-form coefficients: the dependent variables are employment, hours and earnings, while the independent variable is exposure to GJ. Point estimates are obtained as an average of cell-specific effects, weighted by the number of people in the cells, as in Equation **??**. Cell-specific effects were obtained as in Equation 1. Standard errors are obtained by bootstrap sampling with clustering at the YEC-level, corrected for multiple testing, and confidence intervals are reported at 95% confidence level.

Results

	Take-up of GJ (1)	Employment (2)	Hours (3)	Earnings (4)
ITT placebo eff. before exposure	0.000***	-0.00296	-1.16	-12.9
	(0.000)	(0.00287)	(0.789)	(8.71)
Total n.obs	8428617	8428617	8375514	8377882
ITT effect 1st year of exposure	0.0274***	-0.000596	0.418	1.99
	(0.000998)	(0.00294)	(0.726)	(7.59)
Total n.obs	7210133	7210133	7140558	7139810
ITT effect 2nd year of exposure	0.0609***	0.0169*	4.92*	61.2**
	(0.00211)	(0.00885)	(2.57)	(27.3)
Total n.obs	4727534	4727534	4659712	4660208
Mean for control 1st year in YEC		0.424	80	855
Mean for control 2nd year in YEC		0.496	128	1386
1st year of exposure				
LATE on takers		-0.0216	15.3	72.7
		(0.108)	(26.5)	(278)
2nd year of exposure				
LATE on takers		0.278*	80.8*	1004**
		(0.145)	(42.4)	(450)
LATE 2nd year of exposure, 1s year after enrollm.		-0.00815	-34.6	-194
		(0.0746)	(27.5)	(278)
LATE 2nd year of exposure, 2nd year after enrollm.		0.298**	123***	1524***
		(0.128)	(47.5)	(487)

Notes. The table reports the main results obtained following the tailored diff-in-diff methodology developed in Section 3. The upper panel reports weighted averages of the $DID^{h}_{w,c}$ coefficients where exposure is smaller than zero, between 1 and 4 quarters or above 4 quarters. The lower panel reports the estimates of LATE of GJ on employment, earnings and hours worked, obtained according to Equation **??**. Standard errors are bootstrapped and reported in parenthesis.

Tailored Diff-in-Diff: getting LATEs

3 propositions, adapted from dCdH:

3. **Estimate LATE from ITTs and probability of take-up**
   Consider a set of $DID^h_{w,c}$, unbiased estimators of $\Delta^{ITT}(h,w,c)$, the cell-specific ITT treatment effect. Let d be any actual treatment status (for example,a dummy for having been enrolled, or a dynamic indicator of number of periods exposed to treatment) and D^h_i the variable describing it. Then:
   a. $\sum_{(w,c|h):G^h_{w,c}=g} \frac{n_{w,c}}{\sum_{(w,c|h):G^h_{w,c}=g} n_{w,c}} [DID^h_{w,c}/Pr(D^h_{w,c}>0)]$ is an unbiased estimator of $\Delta^{LATE}(g) = \mathbb{E}(Y_i(d>0) - Y_i(0)|G^h_{w,c})$
   b. $DID^h_{w,c} = \sum_{d=1}^{g} \delta(d,h,w,c) Pr(D^h_{w,c}=d)$ for all w,c,h, where $\delta(d,h,w,c)$ is an unbiased estimator of $\Delta^{LATE}(d,h,w,c) = \mathbb{E}(Y_i(d) - Y_i(0)|W=w, C=c, H=h)$

Tailored Diff-in-Diff: getting LATEs

The second point of Proposition 3 delivers $|d| \cdot |h| \cdot |w| \cdot |c|$ unknowns and only $|h| \cdot |w| \cdot |c|$ equations $\Rightarrow$ need to impose further restrictions

A convenient set of restrictions includes imposing LATEs to be homogeneous across cohorts and waves, $\delta(d, h, w, c) = \delta(d, h)$. I also aggregate d and h in years rather than quarters. Then the regression to recover LATE is:

$$\begin{aligned} DID^{h}_{w,c} =& \delta(0 < d \leq 4, 0 < h \leq 4) Pr(0 < D^{h}_{w,c} \leq 4) \mathbb{1}(0 < h \leq 4) \\ &+ \delta(0 < d \leq 4, h > 4) Pr(0 < D^{h}_{w,c} \leq 4) \mathbb{1}(h > 4) \\ &+ \delta(d > 4, h > 4) Pr(D^{h}_{w,c} > 4) \mathbb{1}(h > 4) + \epsilon_{h,w,c} \end{aligned}$$

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Comparison with the Classical Event-Study Design

Following Borusyak and Jaravel (2017):

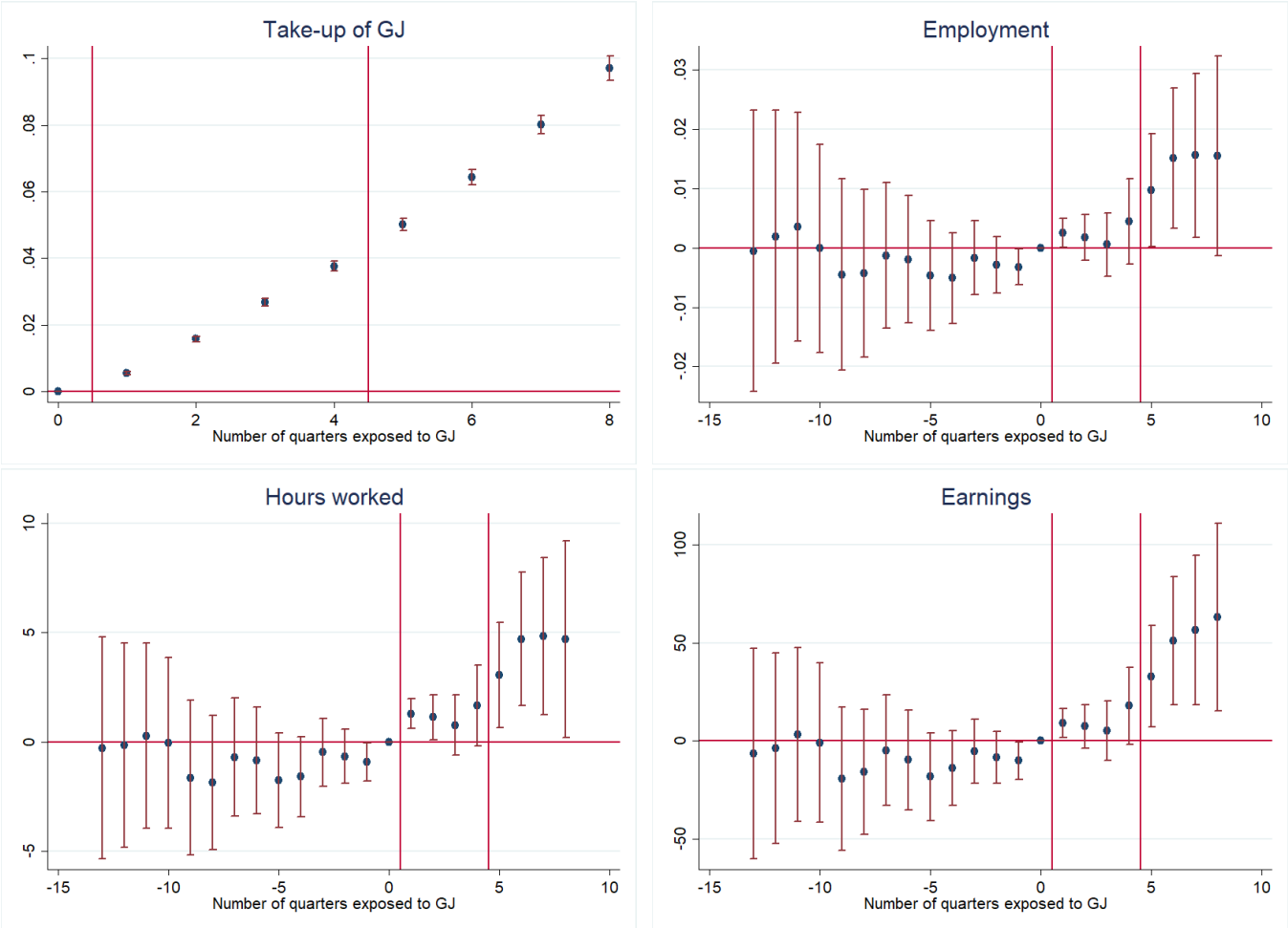
$$y_{i,t} = \sum_{g} \beta^{g} \mathbb{1}(G^{h}_{w,c} = g) + \gamma_{c,h} + \mu_{m,h} + \epsilon_{i,t} \tag{1}$$

Where:

- $\gamma_{c,h}$ are cohort-tenure fixed effects
- $\mu_{m,h}$ are YEC fixed effects (with each YEC belonging to one wave)

Results: Event-Study Design

Intent to treat (ITT) estimates using the event-study approach



Notes. The upper right panel of the figure reports coefficients and 95% confidence intervals for the first stage regression, where the dependent variable is a dummy equal to one from the quarter of enrollment in GJ onward, and the independent variable is a dummy for exposure to GJ, as in Regression **??**. The other three panels report reduced-form regressions where the outcomes are a dummy equal to one if the individual has been employed at least once in the quarter, the total amount of earnings, and the total amount of hours.

Heterogeneity

By kind of contract Table

- The effect in the second year of exposure is mostly made of **temporary contracts** (+0.7 pp.) and **agency jobs** (+0.5 pp.).
- Lower and insignificant effect considering only open-ended (+0.3 pp.).
- Apprenticeships increase of .1 p.p. since the first year of exposure.

By youth characteristic Table

- The effect is lower for aged 16-18 vs. others
- The effect is larger but more noisy for youths with less than upper secondary education

Cost-benefit analysis

Marginal Value of Public Funds (Hendren and Sprung-Keyser, 2020) for *Garantie Jeunes*:

$$MVPF = \frac{WTP}{NetCost}$$

Where

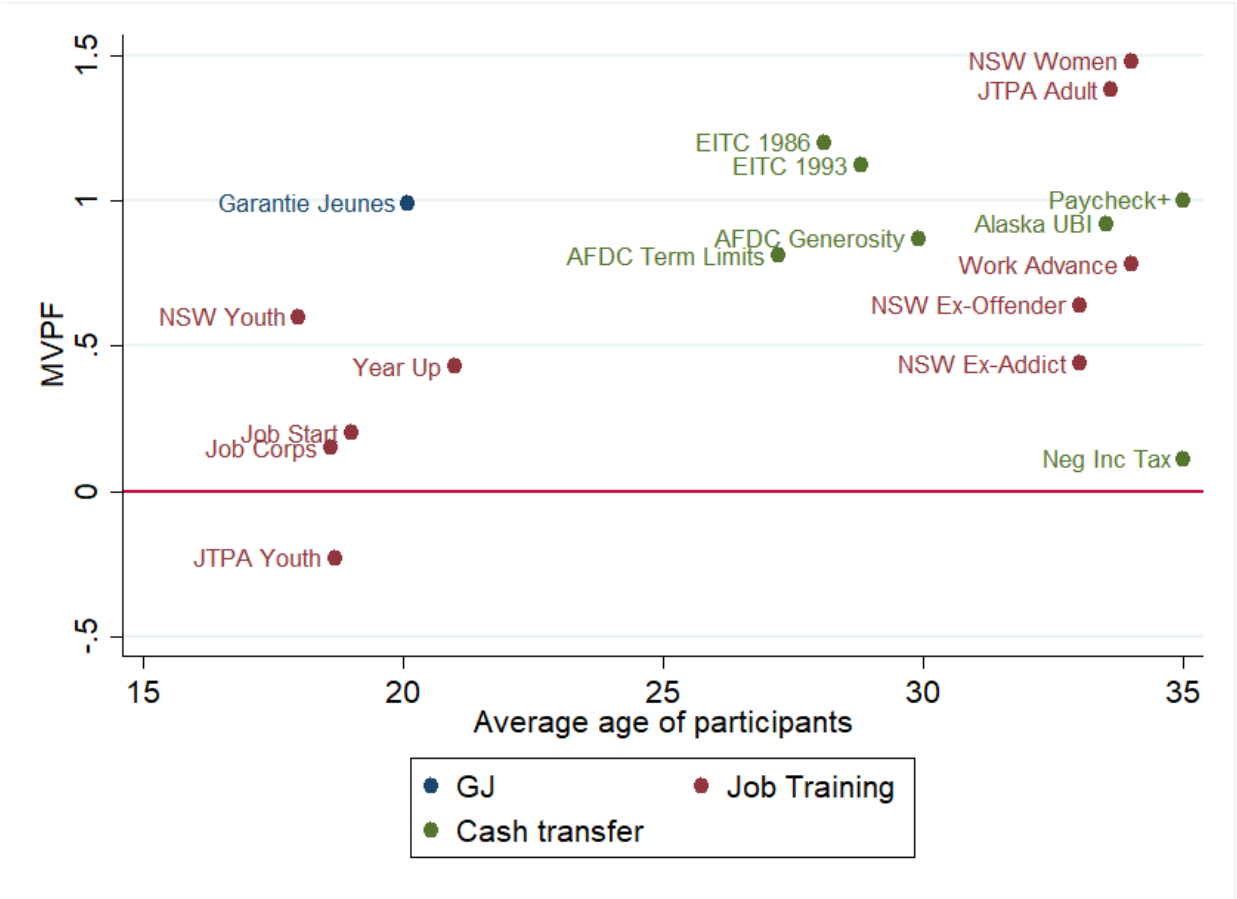
- *WTP* represents the aggregate willingness to pay for the program (impact of the policy on after-tax income+net cash transfer). Assume zero effect after one year, since the literature suggests that job-search assistance has effects mostly in the short run (Card et al., 2018) and effect is concentrated on temporary contracts.
- *NetCost* is the funding attributed to each YEC for each youth in GJ (€1546)

$\Rightarrow$ MVPF $\sim$ 1

Cost-benefit analysis

In the case of *Garantie Jeunes* we get what we pay for:

MVPF for *Garantie Jeunes* and for comparable programs, by average age of participants



Notes. The figure reports the Marginal Value of Public Funds (MVPF) *Garantie Jeunes* and for programs in the "Job Training" and "Cash Transfer" categories analyzed by Hendren and Sprung-Keyser (2020) in the US context, plotted over average age of the participants in the program.

Discussion

Interesting comparison: Aeberhardt et al. (2020) on pilot program RCA in 2011:

- Activation part is the standard at YECs: no initial training, no intensive counseling, no work-first job immersions
- Only additional cash transfer, half the monthly amount of the one of GJ, spread over two years, tapers down from the first Euro
- Random assignment to all youths in 35 YECs and two cohorts, *after* they already registered, for the rest is business as usual

$\Rightarrow$ They find time staying in YECs $\uparrow$, employment in 6 months $\downarrow$, one-two years from enrollment it's non-significant.

Lessons from the different results of GJ and RCA?

- Important role of **activation part** (training, intensive counseling and *work first* approach)
- **Lower lock-in** effect due to more concentrated cash transfer and no initial tapering in GJ. Aeberhardt et al. (2020) are also not able to check impact after cash transfer has become zero
- Importance of **targeting and unobserved heterogeneity**: GJ includes both initial screening by sunk application cost (youths with low expected benefit don't apply) and active selection of "motivated" youths
- **YEC-level effects**: GJ structurally changes the organization of YECs, and requires a lot of monitoring and reporting

Conclusions

To wrap up:

- Strong positive effect of *Garantie Jeunes*, still in line with pilot evidence and with other success cases
- Comparison with unsatisfactory results of RCA suggests importance of targeting, activation and work-first activities, and focus by YECs on the program
- Costs roughly balance out the benefits
- Methodological innovations on Diff-in-Diff can make a (small) difference. I propose a tailored diff-in-diff for populations organized in cohorts and groups receiving treatment in different waves at different tenures. Applicable e.g. to schools (Lafortune et al., 2018), firms...

Extentions (WIP):

- How to consider substitution between different programs in the cost-benefit analysis?
- Negative externalities? What happens to non-takers?
- Positive externalities? Effect on crime, given the particular population?
- ... ?

Thank you!

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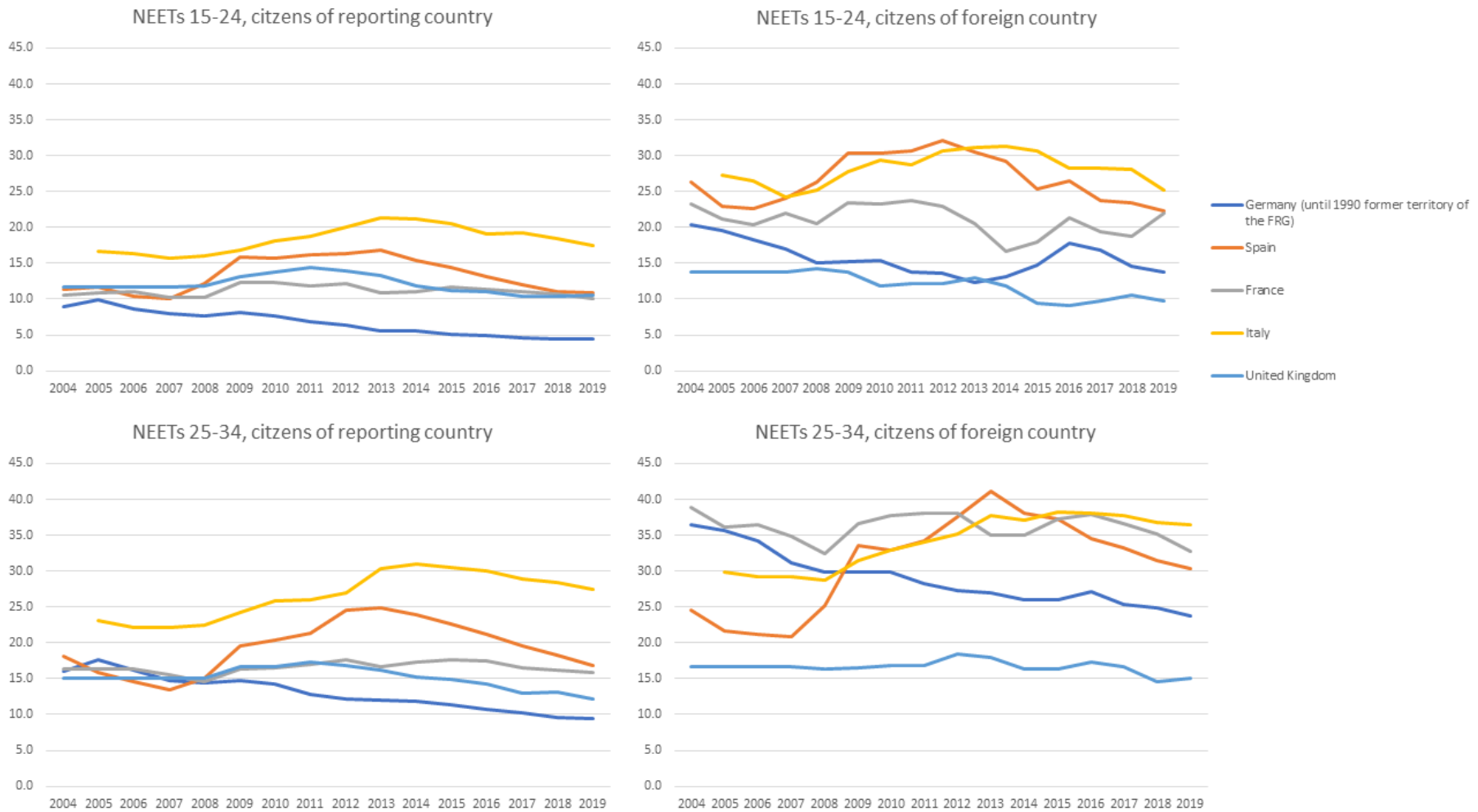
Appendix

NEETs in Europe

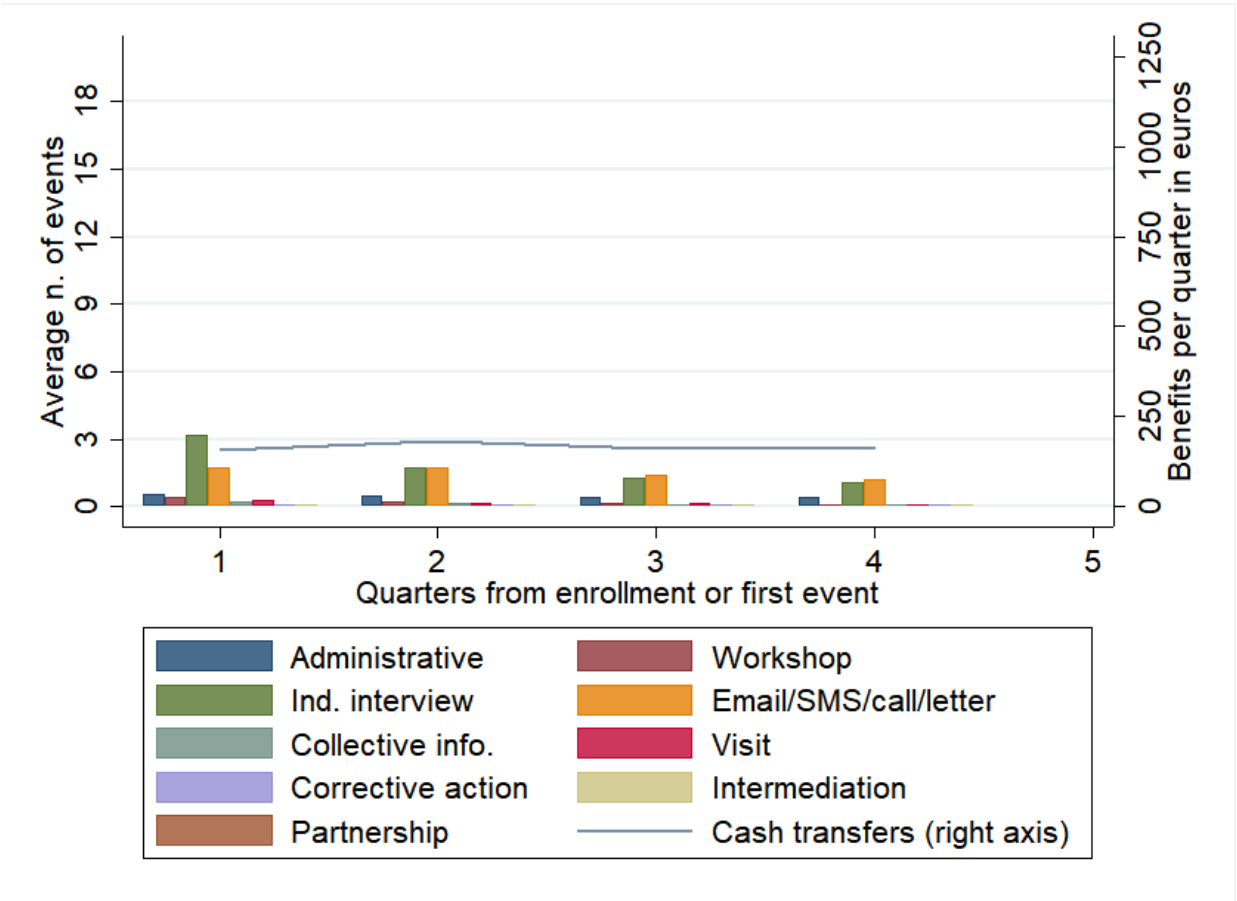
NEETs rates have been high and cyclical in south-EU countries. France has remained stable, but it's nowadays at similar levels.



Back to Research Question

Standard program offered at YECs (CIVIS)

NEETs rates have been high and cyclical in south-EU countries. France has remained stable, but it's nowadays at similar levels.



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Balance checks

VARIABLE	(1) instrument	(2) l_trend	(3) instrument	l_trend	(4) mean (sd) of pre-GJ
n_creationid_dossier	2.04	0.988	0.842	0.936	279.673
	(2.51)	(0.647)	(2.70)	(0.690)	(233.276)
fem_subs	-0.00260	-0.000375	-0.00230	-0.000233	.495
	(0.00233)	(0.00047)	(0.00227)	(0.000451)	(.06)
age	-0.00306	-0.000799	-0.0022	-0.000664	20.188
	(0.0174)	(0.00318)	(0.0165)	(0.00291)	(.603)
low_edu	0.00263	-0.000153	0.00307	-0.000342	.198
	(0.00284)	(0.000631)	(0.00255)	(0.000571)	(.063)
cap_bep	0.000929	-0.0000105	0.00102	-0.0000734	.314
	(0.00232)	(0.000469)	(0.00217)	(0.000429)	(.068)
bac	0.00048	0.000381	-0.0000121	0.000382	.386
	(0.00294)	(0.00067)	(0.00258)	(0.000598)	(.07)
french	0.00758**	0.0016*	0.00599**	0.00122	.897
	(0.00336)	(0.000841)	(0.00288)	(0.000758)	(.097)
dis_zone1	-0.00361	-0.00156	-0.00174	-0.00145	.167
	(0.00456)	(0.0014)	(0.00471)	(0.00145)	(.163)
dis_zone2	0.000721	0.00021	0.00049	0.00018	.255
	(0.00313)	(0.000878)	(0.00306)	(0.000878)	(.293)
dis_zone3	0.000237	-0.000703	0.00124	-0.000778	.093
	(0.00322)	(0.00102)	(0.00325)	(0.00105)	(.129)
prob_log	0.00318*	-0.000334	0.00391**	-0.000574	.036
	(0.00163)	(0.000397)	(0.00168)	(0.00041)	(.044)
ress	-3.08	-0.819	-2.22	-0.683	114.15
	(6.51)	(1.58)	(6.44)	(1.58)	(140.075)
dist_to_ml	-7.71	-2.11	-5.42	-1.79	727.285
	(5.76)	(1.59)	(5.27)	(1.53)	(289.421)

Notes. The table reports the coefficients of a regression of average characteristics of registering cohorts on a dummy for GJ introduction (named "instrument"), on a linear trend (named "l_trend"), and on both. Column (4) reports the mean and standard deviations of the variable before GJ introduction.

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Example of results for cell-specific ITT

Coefficients of reduced form and first stage for every wave (each line corresponds to one wave) and cohort (each column corresponds to one cohort of registration). YEC tenure is 4 quarters after registration. Colors represent the scale of the value in the cell relative to the table, red for positive green for negative. $h = 5$

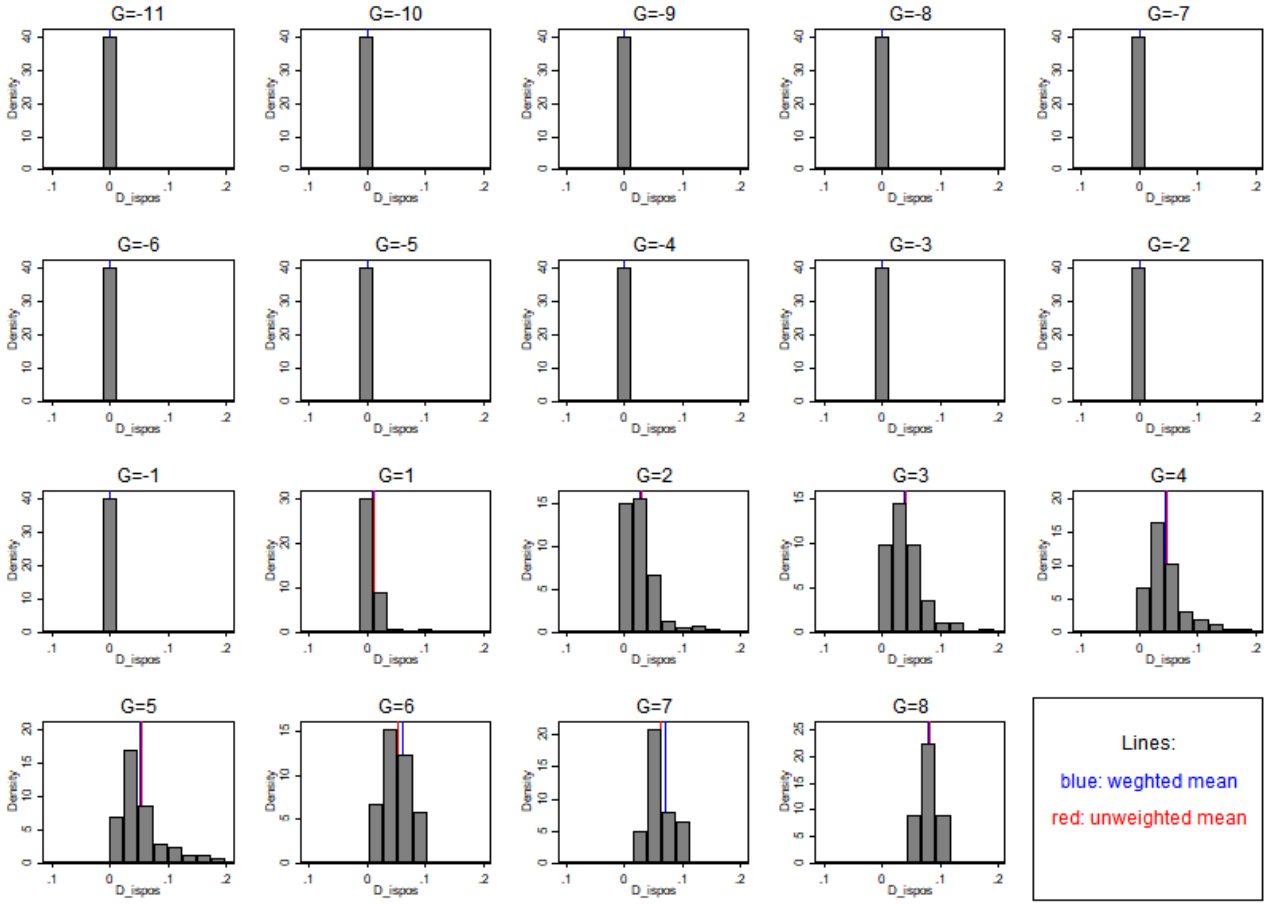
$DID^4_{w,c}$	2013q1	2013q2	2013q3	2013q4	2014q1	2014q2	2014q3	2014q4	2015q1	2015q2	2015q3	2015q4	2016q1	2016q2
2014q2	0.0000	-0.0135	-0.0390	-0.0328	-0.0093	-0.0245	-0.0446	-0.0091	0.0516	-0.0270	-0.0003	0.0243	0.0273	0.0476
2014q4	0.0735	-0.1579	0.0000	-0.0004	0.0262	-0.1778	-0.0210	-0.0547	-0.0406	-0.1604	-0.0950	-0.0645	-0.0807	-0.1722
2015q1	-0.0440	-0.0193	-0.0096	0.0000	0.0023	0.0064	0.0144	0.0177	0.0073	-0.0101	0.0155	0.0097	-0.0063	-0.0016
2015q2	-0.0171	-0.0162	-0.0096	-0.0299	0.0000	0.0138	0.0185	0.0073	0.0071	-0.0008	0.0273	0.0163	0.0046	0.0082
2015q3	-0.0113	-0.0026	0.0098	0.0077	-0.0040	0.0000	-0.0052	-0.0081	-0.0055	-0.0055	0.0187	0.0066	-0.0072	-0.0028
2015q4	0.0711	0.0548	0.0613	0.0556	0.0593	0.0099	0.0000	0.0261	0.0269	0.0060	-0.0141	0.0428	0.0780	0.0460
2016q1	-0.0788	-0.1054	-0.1128	-0.1053	-0.0567	0.0001	-0.0033	0.0000	0.0102	-0.0183	-0.0193	-0.0242	-0.0181	-0.0509
2016q2	0.0279	0.0021	0.0249	0.0074	0.0044	-0.0045	0.0096	0.0018	0.0000	-0.0029	-0.0015	-0.0202	-0.0308	-0.0366
2016q3	-0.0380	-0.0188	0.0017	0.0102	-0.0134	-0.0036	0.0093	0.0054	-0.0024	0.0000	-0.0014	-0.0146	-0.0274	-0.0290
2016q4	-0.0027	-0.0257	-0.0156	-0.0418	-0.0099	-0.0046	0.0161	-0.0121	-0.0230	0.0011	0.0000	-0.0110	-0.0234	-0.0184

$Pr(D^4_{w,c} > 1)$	2013q1	2013q2	2013q3	2013q4	2014q1	2014q2	2014q3	2014q4	2015q1	2015q2	2015q3	2015q4	2016q1	2016q2
2014q2	0.0000	0.0055	0.0256	0.0510	0.0529	0.1232	0.1186	0.1641	0.1368	0.1095	0.1559	0.1976	0.1346	0.1234
2014q4	0.0000	0.0000	0.0000	0.0000	0.0056	0.0114	0.0351	0.0388	0.0528	0.0295	0.0474	0.0370	0.0572	0.0316
2015q1	0.0000	0.0000	0.0000	0.0000	0.0061	0.0163	0.0312	0.0421	0.0539	0.0620	0.0796	0.0775	0.0830	0.0935
2015q2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0064	0.0174	0.0276	0.0409	0.0574	0.0702	0.0740	0.0710	0.0783
2015q3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0049	0.0123	0.0217	0.0388	0.0595	0.0649	0.0658	0.0741
2015q4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0064	0.0127	0.0272	0.0383	0.0549	0.0546	0.0550
2016q1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027	0.0076	0.0165	0.0177	0.0265	0.0482
2016q2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0135	0.0208	0.0362	0.0489
2016q3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0048	0.0096	0.0169	0.0352
2016q4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0094	0.0215	0.0275

$n^4_{w,c}$	2013q1	2013q2	2013q3	2013q4	2014q1	2014q2	2014q3	2014q4	2015q1	2015q2	2015q3	2015q4	2016q1	2016q2
2014q2	452	363	430	569	397	357	506	585	468	338	417	663	431	308
2014q4	354	715	369	419	357	703	370	361	341	441	380	378	297	474
2015q1	13423	12015	17831	17003	14335	11912	18571	17106	13759	12571	17632	15659	12875	11361
2015q2	17701	15797	23058	22965	19450	16471	24314	22569	18653	16197	23054	20801	17081	15541
2015q3	25680	22528	31255	32295	27282	22789	32574	32289	26590	21985	30497	29523	24561	21390
2015q4	1591	1402	2028	2261	1735	1502	2428	2184	1738	1399	2038	1657	1466	1145
2016q1	3255	2981	4134	4138	3561	2991	4383	4411	3364	2901	3992	3901	3394	3052
2016q2	6467	5669	8273	8283	7062	6099	8935	8435	6886	6073	8170	7465	6162	5850
2016q3	8248	7679	10590	10901	9289	7868	10935	10911	8900	7649	10329	9896	8065	7038
2016q4	4053	3589	5042	5497	4566	4007	5589	6168	4765	3855	5391	5548	4320	3488

Example of results for cell-specific ITT

Distribution of $DID^h_{w,c}$ $\quad \forall w, c, h : G^h_{w,c} = g$ for employment



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Heterogeneity by kind of contract

	Open-ended (1)	Temporary (2)	Agency jobs (3)	Apprenticeships (3)
ITT placebo eff. before exposure	-0.00159**	-0.00217	-0.00211***	-0.000207
	(0.000762)	(0.00157)	(0.000709)	(0.000333)
Total n.obs	8331099	8331099	8331099	8331099
ITT effect 1st year of exposure	0.000282	0.000697	0.00147*	0.00098**
	(0.000757)	(0.00115)	(0.000789)	(0.000469)
Total n.obs	5400766	5400766	5400766	5400766
ITT effect 2nd year of exposure	0.00297	0.00685**	0.00405***	0.00131*
	(0.00266)	(0.00285)	(0.00153)	(0.000695)
Total n.obs	2432684	2432684	2432684	2432684
Mean for control 1st year of registration in ML	0.097	0.17	0.08	0.032
Mean for control 2nd year of registration in ML	0.154	0.188	0.086	0.034
1st year of exposure				
LATE on takers	0.0118	0.0292	0.0617*	0.0412**
	(0.0317)	(0.0480)	(0.0335)	(0.0198)
2nd year of exposure				
LATE on takers	0.0546	0.126**	0.0744***	0.0240*
	(0.0485)	(0.0519)	(0.0276)	(0.0128)
LATE 2nd year of exposure, 1s year enrolled	-0.0148	0.00449	0.0208	-0.0160
	(0.0383)	(0.0387)	(0.0301)	(0.0423)
LATE 2nd year of exposure, 2nd year enrolled	0.0954	0.0281	0.0687	-0.00431
	(0.101)	(0.0863)	(0.0560)	(0.0830)

Notes. The table reports the main results obtained following the tailored diff-in-diff methodology developed in Section 3. The upper panel reports weighted averages of the $DID^{h}_{w,c}$ coefficients where exposure is smaller than zero, between 1 and 4 quarters or above 4 quarters. The lower panel reports the estimates of LATE of GJ on employment, earnings and hours worked, obtained according to Equation **??**. Standard errors are bootstrapped and reported in parenthesis.

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Heterogeneity by gender

	Men				Women			
	Take-up of GJ (1)	Employment (2)	Hours (3)	Earnings (4)	Take-up of GJ (5)	Employment (6)	Hours (7)	Earnings (8)
ITT placebo eff. before exposure	0.000***	-0.00334	-1.66**	-17*	0.000***	-0.00242	-0.653	-8.64
	(0.000)	(0.00301)	(0.814)	(9.19)	(0.000)	(0.00339)	(0.927)	(9.63)
Total n.obs		4219335	4188957	4187145		4080983	4059280	4063453
ITT effect 1st year of exposure	0.0281***	-0.000506	0.288	0.960	0.0265***	-0.000482	0.546	3.18
	(0.00104)	(0.00287)	(0.795)	(8.47)	(0.00121)	(0.00273)	(0.655)	(7.46)
Total n.obs		3664923	3624627	3619920		3529019	3499981	3503914
ITT effect 2nd year of exposure	0.0641***	0.0173**	4.94*	63.6**	0.0577***	0.0166*	4.86*	58.2**
	(0.00209)	(0.00853)	(2.60)	(29)	(0.00235)	(0.00902)	(2.78)	(28.3)
Total n.obs		2409057	2368743	2364809		2318477	2290969	2295399
Mean for control 1st year in ML		0.412	80	841		0.445	84	898
Mean for control 2nd year in ML		0.489	127	1371		0.498	128	1353
LATE on takers, 1st year of exposure		-0.0178	10.1	34		-0.0180	20.6	120
		(0.127)	(35)	(372)		(0.128)	(30.7)	(350)
LATE on takers, 2nd year of exposure		0.270*	77.0	992*		0.289	84.2	1008
		(0.163)	(49.9)	(554)		(0.202)	(63)	(637)
LATE 2nd year of exposure, 1st year enrolled		0.0189	-40.2	-83.3		-0.0384	-27.2	-329
		(0.0711)	(25.3)	(267)		(0.0892)	(31.6)	(328)
LATE 2nd year of exposure, 2nd year from enroll.		0.374***	122***	1488***		0.175	99.0	1344**
		(0.0980)	(36.7)	(375)		(0.169)	(62.2)	(657)

Notes. The table reports the main results obtained following the tailored diff-in-diff methodology developed in Section 3. The upper panel reports weighted averages of the $DID^{h}_{w,c}$ coefficients where exposure is smaller than zero, between 1 and 4 quarters or above 4 quarters. The lower panel reports the estimates of LATE of GJ on employment, earnings and hours worked, obtained according to Equation **??**. Standard errors are bootstrapped and reported in parenthesis.

Heterogeneity by education

	Less than upper secondary education				At least upper secondary education			
	Take-up of GJ (1)	Employment (2)	Hours (3)	Earnings (4)	Take-up of GJ (5)	Employment (6)	Hours (7)	Earnings (8)
ITT placebo eff. before exposure	0.000***	-0.00507	-1.44	-16.8	0.000***	0.00034	-0.809	-6.96
	(0.000)	(0.00342)	(0.941)	(10.5)	(0.000)	(0.00278)	(0.754)	(7.71)
Total n.obs		5078027	5043461	5041042		3222291	3204776	3209556
ITT effect 1st year of exposure	0.0241***	0.000685	0.788	8.44	0.0329***	-0.00241	-0.0343	-7.27
	(0.000985)	(0.00361)	(0.947)	(9.96)	(0.00136)	(0.0018)	(0.480)	(4.67)
Total n.obs		4528554	4481279	4476475		2665388	2643329	2647359
ITT effect 2nd year of exposure	0.0509***	0.0208*	6.31**	78.2**	0.0784***	0.0111*	3.00	35.2*
	(0.00186)	(0.0106)	(3.22)	(34.4)	(0.00303)	(0.00637)	(2.03)	(19.7)
Total n.obs		2967225	2921409	2917540		1760309	1738303	1742668
Mean for control 1st year in ML		0.455	88	956		0.383	72	721
Mean for control 2nd year in ML		0.507	134	1438		0.471	117	1243
LATE on takers, 1st year of exposure		0.0284	32.6	350		-0.0728	-1.03	-221
		(0.186)	(48.6)	(510)		(0.0679)	(18.1)	(174)
LATE on takers, 2nd year of exposure		0.409	124	1534*		0.143	38.2	450
		(0.259)	(78)	(831)		(0.101)	(32.4)	(312)
LATE 2nd year of exposure, 1st year enrolled		0.0140	-14.8	-87.9		-0.0339	-52.7**	-374
		(0.114)	(37.2)	(411)		(0.0719)	(24)	(273)
LATE 2nd year of exposure, 2nd year from enroll.		0.298	121	1674*		0.238**	115***	1250***
		(0.187)	(76.9)	(872)		(0.114)	(40.2)	(435)

Notes. The table reports the main results obtained following the tailored diff-in-diff methodology developed in Section 3. The upper panel reports weighted averages of the $DID^{h}_{w,c}$ coefficients where exposure is smaller than zero, between 1 and 4 quarters or above 4 quarters. The lower panel reports the estimates of LATE of GJ on employment, earnings and hours worked, obtained according to Equation **??**. Standard errors are bootstrapped and reported in parenthesis.

Heterogeneity by age

	Aged 16-18				Aged 19-21				Aged 22-25		
	Take-up of GJ (1)	Employment (2)	Hours (3)	Earnings (4)	Take-up of GJ (5)	Employment (6)	Hours (7)	Earnings (8)	Take-up of GJ (9)	Employment (10)	Ho
ITT placebo eff. before exposure	0.000***	-0.000635	-0.956*	-5.30	0.000***	-0.00611**	-1.78**	-19.7**	0.000***	-0.00238	-0
	(0.000)	(0.00233)	(0.573)	(4.56)	(0.000)	(0.00264)	(0.780)	(8.77)	(0.000)	(0.00498)	(1
Total n.obs		2333836	2326378	2329694		3495989	3500988		2438250	2418258	241
ITT effect 1st year of exposure	0.0313***	0.000703	0.248	3.43	0.0317***	0.000573	0.999*	8.01	s 0.0168***	0.0000534	0.
	(0.0011)	(0.00171)	(0.391)	(3.74)	(0.00151)	(0.00172)	(0.512)	(5.92)	(0.000679)	(0.00526)	(1
Total n.obs		2147072	2134853	2139146		2988164	2956544	2960206		2051965	202
ITT effect 2nd year of exposure	0.0820***	0.00735	1.56	30.1**	0.0658***	0.0211***	6.89***	81.8***	0.0320***	0.0241	6
	(0.00249)	(0.00541)	(1.61)	(14.1)	(0.00273)	(0.00709)	(2.25)	(24.3)	(0.00128)	(0.0148)	(4
Total n.obs		1423292	1409395	1414674		1958807	1927809	1931228		1340853	131
Mean for control 1st year in ML		0.334	56	470		0.482	91	1000		0.448	
Mean for control 2nd year in ML		0.465	105	1013		0.546	143	1564		0.445	1
LATE on takers, 1st year of exposure		0.0223	7.89	110		0.0179	31.3	253		0.00315	
		(0.0692)	(15.6)	(151)		(0.0674)	(20.3)	(234)		(0.390)	(1
LATE on takers, 2nd year of exposure		0.0895	19.1	367*		0.321**	105**	1240***		0.753	2
		(0.0828)	(24.8)	(218)		(0.137)	(44.4)	(473)		(0.581)	(1
LATE 2nd year of exposure, 1st year enrolled		-0.0425	-19.3	-3.69		-0.261**	-86.5**	-718*		0.751**	1
		(0.0755)	(25.1)	(197)		(0.110)	(35.4)	(370)		(0.336)	(7
LATE 2nd year of exposure, 2nd year enrolled		-0.0864	-32.2	-155		0.320*	160**	2070***	-0.151	21.7	4
		(0.174)	(60.1)	(492)		(0.187)	(62.7)	(681)		(0.403)	(1

Notes. The table reports the main results obtained following the tailored diff-in-diff methodology developed in Section 3. The upper panel reports weighted averages of the $DID^{h}_{w,c}$ coefficients where exposure is smaller than zero, between 1 and 4 quarters or above 4 quarters. The lower panel reports the estimates of LATE of GJ on employment, earnings and hours worked, obtained according to Equation **??**. Standard errors are bootstrapped and reported in parenthesis.

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