

Friday Morning Fever. Evidence from a randomized experiment on Sickness Leave Monitoring in the Public Sector

Human Capital and Labor Market Institutions Workshop
Banco de Portugal

Tito Boeri ¹ Edoardo Di Porto ² Paolo Naticchioni ³
Vincenzo Scrutinio ⁴

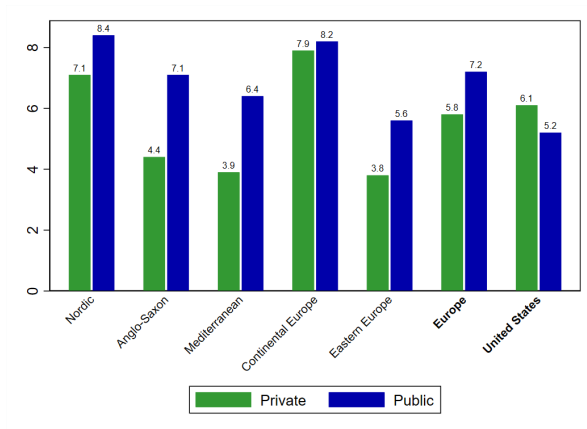
¹ Bocconi University, LSE , IZA

²CSEF, INPS, University of Naples Federico II

³INPS, IZA, University Roma Tre

⁴IZA, LSE, University of Bologna

More absenteeism in the public sector in Europe



From ATAC to Canary Islands

TGCOM24

MEDIASET Venerdì 22 Ottobre

Tgcom24 | Cronaca

10 SETTEMBRE 2021 17:28

Atac, si dà malata per un anno e mezzo e intanto gestisce un B&B alle Canarie

A tradire la 50enne è stata la voglia di mostrare sui social la nuova vita. L'Inps ha aperto un'indagine e ora rischia il licenziamento



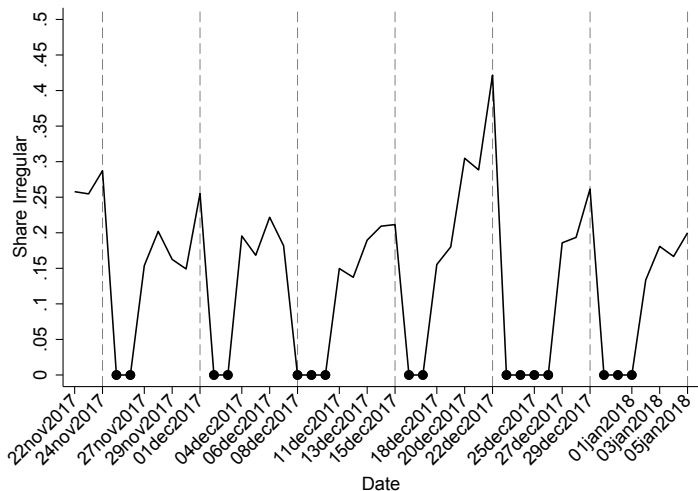
Roman traffic policemen in New Year's Eve

SAN SILVESTRO 2014

Vigili assenti a Capodanno, la lista delle (bizzarre) malattie last minute

Mal di schiena, lacrimazioni, difficoltà a parlare o ad alzarsi dal letto. Partendo dai certificati medici il pm ha formulato le accuse per sette agenti della municipale che non si presentarono al lavoro

Friday morning (or pre-holiday) fever



This Paper: what do we do?

- Although absenteeism is a crucial concern for the provision of public services, there is little evidence about the effectiveness of sickness leave **monitoring** notably in the public sector.

This Paper: what do we do?

- Although absenteeism is a crucial concern for the provision of public services, there is little evidence about the effectiveness of sickness leave **monitoring** notably in the public sector.
- Several countries have expanded sickness leave during the pandemic (to reduce presenteeism). Back to normality, risk of abuse. Focus on enforcement is essential to discourage abuse without encouraging presenteeism.

This Paper: what do we do?

- Although absenteeism is a crucial concern for the provision of public services, there is little evidence about the effectiveness of sickness leave **monitoring** notably in the public sector.
- Several countries have expanded sickness leave during the pandemic (to reduce presenteeism). Back to normality, risk of abuse. Focus on enforcement is essential to discourage abuse without encouraging presenteeism.
- We study the effect of Home visits (HVs) by doctors on future use of sickness leave and careers in the Italian public sector.

This Paper: what do we do?

- Although absenteeism is a crucial concern for the provision of public services, there is little evidence about the effectiveness of sickness leave **monitoring** notably in the public sector.
- Several countries have expanded sickness leave during the pandemic (to reduce presenteeism). Back to normality, risk of abuse. Focus on enforcement is essential to discourage abuse without encouraging presenteeism.
- We study the effect of Home visits (HVs) by doctors on future use of sickness leave and careers in the Italian public sector.
- We use rich administrative data (including work histories) on the universe of sickness leave in public sector (5,500,000 certificates) and workers' career.

This Paper: what do we do?

- Although absenteeism is a crucial concern for the provision of public services, there is little evidence about the effectiveness of sickness leave **monitoring** notably in the public sector.
- Several countries have expanded sickness leave during the pandemic (to reduce presenteeism). Back to normality, risk of abuse. Focus on enforcement is essential to discourage abuse without encouraging presenteeism.
- We study the effect of Home visits (HVs) by doctors on future use of sickness leave and careers in the Italian public sector.
- We use rich administrative data (including work histories) on the universe of sickness leave in public sector (5,500,000 certificates) and workers' career.
- **Identification through randomized *control* experiment on Home Visits (22nd November 2017 - 5th January 2018) across 196 local**

This Paper: preview of the results

- On average receiving a random HV reduces days of sickness leave in the 16 months after the experiment by 3.32 days (7.5% of control group).
- The effect is mainly coming from those found irregularly on leave (-7.7 days vs -2.5 days).
- Reduction coming in the long run from shorter durations but in the shorter run also reduction in number of certificates
- Effects on workers' career: reduction in cumulative wage over one year (about -505 Euros; 1.8%) for those found irregularly on leave.
- Back of the envelope computation suggests that the system is beneficial from a fiscal standpoint (assuming no externalities): 5 Euro saved per 1 Euro spent (4 net savings).

Literature review: sickness leave

- Quasi-experiments on effects of sick-leave reforms in countries with generous sickness benefits: Markussen et al. (2011) Godoy-Olsen (2018) Hernaes (2018) on Norway; Engstrom and Johansson (2012) and Bockerman et al. (2018) on Finland; D'Amuri (2011) and Scognamiglio (2019) in Italy.
- Very little on monitoring: Hesselius (2005 and 2013) on Sweden
- Literature on the effects of contagious presenteeism (Pichler and Ziebarth, 2017) and on mandated sick leave (McLean et al. 2020)
- Literature on job security and absenteeism in the private sector in Italy (Ichino and Ripahn, 2005)
- Literature on enforcement of tax collection: Kleven et al. (2011), De Neve et al. (2020), Bergeron et al. (2020) on Congo.

Our contribution

- 1 Focus on enforcement.
- 2 Population wide experiment.
- 3 Evidence of effects of audits on careers in the public sector.
- 4 Role of implicit sanctions.
- 5 Estimate of the net costs of monitoring.

Record linkage of three administrative sources, released by INPS:

- 1 A dataset containing all the certificates sent to Inps from 2016 to September 2018 for the public sector.
- 2 A dataset containing all the HV visits made by Inps since 2017 including the randomized visits.
- 3 A brand new dataset that we use for the first time called POS.PA on Italian public employees containing precise information on employment and wages at monthly level from 2016 to 2018.

We restrict the sample to workers with at least one positive wage between May and October 2017.

Italy as an ideal case study

- Generosity of sickness benefits is in line with most EU countries in terms of replacement rate and maximum duration. [Table](#) [Graphs](#)
- Evidence of strategic behaviour: concentration of absences just before week ends and holidays.
- Low labor productivity by international standards, notably in the public sector (OECD, 2015). Low productivity related to absenteeism (De Paola, 2014).
- Public sector is highly unionized: few layoffs even if worker found to register presence while being absent (only 117 firing in 2018 out of 3,2 million employees).
- Legislation on absence from work tightened several times in the last decades. Shift from local to national administration in enforcement.

Institutional setting: sick leave rules

- Workers go to GP who certifies disease and writes certificate. Certificate then transmitted to employer and social security.
- Generosity:
 - First 10 days: 100% base wage (no allowances including for fixed for the position).
 - From 11th day to 9th month: 100% of wage from collective agreement.
 - From 10th to 12th month: 90% of wage from collective agreement.
 - From 13th to 18th month: 50% of wage from collective agreement.
- Surgeries, day hospital and treatments for chronic disease exempted from the reductions
- During period of sick leave, workers may receive home visits from INPS doctors.

Institutional setting: monitoring

- Before November 2017, INPS was carrying out own HVs limited to private sector employees.
- Since November 2017, INPS performed Home Visit (HV) monitoring for private and public sector employees.
- HVs verify whether the sick leave and allowance matches the true health conditions.
- There are no automatic sanctions if worker found irregularly on leave. Employers in charge to determine the sanction (up to dismissal).

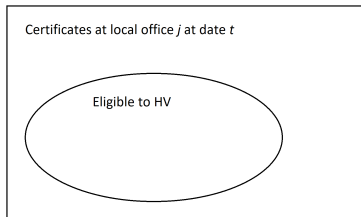
Home Visits and The Experiment

- During the HV, doctors check the health status of the worker and report to the the social security and the employer.
- Visits assigned randomly to a sample of ongoing certificates.
- Doctors are not aware of the change in the procedure: behaviour not affected by the experiment (no *Hawthorne effect*).
- About 4,200 visits performed. Experiment involved about 43,000 employees.

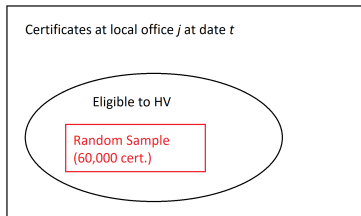
Experimental Design

Certificates at local office j at date t

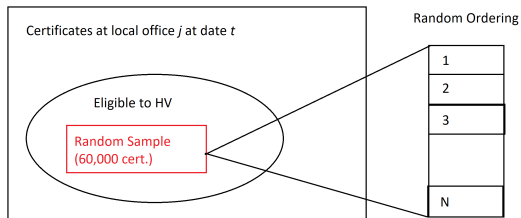
Experimental Design



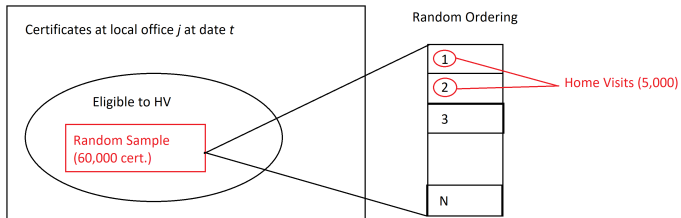
Experimental Design



Experimental Design



Experimental Design



Caveat in the empirical strategy

- Two main issues:
 - Certificates remain in the sample for their duration or until the ICV: their probability of being sampled increases with the duration of the certificate.
 - Randomization at certificate level, not at individual level: individuals might be sampled again if they send more certificates. Treatment probability increases with the number of certificates sent.
- **Our strategy:** identification preserved by controlling for the duration of the certificate and the overall time spent on sickness leave in the period of the experiment.

Empirical strategy

- Regression at individual level;

$$\#DaysOnSickness_{ij} = \alpha + \beta Visited_{ij} + X_{ij}\gamma + D_i + \theta_j + \varepsilon_{ij} \quad (1)$$

- Controls include (X_{ij}):
 - Demographics characteristics.
 - Job characteristics.
 - Sickness leave in the six months before experiment (number of certificates, days on sickness leave, average leave duration)
- D_i : fixed effects for time spent on leave in the experiment period by worker i .
- θ_j is a fixed effect at local office level.
- Standard errors clustered at local office level.

Summary statistics: Individuals

Variables	Average	Se	Minimum	Median	Max
Female	0.725	0.446	0	1	1
Age	53.366	8.473	24	55	67
North	0.396	0.489	0	0	1
Center	0.177	0.382	0	0	1
South	0.427	0.495	0	0	1
School and University	0.396	0.489	0	0	1
Central Administration	0.060	0.238	0	0	1
Local Administration	0.234	0.423	0	0	1
Health Sector	0.310	0.463	0	0	1
Permanent Contract	0.948	0.222	0	1	1
Part Time	0.060	0.238	0	0	1
(log) Mean Monthly Earnings	7.605	0.737	0	8	10
Days on sick leave in following 16 months	45.019	65.556	0	20	483
Certificates in following 16 months	6.083	7.435	0	4	190
Average Certificate duration in following 16 months	6.980	8.457	0	4	92
Number of Certificates (bef. exp.)	2.719	3.156	0	2	59
Number of Days (bef. exp.)	23.376	34.041	0	9	184
Mean Duration Certificate (bef. exp.)	8.388	10.439	0	5	93
Days In Experiment	13.043	12.036	1	8	45
Home Visits and outcome: individual					
Individual subject to Home Visit	0.098	0.297	0	0	1
Outcome Home Visit: Regular	0.078	0.268	0	0	1
Outcome Home Visit: Irregular	0.020	0.140	0	0	1
Home Visits and outcome: certificate					
Certificates subject to Home Visit	0.080	0.271	0	0	1
Outcome Home Visit: Regular	0.064	0.245	0	0	1
Outcome Home Visit: Irregular	0.016	0.125	0	0	1
# Workers	42,707				

Balancing: Normalized differences at individual level

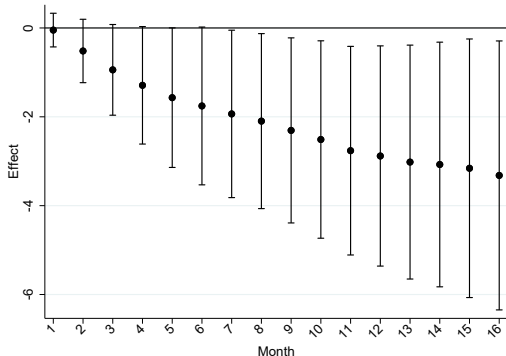
Balancing Ind.

Balancing Cert.

Variables	Avg Treatment	Avg Control	Se Treatment	Se Control	Normalized Difference
Female	0.740	0.724	0.439	0.447	0.037
Age: 36-40	0.051	0.055	0.219	0.229	-0.021
Age: 41-45	0.090	0.095	0.287	0.293	-0.015
Age: 46-50	0.139	0.142	0.346	0.349	-0.010
Age: 51-55	0.191	0.204	0.393	0.403	-0.032
Age: 56-60	0.236	0.242	0.424	0.428	-0.015
Age: 61-65	0.227	0.203	0.419	0.403	0.057
Age: 66-67	0.039	0.022	0.194	0.146	0.101
North	0.380	0.398	0.486	0.489	-0.036
Center	0.176	0.177	0.381	0.382	-0.003
South	0.444	0.425	0.497	0.494	0.038
School and University	0.447	0.391	0.497	0.488	0.114
Central Admin.	0.066	0.059	0.249	0.236	0.029
Local Admin.	0.196	0.238	0.397	0.426	-0.102
Health Sector	0.291	0.312	0.454	0.463	-0.046
Permanent	0.968	0.946	0.177	0.226	0.108
Part Time	0.049	0.062	0.216	0.240	-0.054
(log) Mean Monthly Earnings	7.606	7.605	0.824	0.727	0.001
Days in Experiment	25.132	11.730	12.958	11.170	1.108
Number of Certificates (bef. exp.)	3.643	2.618	3.153	3.140	0.326
Number of Days (bef. exp.)	42.663	21.281	42.876	32.252	0.564
Mean Duration Certificate (bef. exp.)	15.015	7.669	12.872	9.876	0.640

- Normalized Difference: $\Delta = \frac{\hat{x}_t - \hat{x}_c}{\sqrt{\frac{s_t^2 + s_c^2}{2}}}$; Critical value: 0.25.

Number of days on sickness leave: Individual [Table](#)



- Average for controls at 16 months: 43.335 (-7.5%)

Decomposing: Extensive and Intensive Margin

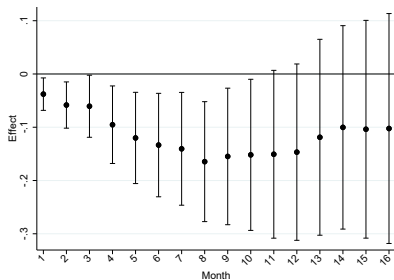


Figure: Cumulative Certificates

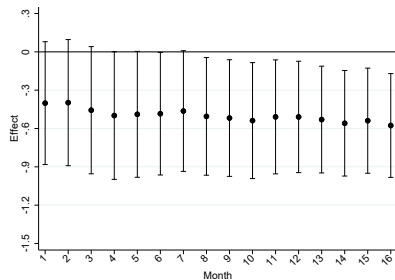


Figure: Avg. Duration Certificate

- Average for controls at 16 months: 0.102 (-1.7%); -0.576 (-8.6%)

Robustness: Days in the Experiment

- Difference-in-Differences: from -12 to +16 with respect to November 2017; months grouped in blocks of three (+precision); about -10% reduction in days on leave per month [Graph](#).
- IV and functional form: instrument days in experiment with those implied by first certificate, conditioning on duration and linearity for days on leave in period of experiment [Table](#).
- Semi-parametric strategy for stratified random experiments: main regression estimated by level of time spent on leave during experiment -4.14 (1.66).
- First Day of the experiment: only using first day of the experiment (about a hundred visits); still negative effects, especially on duration; effect more imprecise [Table](#).

Multiple Hypothesis Testing

Outcome	(1) Baseline	(2) Coef	(3) Remark 3.2	(4) Thm 3.1	(5) Remark 3.8	(6) Bonf.	(7) Holm.
Days in 16 months	-3.32	-5.59	0.002	0.003	0.003	.005	0.003
Certificates in 16 months	-0.102	-0.39	0.013	0.013	0.013	0.040	0.013
Average Days per Certificate	-0.576	-0.90	0.000	0.000	0.000	0.001	0.001

Heterogeneity

Consider several dimensions:

- Sector: Central Administration and Health Sector experience larger drops [Graph](#).
- Temporary and Permanent: clear effect on permanent workers, larger but imprecise for temporary. [Graph](#).
- Gender: very similar responses [Graph](#).
- Geographic area: stronger in Centre [Graph](#).

Irregular Outcomes

So far analysis of the effects of HVs irrespective of the outcome of the visit. We define as irregular outcomes those for which:

- 1 The worker is found fit for duty or
- 2 The worker is in an unjustified absence when visited by the inspector

In these two cases there are no automatic sanctions: the employer can decide to go for implicit sanctions (e.g., no overtime) or in extreme (but very rare) cases to lay off the worker.

Potential Response without Automatic Sanctions

- In presence of risk aversion, uncertain sanction is a stronger deterrent than an automatic sanction
- Consider $u(c, a) = c + a\Gamma$ with $u' > 0$ and $u'' < 0$ where a is absence: 1 if the worker is on leave (and healthy) and 0 otherwise. Γ is utility if worker can *get away with it*, and c is consumption
- A regular worker enjoys $u(0) = w$
- A shirker expects $u(1) = (1 - d)(w + \Gamma) + dw^l$ where $w^l - w < 0$ is the wage sanction if detected
- If penalty is non-stochastic, it should be at least $\frac{1-d}{d}\Gamma$ to be a deterrent.
- If mean preserving spread (penalty is 0, $\frac{1-d}{d}\Gamma$ and $\frac{2(1-d)}{d}\Gamma$ all with probability $\frac{1}{3}$), then $u(1) = \frac{1}{3}(2f(w) + f(w - \Gamma + d\Gamma))$. Insofar as $d < 1$ even a smaller penalty would convince the worker not to be irregularly absent.

Regular vs Irregular outcome of visits: who is irregular?

[Table](#)[Main](#)

- About 20% of the visits end up with irregular outcome: worker away from home or not sick.
- Who is found to be irregularly at home?
 - For men (+4 pp more likely that the outcome is irregular).
 - Less frequent in Health sector (-4 pp) and Central Administration (-8 pp) with respect to the school sector.
 - Less frequent for Part time workers (-5 pp).
 - More frequent in the South (+5.3 pp) with respect to the North.
 - More frequent for shorter certificates.
 - More frequent if visit performed on Friday with respect to other days (+5.8 pp)

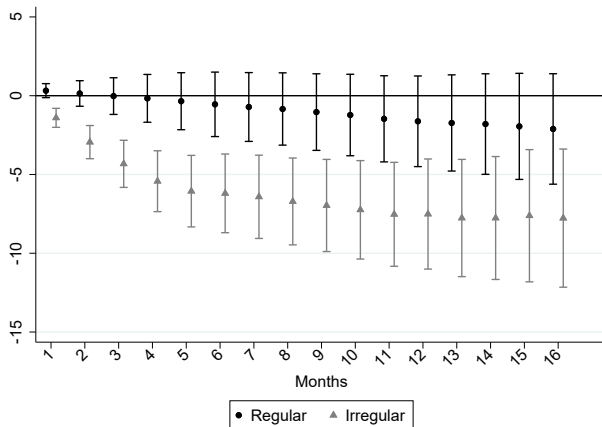
Days on sickness leave by Inspection Outcome: Regular vs Irregular

Decomposition

IV

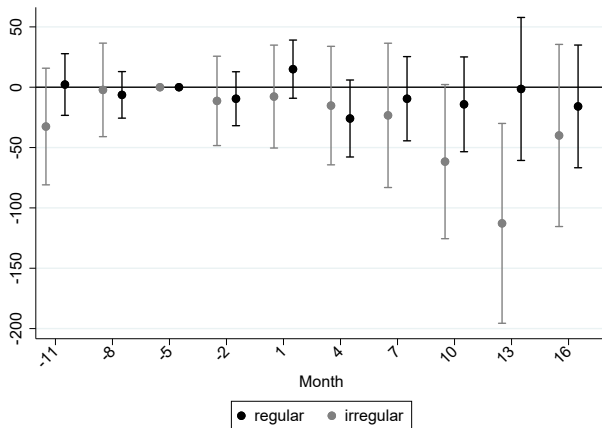
Description

Presenteism

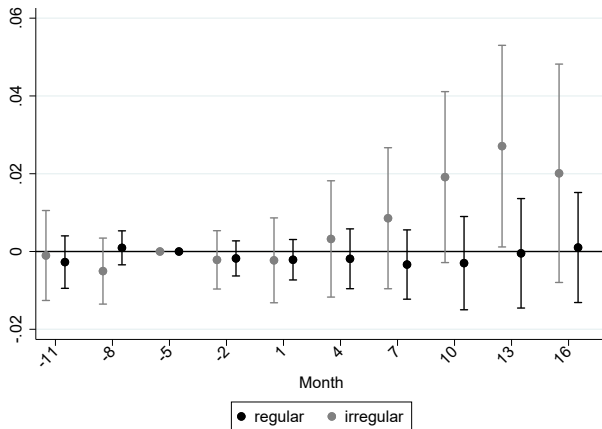


- Average for controls at 16 months: 43.335

Sanctions. DiD Regular vs. Irregular: Wages



Sanctions. DiD Regular vs. Irregular: Not in Public Employment



Career Dimension

Time Pattern

Other Benefits

Attrition

VARIABLES	(1) M. not Public	(2) M. not Public	(3) Tot Earnings 12	(4) Tot Earnings 12	(5) Tot Earnings 16	(6) Tot Earnings 16
HV	-0.093 (0.063)		418.104** (192.782)		605.544** (266.421)	
HV: Irregular Outcome		0.089 (0.126)		-505.706 (309.044)		-535.953 (426.609)
HV: Regular Outcome		-0.142** (0.067)		668.932*** (213.154)		915.477*** (290.621)
Observations	42,486	42,486	42,486	42,486	42,486	42,486
R-squared	0.273	0.179	0.364	0.364	0.356	0.356
Mean Dep	1.352	2.408	27425.066	27425.066	35445.771	35445.771
N. obs	42707	42707	42707	42707	42707	42707
Demographics	YES	YES	YES	YES	YES	YES
Past Cert.	YES	YES	YES	YES	YES	YES
Sede FE	YES	YES	YES	YES	YES	YES
Date FE	YES	YES	YES	YES	YES	YES
Durata FE	YES	YES	YES	YES	YES	YES

CBA: back of the envelope

- Net costs of inspections for the taxpayer. A *random* visit reduces days on sickness leave by 3.32 days over 16 months.
- Net gain per Euro spent:

$$NG = \frac{\beta * \frac{\tilde{w}}{\text{DayMonth}} - \text{Cost}}{\text{Cost}} = \frac{3.32 * \frac{2008}{26} - 50}{50} = 4$$

- Targeting Irregular with Machine Learning (Savio; 40% detection rate instead of 20%): 5.75 Euro of net savings.
- Utility cost of lowering expenditure:

$$MVPF = \frac{-5}{-4} = 1.25$$

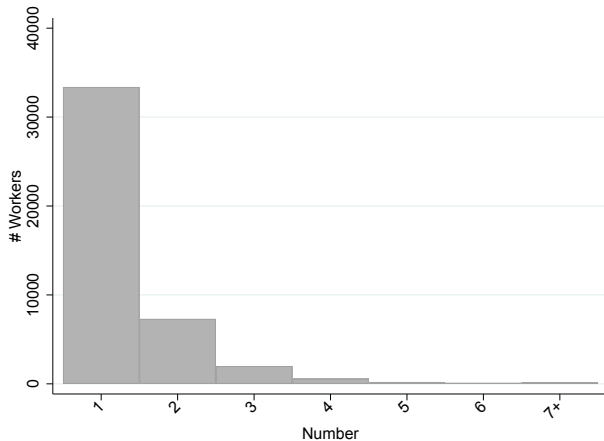
Conclusions

- Literature on sick pay focused on legal rules
- very little on enforcement.
- Based on an experiment randomizing certificates of INPS-called home visits, we find that monitoring reduces significantly sick leave.
- The effect is driven by reductions in the number of certificates by those who are found to be irregularly on sick leave.
- Small detectable effects on careers in the short run.
- More work planned on i) mediation analysis (to quantify the extent to which the HV outcome interferes with the impact of HVs), and ii) the impact of profiling (policy relevant).

THANKS!

Individuals by number of of certificates in period of experiment

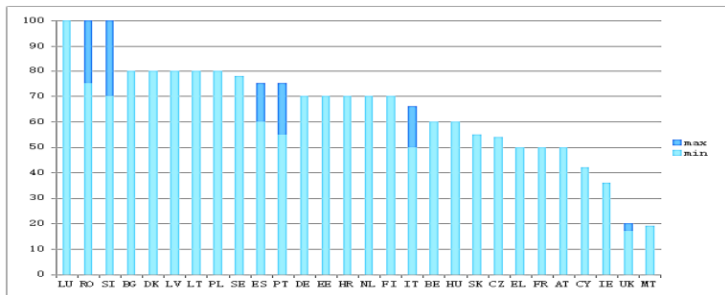
Main



Comparison of Sickness Leave Benefits (I) Main

Country	Replacement Rate	Duration
United States	0	0
United Kingdom	16	28
Greece	19	104
Australia	19	520
New Zealand	20	520
Malta	21	52
Ireland	29	104
Slovak Republic	42	52
France	49	52
Italy	50	26
Denmark	51	22
Czech Republic	53	54
Cyprus	55	52
Canada	55	15
Portugal	55	156
Spain	60	52
Japan	66	78
Estonia	69	26
Hungary	69	52
Bulgaria	70	520
Netherlands	70	104
Romania	75	26
Latvia	78	26
Lithuania	79	520
Slovenia	80	520
Poland	80	26
Sweden	80	52
Austria	100	78
Luxembourg	100	52
Finland	100	50
Switzerland	100	11
Germany	100	78
Belgium	100	52
Norway	100	52

Comparison of Sickness Leave Benefits (II) Main



(a) Replacement Rate

Balancing regression: Individual Main

VARIABLES	(1) Visit	(2) Visit	(3) Visit	(4) Visit
Female	0.006* (0.003)	0.006* (0.003)	0.009*** (0.003)	0.009*** (0.003)
Age: 36-40	0.007 (0.009)	0.001 (0.009)	-0.001 (0.009)	-0.002 (0.009)
Age: 41-45	0.009 (0.008)	0.005 (0.007)	0.001 (0.007)	0.000 (0.007)
Age: 46-50	0.012 (0.009)	0.005 (0.008)	-0.001 (0.008)	-0.002 (0.007)
Age: 51-55	0.007 (0.008)	0.002 (0.007)	-0.006 (0.007)	-0.008 (0.006)
Age: 56-60	0.009 (0.009)	0.003 (0.008)	-0.010 (0.007)	-0.012 (0.007)
Age: 61-65	0.021** (0.010)	0.015* (0.008)	-0.004 (0.008)	-0.007 (0.008)
Age: 66-67	0.076*** (0.014)	0.060*** (0.013)	0.039*** (0.011)	0.036*** (0.011)
Permanent	0.034*** (0.006)	0.025*** (0.005)	0.005 (0.005)	0.003 (0.005)
Part Time	-0.001 (0.007)	-0.002 (0.006)	-0.005 (0.006)	-0.005 (0.006)
(log) Mean Monthly Earnings	-0.001 (0.002)	-0.001 (0.002)	0.000 (0.002)	0.000 (0.002)
Central Admin.	-0.002 (0.009)	-0.006 (0.008)	-0.000 (0.007)	-0.001 (0.007)
Local Admin.	-0.026*** (0.006)	-0.017*** (0.004)	-0.000 (0.004)	0.000 (0.004)
Health Sector	-0.017*** (0.005)	-0.013*** (0.004)	-0.004 (0.004)	-0.004 (0.004)
Number of Certificates (bef. exp.)				0.000 (0.001)
Number of Days (bef. exp.)				0.000 (0.000)
Mean Duration Certificate (bef. exp.)				0.001*** (0.000)
Observations	42,660	42,657	42,657	42,657
R-squared	0.004	0.088	0.183	0.184
P-value joint sig.	0.000	0.000	0.000	0.000
Mean Dep	.098	.098	.098	.098
Sede FE	NO	YES	YES	YES
Days in Experiment FE	NO	NO	YES	YES

Balancing regression: Certificate Main

VARIABLES	(1) Visit	(2) Visit	(3) Visit	(4) Visit
Female	0.006** (0.003)	0.004* (0.002)	0.007*** (0.002)	0.007*** (0.002)
Age: 36-40	0.007 (0.008)	0.003 (0.007)	0.001 (0.007)	0.001 (0.007)
Age: 41-45	0.007 (0.007)	0.003 (0.006)	0.001 (0.006)	0.000 (0.006)
Age: 46-50	0.009 (0.007)	0.005 (0.006)	0.001 (0.006)	0.000 (0.006)
Age: 51-55	0.005 (0.007)	0.003 (0.006)	-0.005 (0.005)	-0.005 (0.005)
Age: 56-60	0.006 (0.007)	0.003 (0.006)	-0.008 (0.006)	-0.008 (0.006)
Age: 61-65	0.014* (0.008)	0.013** (0.006)	-0.003 (0.006)	-0.003 (0.006)
Age: 66-67	0.060*** (0.012)	0.054*** (0.010)	0.035*** (0.009)	0.034*** (0.009)
Permanent	0.025*** (0.005)	0.015*** (0.004)	0.004 (0.004)	0.003 (0.004)
Part Time	-0.001 (0.006)	-0.003 (0.005)	-0.004 (0.005)	-0.004 (0.004)
(log) Mean Monthly Earnings	0.000 (0.002)	-0.000 (0.002)	-0.000 (0.002)	-0.000 (0.002)
Central Admin.	-0.002 (0.008)	0.001 (0.006)	-0.000 (0.006)	-0.001 (0.005)
Local Admin.	-0.021*** (0.005)	-0.005 (0.003)	0.002 (0.003)	0.002 (0.003)
Health Sector	-0.014*** (0.004)	-0.001 (0.003)	-0.001 (0.003)	-0.001 (0.003)
Number of Certificates (bef. exp.)				0.000 (0.000)
Number of Days (bef. exp.)				0.000 (0.000)
Mean Duration Certificate (bef. exp.)				-0.000 (0.000)
Observations	54,264	54,250	54,250	54,250
R-squared	0.003	0.098	0.163	0.163
P-value F test	0.000	0.000	0.000	0.000
Mean Dep	.08	.08	.08	.08
Sede FE	NO	YES	YES	YES
Date start FE	NO	YES	YES	YES
Days in Experiment FE	NO	NO	YES	YES

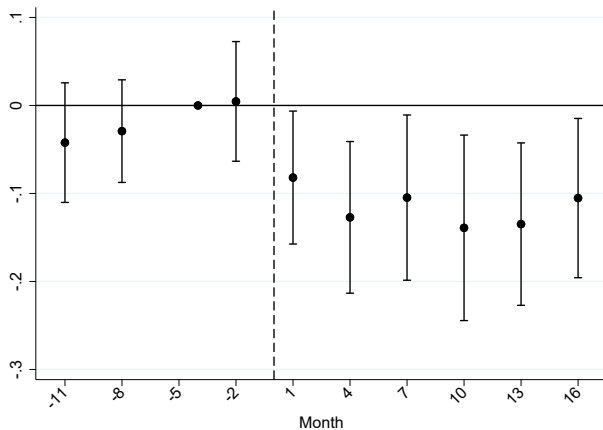
Table for main results: Effect of Visit Main

VARIABLES	(1) #Days	(2) #Days	(3) #Days	(4) #Days	(5) #Days
HV	17.188*** (1.679)	12.285*** (1.788)	-2.317 (1.796)	-3.516** (1.557)	-3.320** (1.545)
Number of Certificates (bef. exp.)				4.899*** (0.171)	4.948*** (0.168)
Number of Days (bef. exp.)				0.202*** (0.026)	0.201*** (0.025)
Mean Duration Certificate (bef. exp.)				-0.093 (0.057)	-0.139** (0.057)
Female					0.527 (0.834)
Age: 36-40					1.871 (1.482)
Age: 41-45					4.864*** (1.397)
Age: 46-50					4.879*** (1.441)
Age: 51-55					7.504*** (1.487)
Age: 56-60					9.599*** (1.438)
Age: 61-65					15.817*** (1.555)
Age: 66-67					-3.478 (2.500)
Central Admin.					-13.603*** (1.583)
Local Admin.					-9.145*** (1.040)
Health					-5.934*** (0.938)
Permanent					6.425*** (1.214)
Part Time					2.302* (1.252)
(log) Mean Monthly Earnings					-1.995*** (0.468)
Observations	42,707	42,704	42,704	42,704	42,486
R-squared	0.006	0.030	0.066	0.151	0.160
Mean Dep	43.335	43.335	43.335	43.335	43.335
Controls	NO	NO	NO	NO	YES
Past Cert.	NO	NO	NO	YES	YES
Sede FE	NO	YES	YES	YES	YES
Days in the Experiment FE	NO	NO	YES	YES	YES

Robustness for main results: Effect of Visit Main

Variables	(1) # Days	(2) # Days	(3) # Days	(4) # Days	(5) # Days
Panel (a): Baseline (Fixed Effects)					
HV	17.188*** (1.679)	12.285*** (1.788)	-2.317 (1.796)	-3.516** (1.557)	-3.320** (1.545)
Panel (b): Linearity					
HV	17.188*** (1.679)	12.285*** (1.788)	-2.314 (1.806)	-3.514** (1.558)	-3.335** (1.546)
Panel (c): IV, Effective Duration with Theoretical Duration of First Cert.					
HV	17.188*** (1.679)	12.285*** (1.788)	1.638 (1.942)	-3.608** (1.653)	-3.408** (1.648)
Cragg-Donald F-test			10467.566	12400.288	12328.752
Sede FE	NO	YES	YES	YES	YES
Past Cert.	NO	NO	YES	YES	YES
Controls	NO	NO	NO	NO	YES

Difference-in-Differences Main

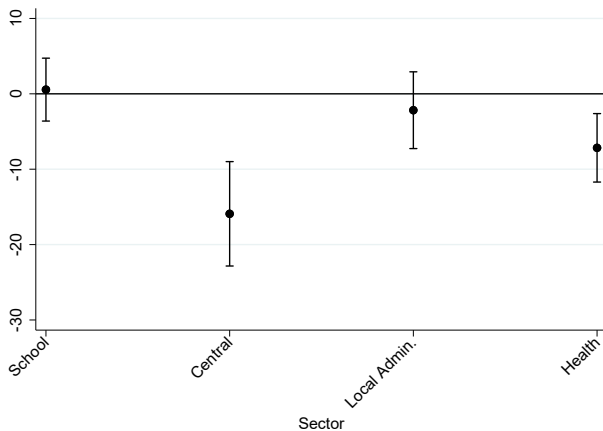


Estimate restricted to First day of the Experiment Main

VARIABLES	(1) #Days	(2) #Days	(3) #Days	(4) #Days	(5) #Certificates	(6) #Mean Duration
Visited	-0.433 (6.024)	-6.502 (6.359)	-8.220 (6.139)	-7.994 (6.173)	-0.113 (0.479)	-1.705** (0.710)
Number of Certificates (bef. exp.)			5.221*** (0.306)	5.562*** (0.301)	1.785*** (0.056)	-0.315*** (0.031)
Number of Days (bef. exp.)			0.159*** (0.041)	0.156*** (0.040)	-0.072*** (0.004)	0.057*** (0.005)
Mean Duration Certificate (bef. exp.)			0.410*** (0.109)	0.346*** (0.104)	0.047*** (0.007)	0.108*** (0.018)
Observations	14,995	14,989	14,989	14,531	14,531	14,531
R-squared	0.000	0.034	0.126	0.142	0.385	0.147
Mean Dep	51.694	51.694	51.694	51.694	51.694	51.694
N. obs	14995	14995	14995	14995	14861	14861
Sede FE	NO	YES	YES	YES	YES	YES
Past Cert.	NO	NO	YES	YES	YES	YES
Controls	NO	NO	NO	YES	YES	YES

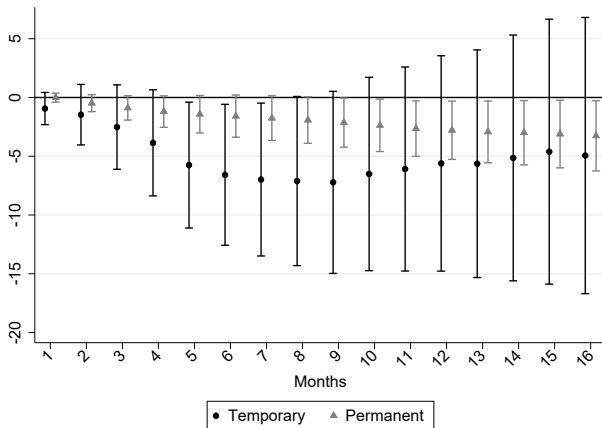
Heterogeneity: Sector

Main



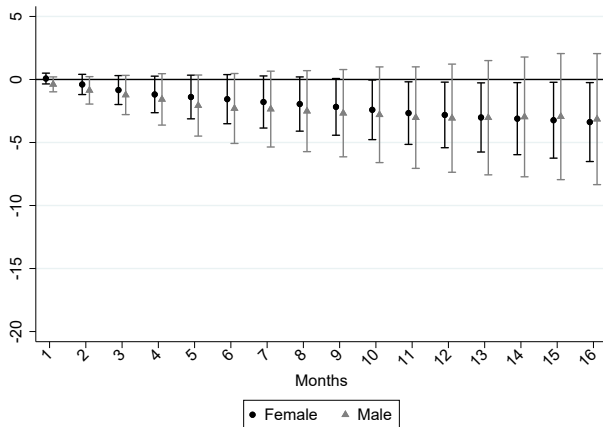
Heterogeneity: Contract

Main



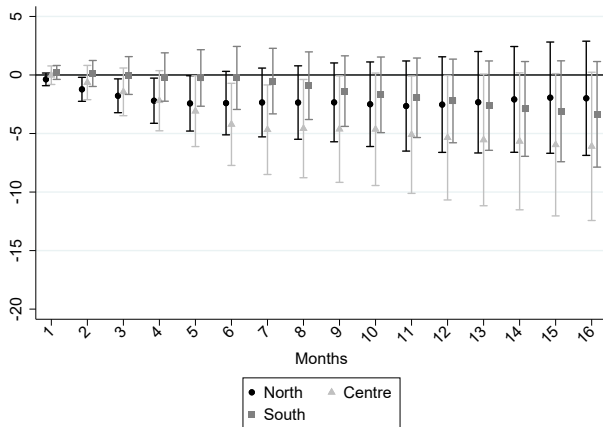
Heterogeneity: Gender

Main



Heterogeneity: Area

Main



Regular vs Irregular outcome of visits: who is irregular?

Table

Main

- About 20% of the visits end up with irregular outcome: worker away from home or not sick.
- Who is found to be irregularly at home?
 - For men (+4 pp more likely that the outcome is irregular).
 - Less frequent in Health sector (-4 pp) and Central Administration (-8 pp) with respect to the school sector.
 - Less frequent for permanent workers (-10 pp) and for Part time (-5 pp).
 - More frequent in the South (+5.3 pp) with respect to the North.
 - More frequent for shorter certificates.
 - More frequent if visit performed on Friday with respect to other days (+5.8 pp)

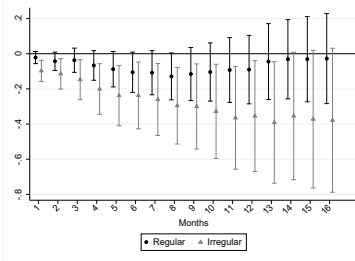
Who is irregular? Regression

Main

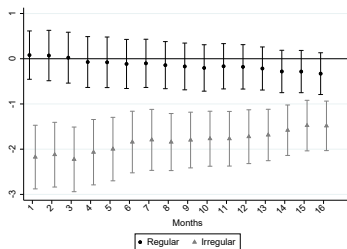
VARIABLES	(1) Irregular outcome	(2) Irregular outcome	(3) Irregular outcome
Female	-0.041** (0.019)	-0.046** (0.019)	-0.047** (0.019)
Age: 36-40	-0.025 (0.049)	-0.023 (0.048)	-0.020 (0.048)
Age: 41-45	-0.016 (0.049)	-0.014 (0.049)	-0.009 (0.049)
Age: 46-50	-0.052 (0.049)	-0.052 (0.049)	-0.048 (0.049)
Age: 51-55	-0.051 (0.047)	-0.052 (0.047)	-0.049 (0.047)
Age: 56-60	-0.036 (0.044)	-0.036 (0.044)	-0.034 (0.044)
Age: 61-65	-0.027 (0.046)	-0.020 (0.046)	-0.015 (0.046)
Age: 66-67	-0.020 (0.057)	-0.013 (0.058)	-0.006 (0.058)
Central Admin.	-0.075*** (0.023)	-0.078*** (0.024)	-0.074*** (0.023)
Local Admin.	-0.004 (0.017)	-0.011 (0.017)	-0.009 (0.018)
Health Sector	-0.038*** (0.014)	-0.045*** (0.014)	-0.043*** (0.014)
Permanent	-0.097** (0.041)	-0.107*** (0.040)	-0.112*** (0.040)
Part Time	-0.039 (0.025)	-0.048* (0.025)	-0.051** (0.025)
(log) Mean Monthly Earnings	0.001 (0.005)	0.001 (0.005)	0.001 (0.005)
Number of Certificates (bef. exp.)	0.002 (0.004)	0.002 (0.004)	0.001 (0.004)
Number of Days (bef. exp.)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Mean Duration Certificate (bef. exp.)	-0.001* (0.001)	-0.001** (0.001)	-0.001** (0.001)
Metropolis	0.053** (0.027)	0.038 (0.028)	0.026 (0.028)
Friday	0.058*** (0.017)	0.058*** (0.017)	
Center	0.004 (0.025)		
South	0.053** (0.021)		
Duration Certificate: 1-4	0.545*** (0.059)	0.544*** (0.060)	0.540*** (0.062)
Duration Certificate: 5-7	0.211*** (0.041)	0.207*** (0.041)	0.200*** (0.041)
Duration Certificate: 8-9	0.080** (0.037)	0.077** (0.038)	0.077** (0.039)
Observations	4,379	4,379	4,379
R-squared	0.063	0.059	0.068
Mean Dep	.198	.198	.198
Sede FE	NO	YES	YES
Date FE	NO	NO	YES

Regular and Irregular: Intensive vs Extensive

Main



(a) Number of Certificates

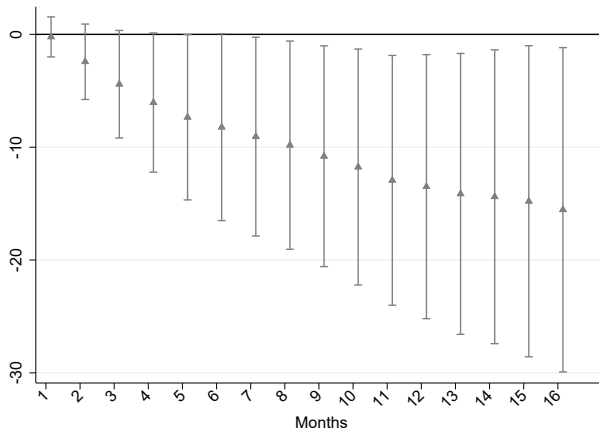


(b) Avg. Length Certificates

- Average for controls at 16 months: 6.076; 6.686.

Regular and Irregular: IV estimates for Days

Main



- IV: full sample; irregular instrumented by HV.

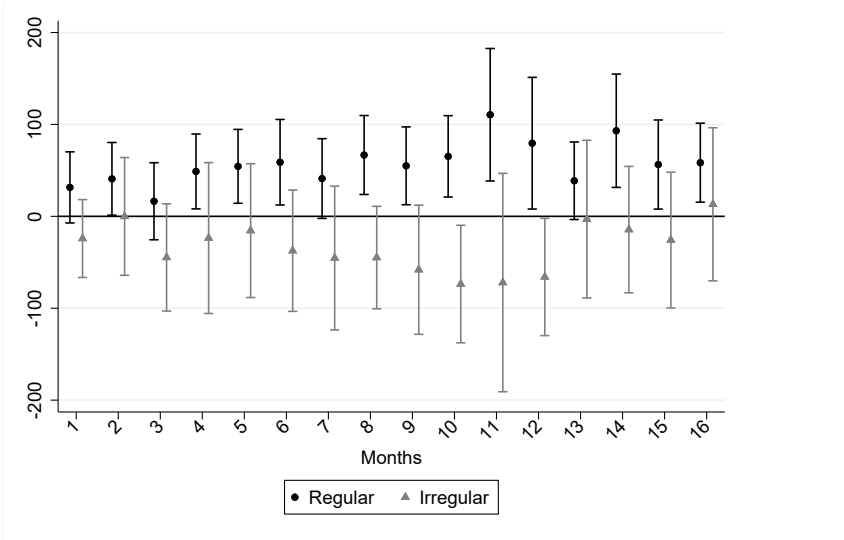
Regular and Irregular: Presenteism and New Certificates

Main

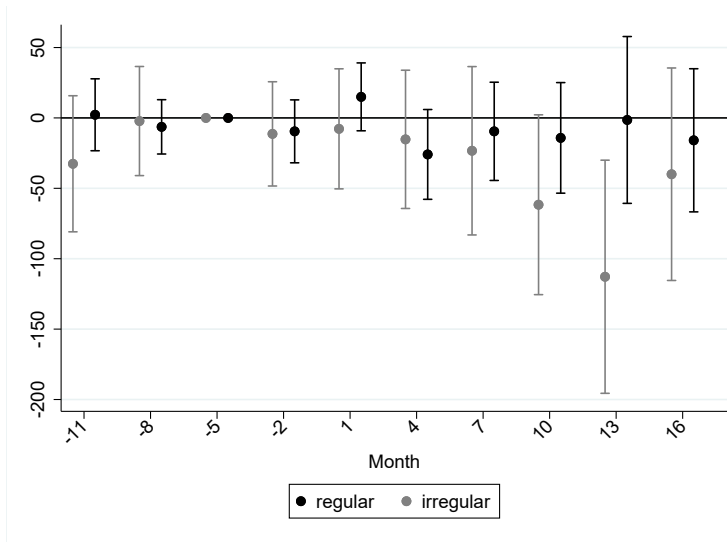
VARIABLES	(1) Any renewal	(2) Any renewal	(3) Any renewal	(4) Any renewal
HV: Regular Outcome	0.206*** (0.015)	0.030*** (0.010)	0.027*** (0.010)	0.026*** (0.010)
HV: Irregular Outcome	-0.089*** (0.022)	-0.213*** (0.018)	-0.215*** (0.018)	-0.214*** (0.018)
Observations	54,315	54,301	54,301	54,038
Mean Dep	.364	.364	.364	.364
N. obs	54315	54315	54315	54315
Demographics	NO	NO	NO	YES
Past Cert.	NO	NO	YES	YES
Sede FE	NO	YES	YES	YES
Date FE	NO	YES	YES	YES
Durata FE	NO	YES	YES	YES

Salary by Month

Main

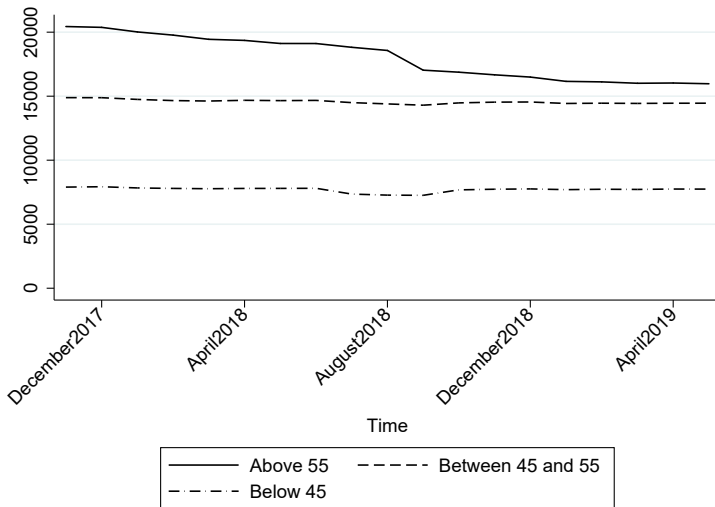


Salary by Month: Diff-in-Diff Main

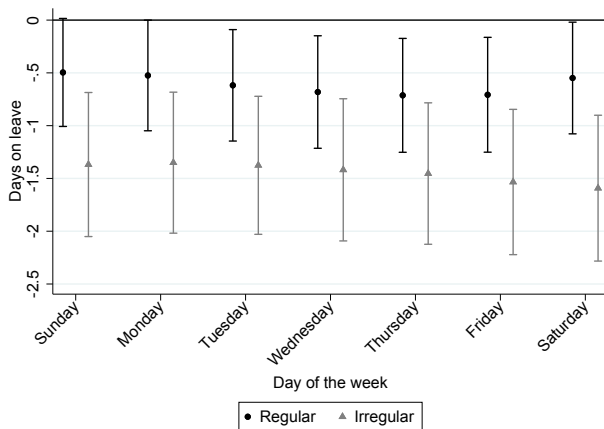


Other Benefits: Pensions and Disability Main

VARIABLES	(1) Old Age Pension	(2) Old Age Pension	(3) Disability Pension	(4) Disability Pension
HV	-0.015*** (0.005)		-0.003 (0.004)	
HV: Regular		-0.016*** (0.006)		-0.002 (0.004)
HV: Irregular		-0.009 (0.009)		-0.004 (0.008)
Observations	42,486	42,486	42,486	42,486
R-squared	0.302	0.302	0.080	0.080
Mean Dep	.094	.094	.027	.027
Demographics	YES	YES	YES	YES
Past Cert.	YES	YES	YES	YES
Sede FE	YES	YES	YES	YES
Date FE	YES	YES	YES	YES
Days in Experiment FE	YES	YES	YES	YES



Regular and Irregular: Estimates by Day of Week [Back](#)



Who is irregular? Regression [back](#)

Variables	(1) Tot Earnings	(2) Tot Earnings 12
Outcome Inspection: Irregular	873.449* (505.775)	583.952 (377.335)
Outcome Inspection: Regular	1,101.841*** (279.632)	781.326*** (212.350)
Outcome Inspection: IrregularXAbove Median Salary	-2,958.774*** (835.643)	-2,283.923*** (593.466)
Outcome Inspection: RegularXAbove Median Salary	-1,711.422*** (460.980)	-1,265.586*** (344.163)
Observations	43,072	43,072
Mean Dep	35435.388	27420.629
N. obs	43718	43718
Demographics	YES	YES
Past Cert.	YES	YES
Sede FE	YES	YES
Date FE	YES	YES