

Impact of Physician Practice Closure on Patients' Healthcare Access and Use

Elsa Perdrix¹ Co-authored with Daniel Herrera² and
Thibaut Heyer³

4th Health Economics Conference – TSE, June 16–17, 2026

¹PSL, Université de Dauphine, LEDa

²Ecole des Mines de Paris, CERN

³PSL, Université de Dauphine, LEDa; Paris 1

- **Context**

- Increasing pressure on healthcare systems
- Wave of doctors' retirement in France

- **Potential consequences**

- ↗ or ↘ on healthcare consumption due to:
 - Discontinuity in care coordination
 - New costs in care (search, travel, wait)
 - Doctors "fresh eye"
 - Substitution between types of care
- ↗ or ↘ of health due to:
 - less health's investment
 - avoidable and preventable disease
 - emergency care and inappropriate treatment



Focus on the US elderly and military

- ↗ in HCE and chronic condition diagnoses (Zhang, 2022)
- ↗ in HCE due to physician practice styles (Kwok, 2019; Schwab, 2025; Staiger, 2022)



Context of private insurance market (HMO/PPO)

- ↘ in GP & ↗ in other HCE (Bischof & Kaiser, 2021)



Context of organised matching physician-doctor

- ↗ in HCE (Simonsen et al., 2021)
- No impact on sick-leave (Markussen et al., 2013)



Context of capitation

- ↘ in GP & ↗ in other HCE (Monsees & Westphal, 2025)

- **Goal:** Impact of general practitioner (GP) closure on patients' healthcare use & explanatory mechanisms
- **Method:**
 - Event-Study
 - Difference-in-difference
- **Data:** Administrative data of the National Health Insurance in France (SNDS)
 - Data from 2009 to 2025
 - Almost all the French population
- **Main result:** Closure leads to drop in GP use without spillover, explained by search cost

- 1 Context and Institutional Settings
- 2 Data
- 3 Method
- 4 Main Results
- 5 Mechanisms
- 6 Additional Results

- 1 Context and Institutional Settings
- 2 Data
- 3 Method
- 4 Main Results
- 5 Mechanisms
- 6 Additional Results

- **Supply:**

- Regulation of the number of doctors (44 specialities)
- Care path: GP $\Rightarrow$ specialists $\Rightarrow$ hospital
- Mostly solo-practice
- Doctor are free to choose their location, working time
- Fee-for-service system (sector 1 and 2)
- No matching patient-doctors

- **Demand:**

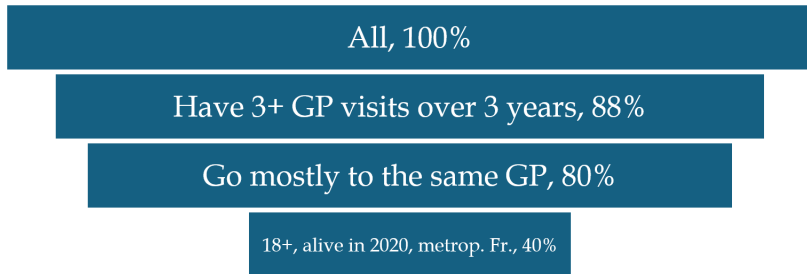
- Ageing population, increase in chronic disease incidence
- Universal Mandatory National Health Insurance (NHI)
- NHI covers $\cong$ 70% of the regulated fees
- 100% Coverage for chronic disease
- Supplementary HI can cover the rest (95% have one)

- 1 Context and Institutional Settings
- 2 Data
- 3 Method
- 4 Main Results
- 5 Mechanisms
- 6 Additional Results

Data from the National Health Insurance (**SNDS**)

- 2009 to 2025 $\Rightarrow$ we focus on 2011-2020
- Almost all the French $\Rightarrow$ we focus on the 18+
- Information about financial transfer with the NHI
 - Outpatient care
 - Inpatient care
- No info on socio-economics
- Info on some diseases (algorithms and “ALD”)

Figure 1: Sample Selection



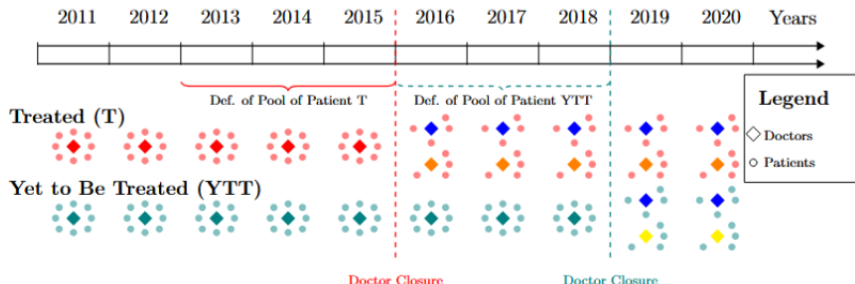
⇒ Exclusion of the non-consumers and the “electron” consumers i.e $\approx 20\%$ of population

- 1 Context and Institutional Settings
- 2 Data
- 3 Method**
- 4 Main Results
- 5 Mechanisms
- 6 Additional Results

- Analysis by quarter of consumption
- Analysis at the patient level
- **Event Study** (t time in quarter; i individual; d baseline doctor; y year)

$$HC_{it} = \sum_{k \neq -7} \beta_k D_i \mathbb{1}\{t - t_i^* = k\} + \theta_i + \theta_t + \theta_d + \varepsilon_{it} \quad (1)$$

Figure 2: Definition of Treated and Control Groups



► More on Alternative Control Groups

- 1 Context and Institutional Settings
- 2 Data
- 3 Method
- 4 Main Results**
- 5 Mechanisms
- 6 Additional Results

Figure 3: Probability to See a General Practitioner

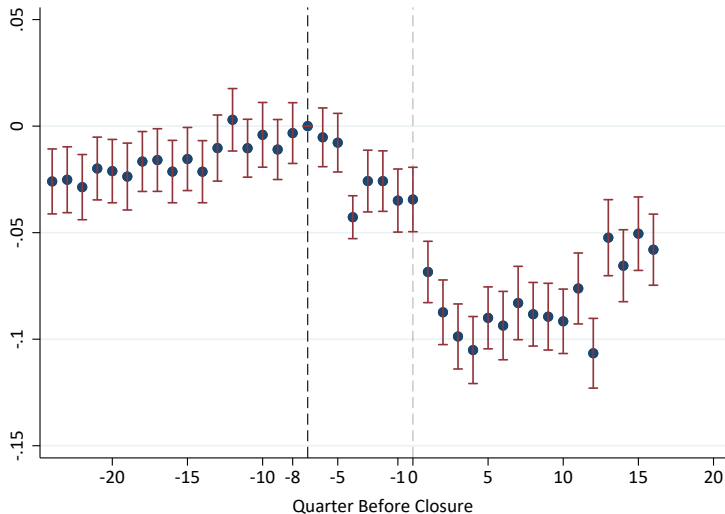


Figure 4: Number of General Practitioner Visits

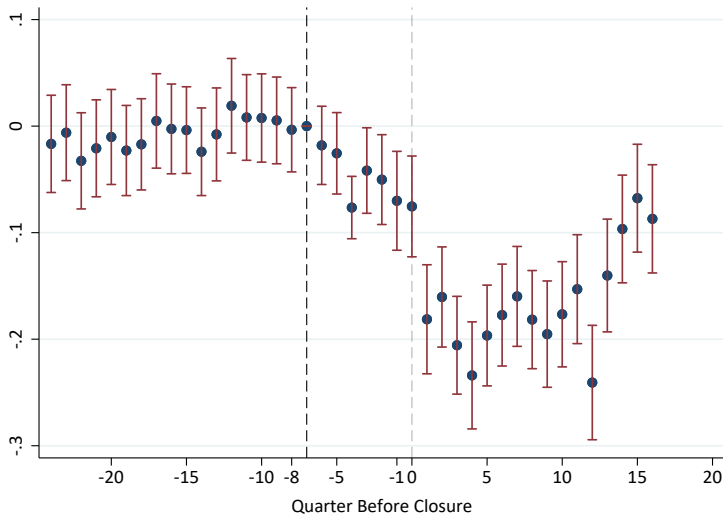


Table 1: Impact of Closure on Yearly GP Use

	GP
Any GP	-0.094*** (0.0022) [-10%]
# Visits	-0.59*** (0.037) [-11%]
Spend. (€)	-17.55*** (1.06) [-14%]
N	17,030,310
N ind.	1,703,031

- 1 Context and Institutional Settings
- 2 Data
- 3 Method
- 4 Main Results
- 5 Mechanisms**
- 6 Additional Results

- **Search cost.** If it occurs, the main effect should be:
 - larger in area with less alternative GP
 - larger in low doctor density area
 - smaller if patients receive guidance on alternative GP
- **Travel cost.** If it occurs, the main effect should be:
 - larger if the distance to the nearest GP increases
 - larger if the patient switch to a farther away GP
- **Waiting time.** If it occurs, the main effect should:
 - affect patient with a GP who absorb the patient of the closing practice
 - be larger among GP absorbing inflow of patients

- **Search cost**

- ✓ Effect slightly larger in **area with declining number of GP** ▶ Graph
- ✓ Slightly higher decrease in GP use in **low density area** ▶ Graph
- ✓ Smaller if patients receive **guidance on alternative GP** ▶ Graph

⇒ Search cost can be a driver of GP ↘

- **Travel cost**

- ✗ Among those having a new GP: No difference depending on **how far is the new doctor** [▶ Graph](#)
- ✗ Among those having a new GP: No difference when **the new doctor is in the same municipality or not** [▶ Graph](#)
- ✗ No difference depending on distance to the newest closest GP

⇒ No evidence that travel cost is a driver of GP ↘

- **Waiting Time**

- ✓ Among consumers: GP closure leads to a 9 additional days between visits
- ✗ No impact on the indirectly affected but higher waiting time (2 days) [▶ Graph](#)

⇒ Slight evidence that waiting time is a driver of GP ↘

- 1 Context and Institutional Settings
- 2 Data
- 3 Method
- 4 Main Results
- 5 Mechanisms
- 6 Additional Results

- **Specialist visits:**

- ✗ No effect on dentist and nurse
- ✗ No effect on psychiatrist, gynaecologist and ophthalmologist
- ✓ Slight decrease in specialist with access regulated through GP referral

- **Drugs:**

- ✗ No impact on hypertensive and anaemia/protein
- ✓ Decrease of antidiabetic (6%) psychoanaleptics (7%) and osteoarthritis (8%)

- **Hospital:**

- ✗ No impact on hospital stays
- ✗ No impact on emergency care use

- **Impact on other cares**

- ✗ Substitution between care $\Rightarrow$ No evidence
- ✓ Gatekeeping system $\Rightarrow$ Yes, for ambulatory care
- ✗ Doctors' behaviour $\Rightarrow$ No evidence for drugs we targeted

- **Impact on health**

- ✗ Continuity of care
 - No difference by type of closure [▶ Graph](#)
 - No difference by referral (seen in Section Search Cost)
- ✗ Doctors' behaviour
 - No doctors' gender effect [▶ Graph](#)
 - No doctors' age effect [▶ Graph](#)
- Adverse consequences of forgoing care
 - No effect on observable adverse consequences

- **Goal:** Impact of GP closure on patients' healthcare use and its mechanisms
- **Data:** Admin data of the French National Health Insurance (SNDS)
- **Main results:**
 - Decrease in GP consumption and drugs
 - Search cost seems to be one of the driver
 - No substitution with other type of care
- **Next steps:**
 - Analyses of different market of doctors (eg. gynaecologists)
 - Role of platforms on shaping the search cost in France

Impact of Physician Practice Closure on Patients' Healthcare Access and Use

Elsa Perdrix⁴ Co-authored with Daniel Herrera⁵ and
Thibaut Heyer⁶

4th Health Economics Conference – TSE, June 16–17, 2026

⁴PSL, Université de Dauphine, LEDa

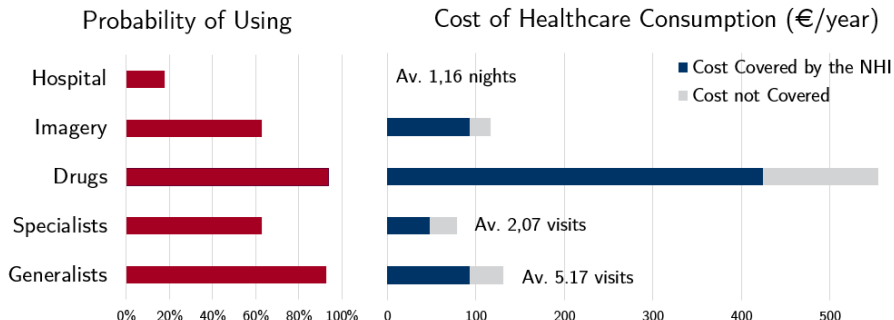
⁵Ecole des Mines de Paris, CERN

⁶PSL, Université de Dauphine, LEDa; Paris 1

Table 2: Patients' Characteristics in 2014

	Treated	Yet To be T.
Socio-Economics		
Age	52.81 (18.01)	54.03 (17.41)
Women	0.55	0.55
Low Income	0.0257	0.0324
Health		
Chronic Cond.	0.23	0.24
GP		
Spe.		
N	1,580,960	122,071

Figure 5: Healthcare Use in 2014 in the Main Sample



Note: 1,7 millions patients in treated or yet to be treated group.

Data: SNDS data. 2014.

► Figure for other samples

Table 3: Doctors' Characteristics in 2014

	Treated	Yet To be T.
Age	59.80 (8.34)	59.19 (7.89)
Women	0.20	0.24
N	3,489	583

► [Back to the presentation](#)

At closure:

- Most patients goes to a young doctor:
 - 20% goes to a doctor in his first year of practice
 - 50% goes to a less than 10-years experience doctor
- Consultation trends after closure
 - Most patients see within a quarter a new doctor (62%)
 - 90% within a year
 - 5.7% don't see a doctor (within 3 years)

► [Back to the presentation](#)

Figure 6: Pool of Patients Defined on a Different Time-Window

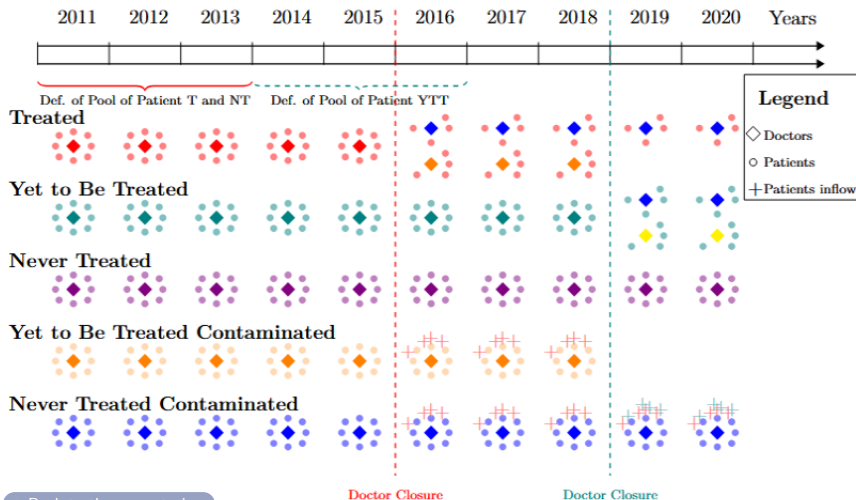


Figure 7: Several Control Groups

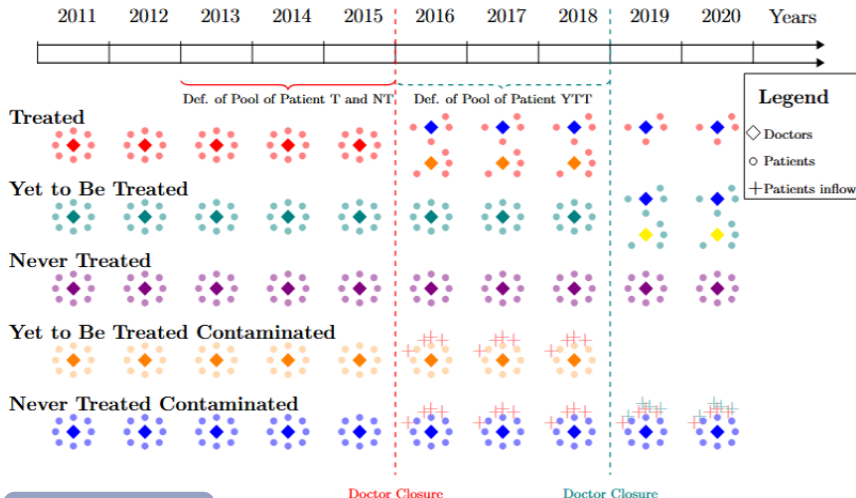
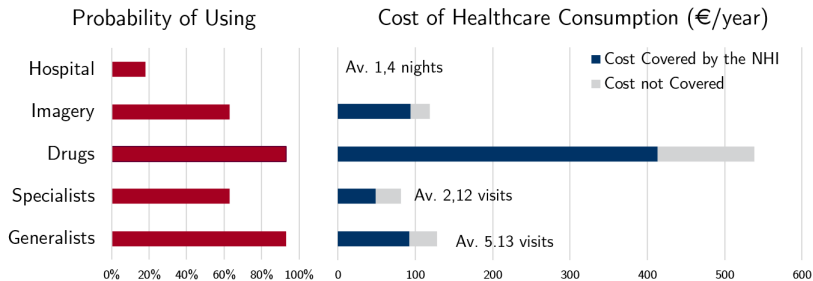


Figure 8: Healthcare Use in 2014 - All Groups



Note: 27 millions patients from the treated, yet to be treated, never treated groups.
SNDS data. 2014.

► [Back to the presentation](#)

Figure 9: Probability of GP Visit

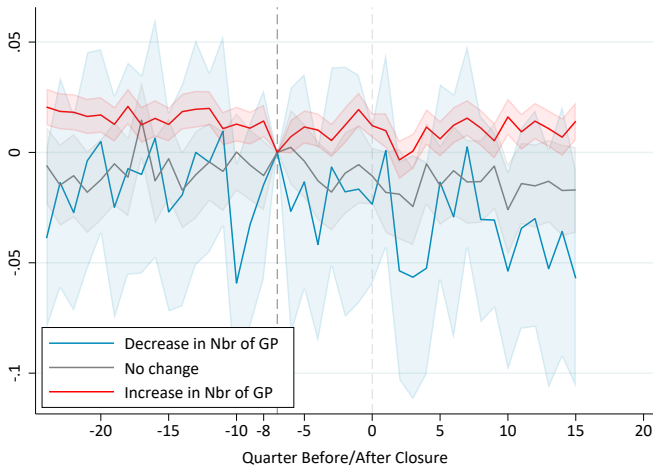


Figure 10: Number of GP Visits

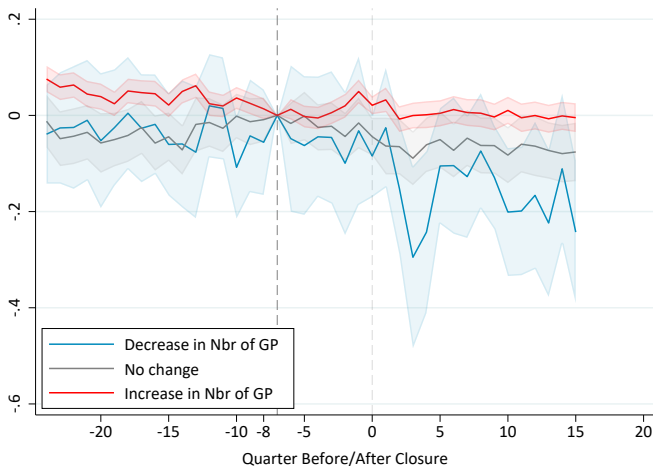


Figure 11: Probability of GP Visit

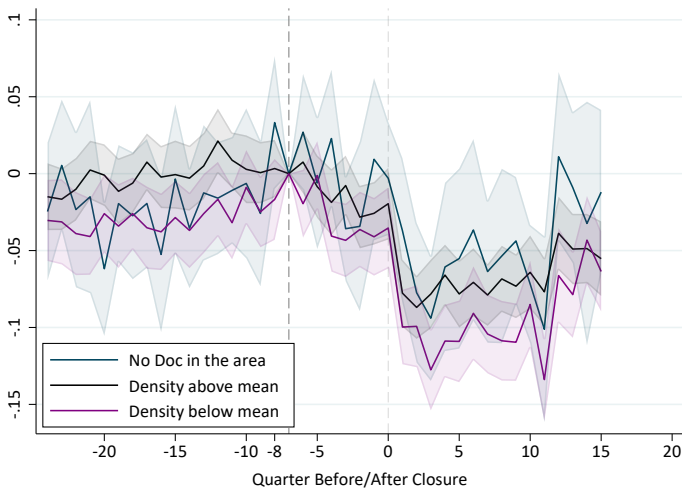


Figure 12: Number of GP Visits



Figure 13: Probability of GP Visit

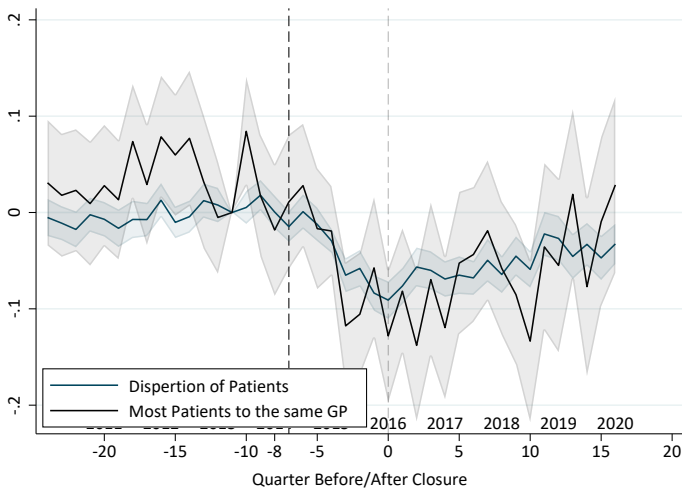


Figure 14: Number of GP Visits

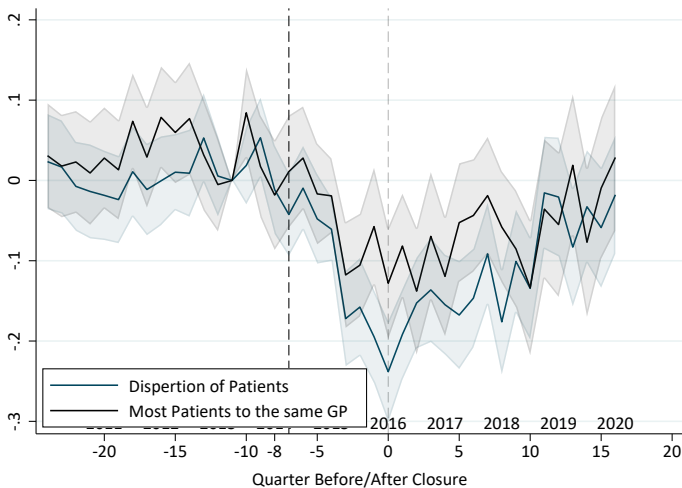


Figure 15: Probability of GP Visit

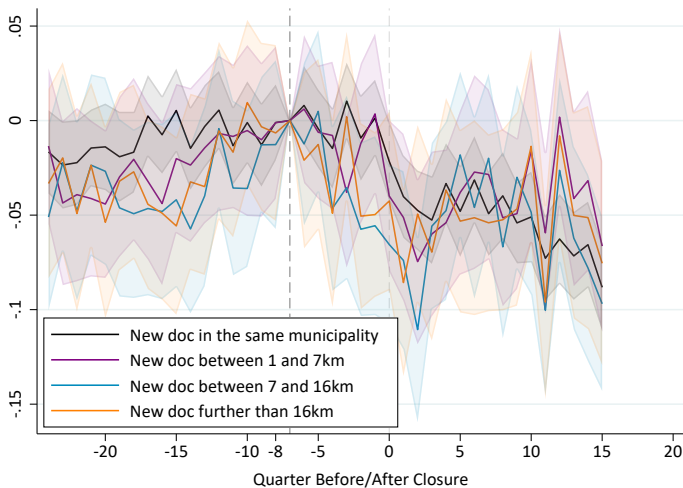


Figure 16: Number of GP Visits

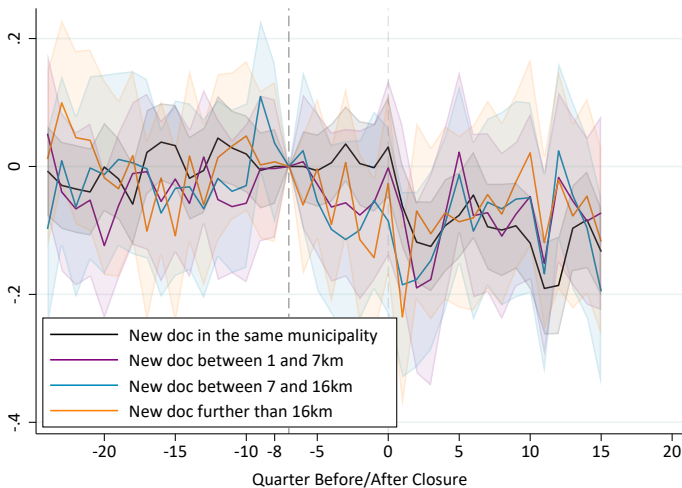


Figure 17: Probability of GP Visit

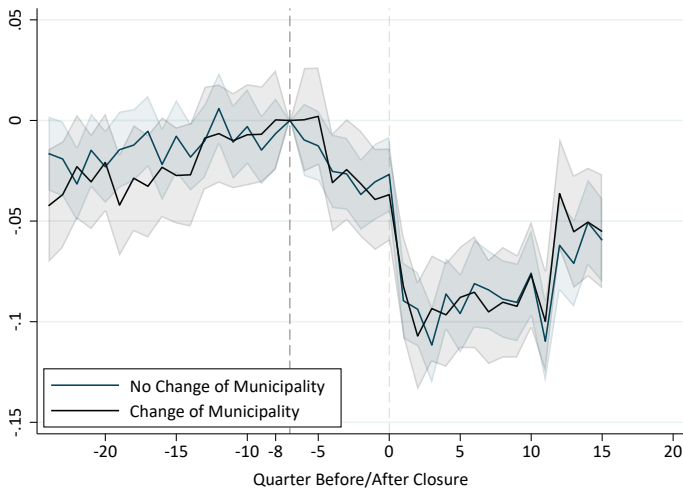
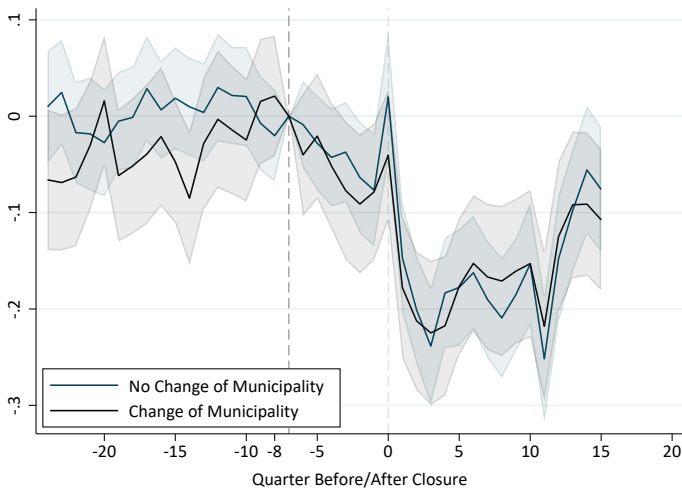
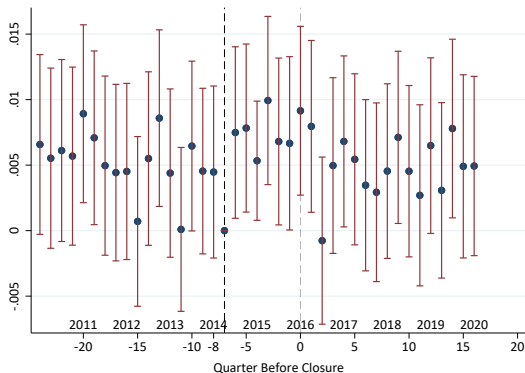


Figure 18: Number of GP Visits



- No spillover effects on other patients

Figure 19: Probability of GP visit



- No spillover effects on other patients

Figure 20: Number of GP visits

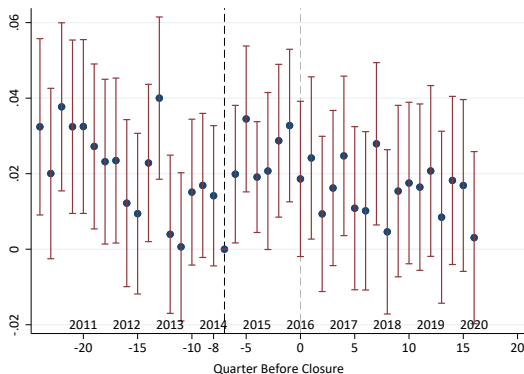


Figure 21: Probability of GP Visit

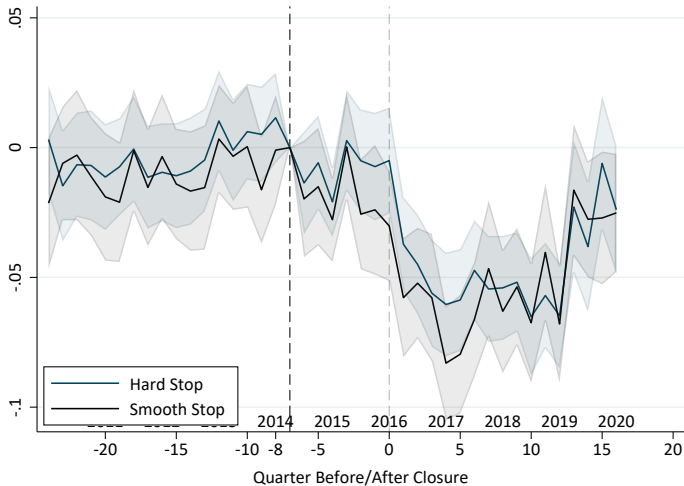


Figure 22: Number of GP Visit

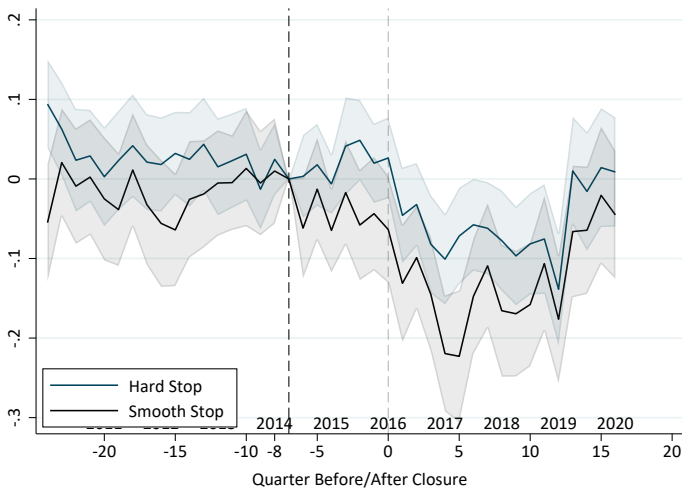


Figure 23: Probability of GP Visit

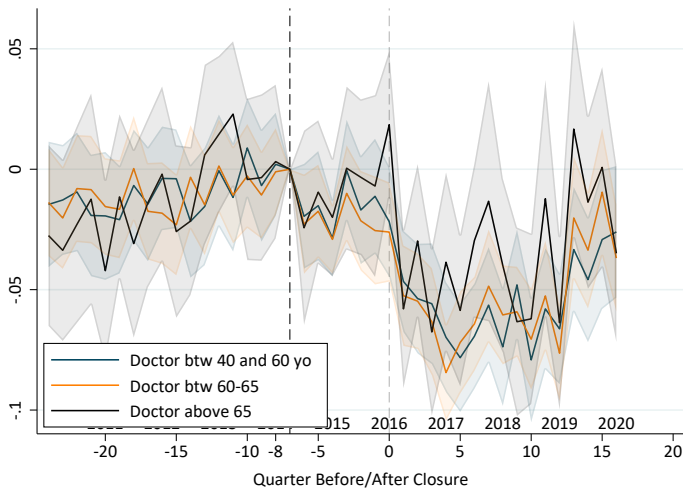


Figure 24: Number of GP Visit

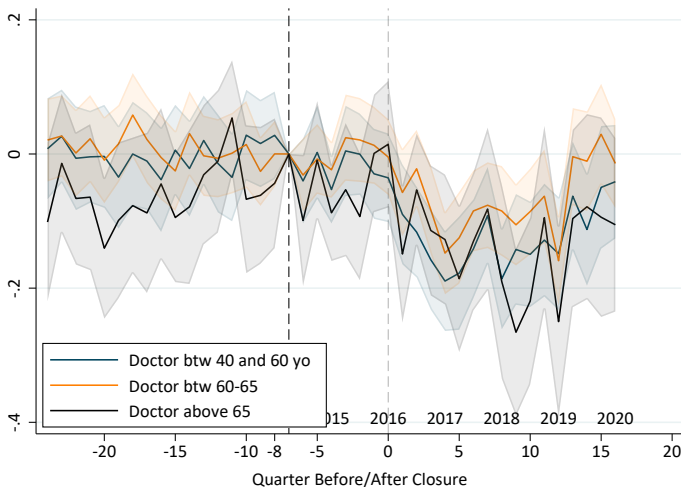


Figure 25: Probability of GP Visit

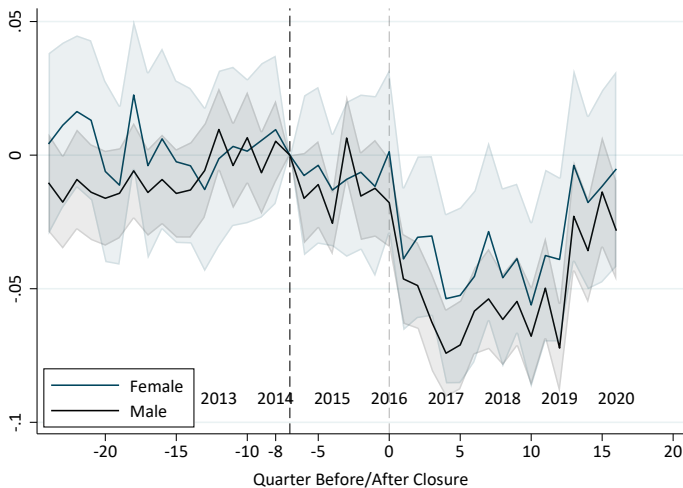


Figure 26: Number of GP Visits

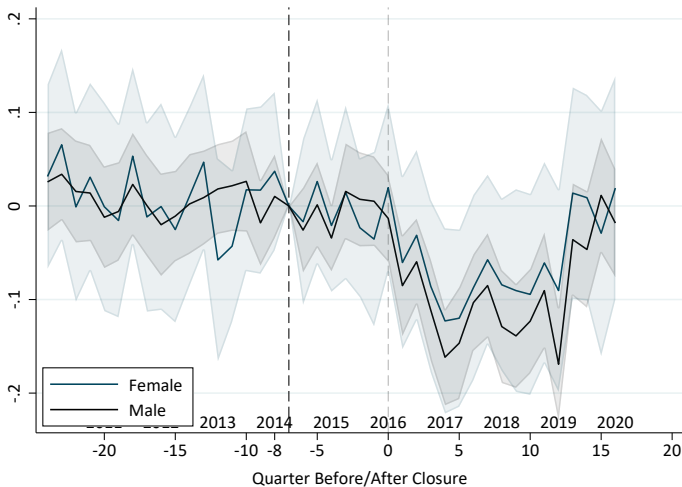


Figure 27: Probability of Visiting a GP

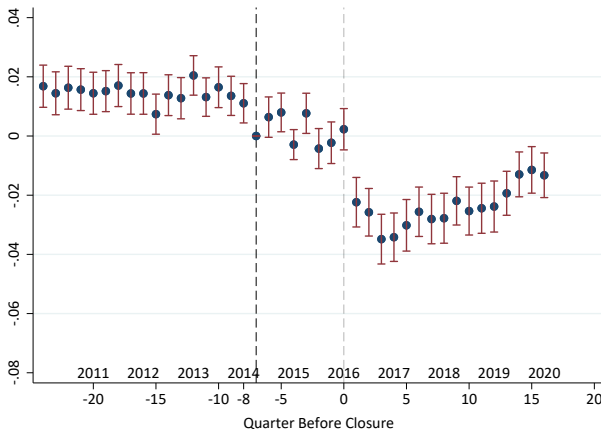


Figure 28: Number of GP Visits

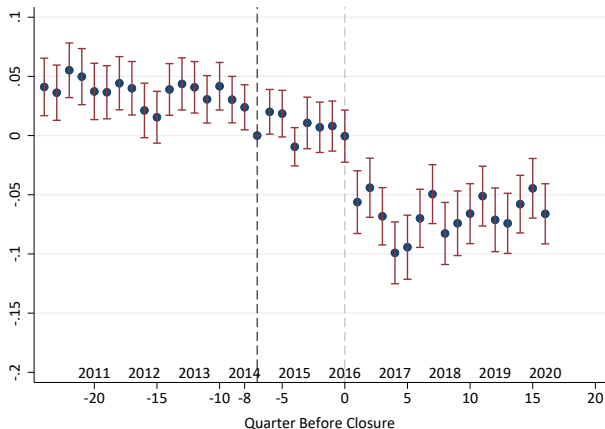


Figure 29: Probability of Visiting a GP

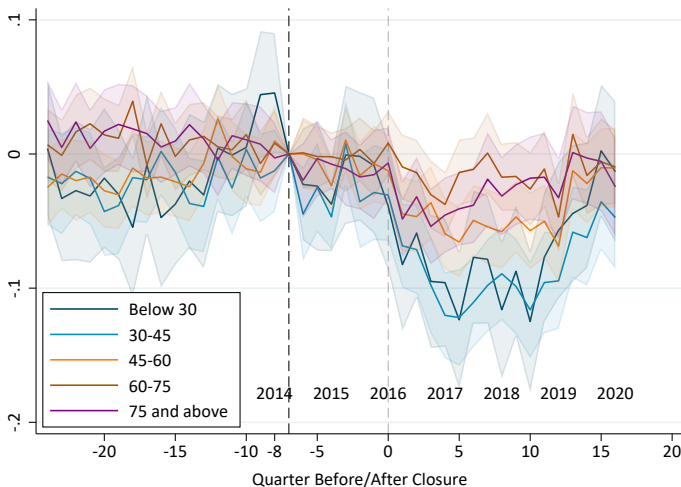


Figure 30: Number of GP Visits

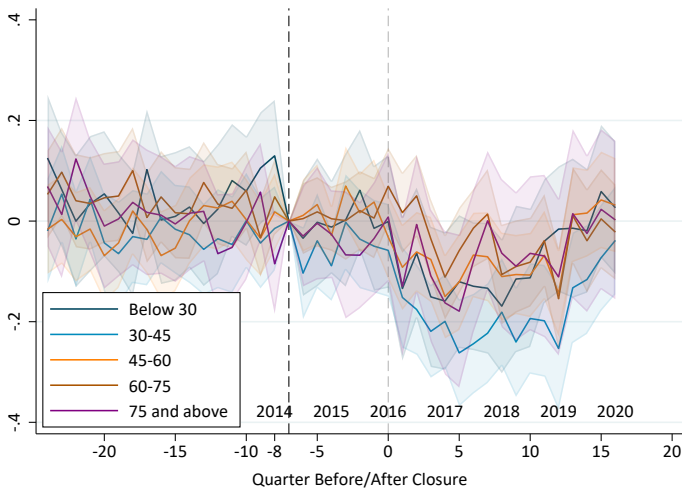


Figure 31: Probability of Visiting a GP

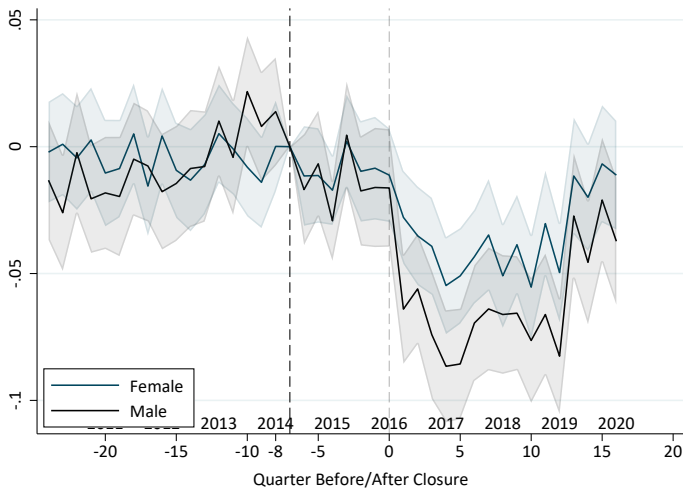


Figure 32: Number of GP Visits

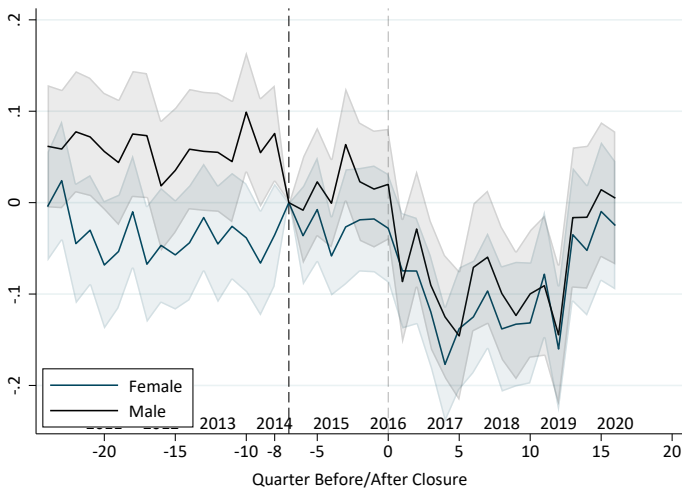


Figure 33: Probability of Visiting a GP

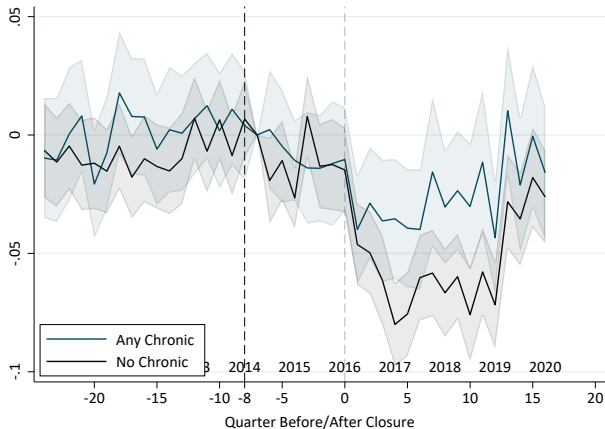


Figure 34: Number of GP Visits

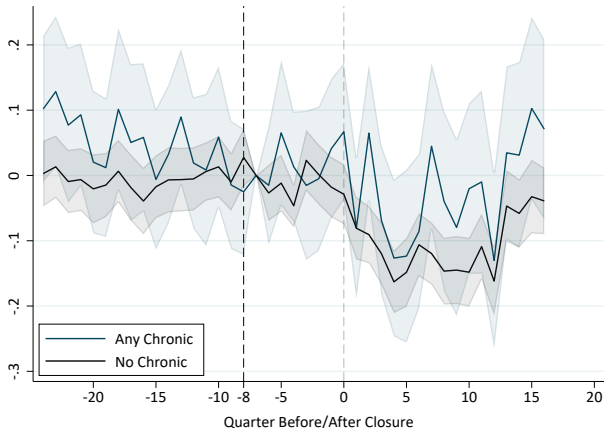


Figure 35: Probability of Visiting a GP

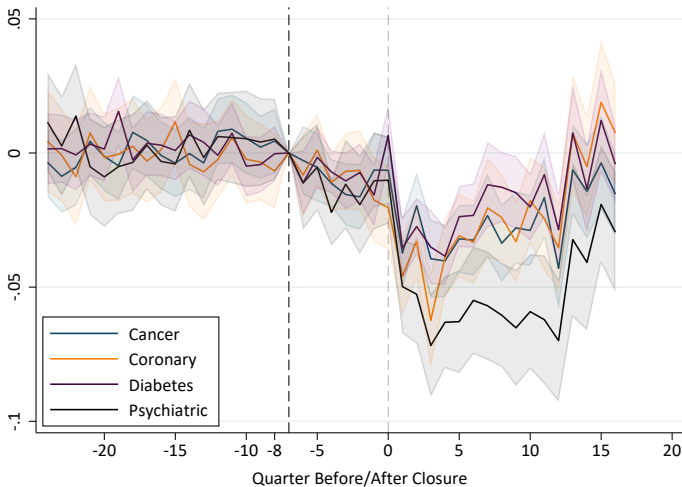


Figure 36: Number of GP Visits

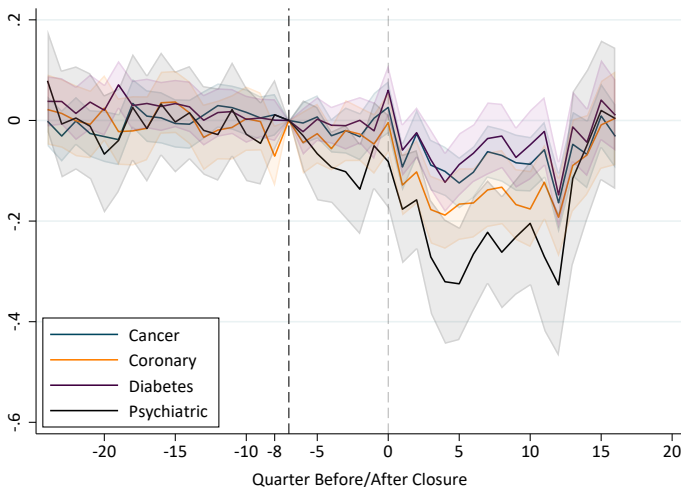


Figure 37: Probability of Visiting a GP

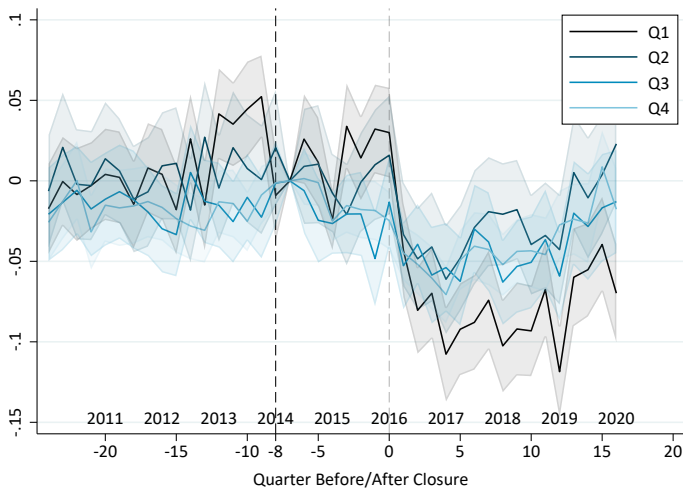


Figure 38: Number of GP Visits

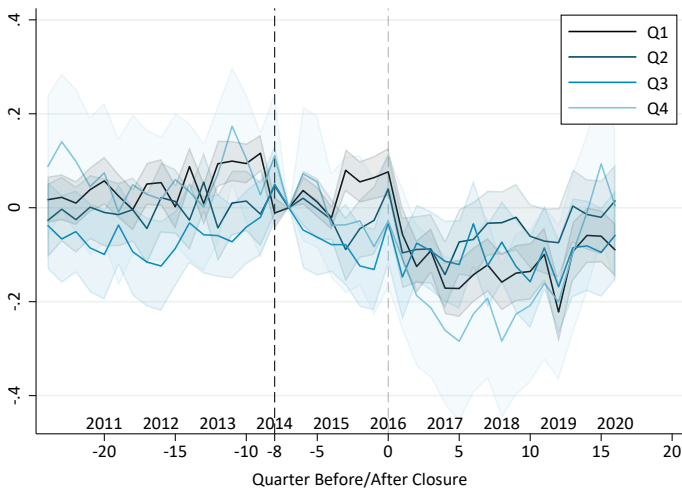


Figure 39: Probability of Visiting a GP

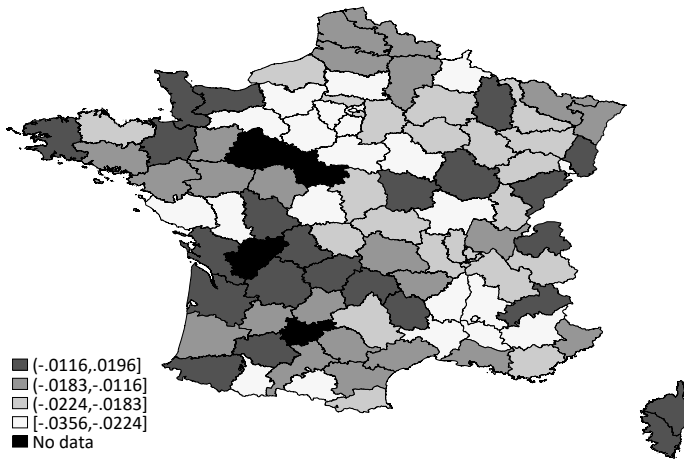


Table 4: Descriptive Statistics (1/2)

	Non-conta.			Conta.		
	Treated	YtBT	NT	YtBT	NT	Total
Patients Characteristics						
Age	52.81 (18.01)	54.09 (17.36)	52.12 (18.00)	52.26 (17.71)	51.06 (18.04)	51.31 (18.02)
Women	0.55	0.55	0.57	0.55	0.56	0.56
CMU	0.0257	0.0324	0.0383	0.0304	0.0283	0.0286
Patients Chronic Disease						
Any	0.227	0.235	0.228	0.215	0.218	
Diabete	0.045	0.047	0.047	0.043	0.042	0.043
Cancer	0.045	0.047	0.042	0.040	0.042	
Psy.	0.0246	0.0257	0.0244	0.0242	0.0244	0.0244
Coronary	0.0232	0.0238	0.0215	0.0219	0.0211	0.0213
N (in k)	1,560	128	1,105	1,617	22,804	27,215

Table 5: Descriptive Statistics (2/2)

	Treated	Non-contaminated Yet to be Treated	Never Treated	Contaminated Yet to be Treated	Never Treated	Total
Doctors Characteristics						
Age	59.84 (8.29)	58.98 (7.89)	54.40 (8.86)	57.78 (8.54)	52.34 (8.38)	53.21 (8.67)
Women	0.2	0.23	0.33	0.22	0.29	0.28
Hard stop	0.67	0.52		0.70		
N	3,857	685	3,782	2,896	38,799	50,019

Figure 40: Probability to See a Specialist

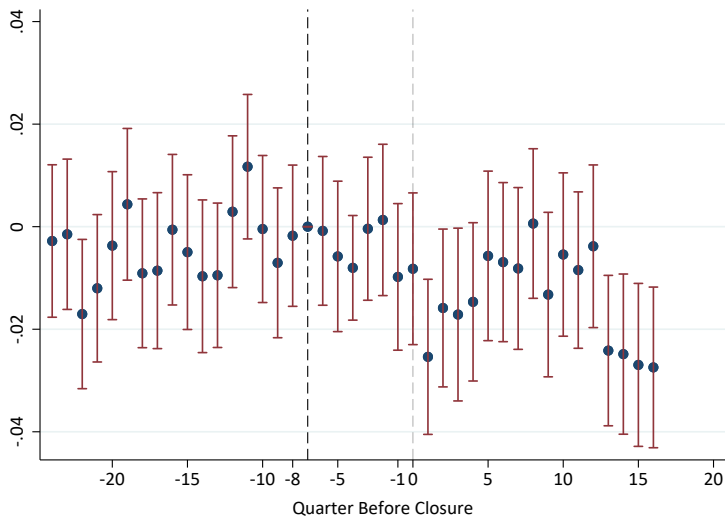


Figure 41: Number of Specialist Visits

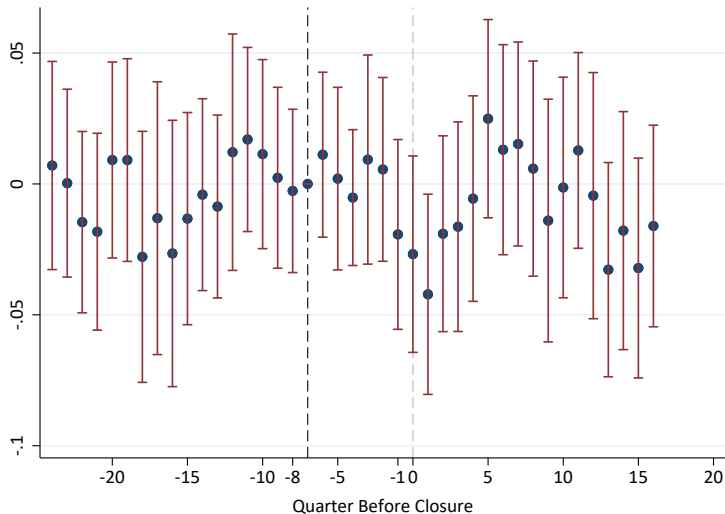


Figure 42: Probability of Buying Prescribed Drugs

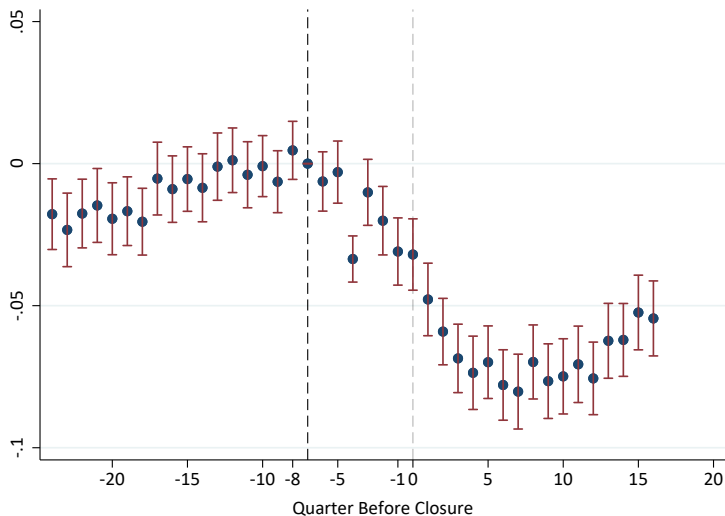
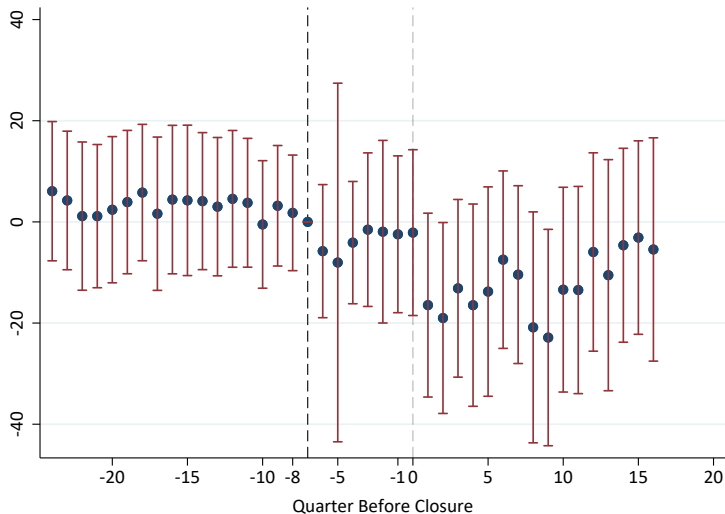


Figure 43: Total Cost of Prescribed Drugs



- **Impact on other cares**
 - Substitution between care
 - Gatekeeping system
 - “Fresh Eye” effect
- **Impact on health**
 - Continuity of care
 - Doctors’ behaviour
 - Adverse consequences of forgoing care

Table 6: Impact of Closure on Yearly Healthcare Use

	GP	Specialist	Imagery	Drugs
Any GP	-0.094*** (0.0022) [-10%]	-0.029*** (0.0019) [-5%]	-0.030*** (0.0020) [-5%]	-0.074*** (0.0019) [-8%]
# Visits	-0.59*** (0.037) [-11%]	-0.035** (0.016) [-2%]		
Spend. (€)	-17.55*** (1.06) [-14%]	-1.48** (0.64) [-2%]	-2.25** (0.96) [-2%]	-26.21*** (6.54) [-5%]
N	17,030,310	17,030,310	17,030,310	17,030,310

Table 7: Impact of Closure on Yearly Healthcare Use (2/2)

	Hospital	Emergency Care
Any GP	-0.0034 (0.0011) [-2%]	-0.0011 (0.00079) [-3%]
# Days	-0.038 (0.0024) [-3%]	
N	17,030,310	17,030,310

Table 8: Impact of Closure on Yearly Healthcare Use - among Consumers

	Estimate	(se)	N
Nbr GP Visits	-0.38***	(0.0052)	756,040
Nbr Specialist Visits	0.03	(0.057)	541,750
Nbr Imagery Acts	0.06	(0.056)	651,230
Nbr Biology Acts	0.07	(0.045)	692,100
Drugs (€)	-1.98	(1.136)	809,420
Days in Hospital	0.18	(0.884)	79,870
Days btw Visits	9.108	(1.515)	157,818

Each row is one subsample of consumers of this care service. Days between visits in on the subsample of those with 2+ visits after closure.