Who Cares When You Close Down?

The Effects of Primary Care Practice Closures on Patients

Tamara Bischof[1], Boris Kaiser[2], Michael Gerfin[1]

[1]Department of Economics, University of Bern
[2]B,S,S. Volkswirtschaftliche Beratung, Basel

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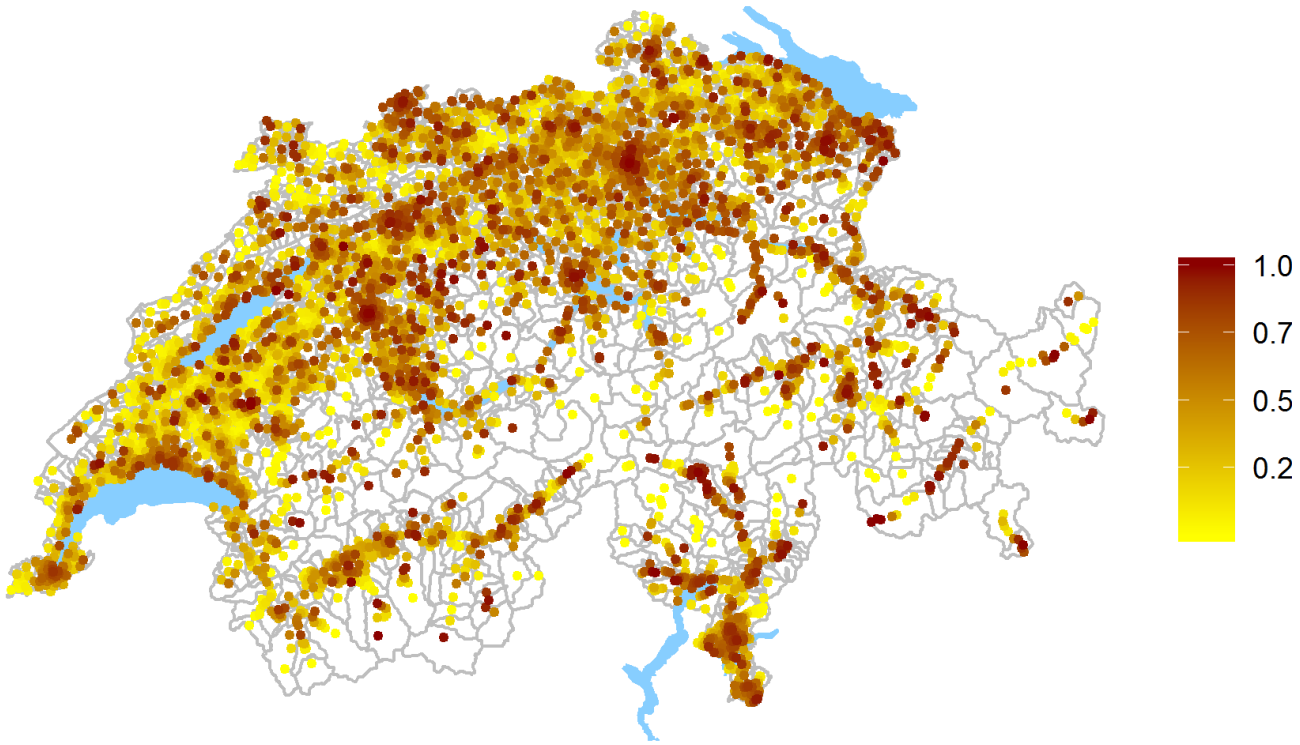
Motivation and Research Questions

- Many countries are faced with ageing GP populations and insufficient inflow of young GPs (OECD, 2017)
- One consequence is that self-employed GPs are forced to close their practice when retiring.
- Since GPs act as gatekeepers and "coordinators" of care, practice closures may have implications for patients.
  - Lower availability, discontinuity of interpersonal care.

Research Questions:
How do practice closures and the resulting discontinuities of care affect patients' utilization patterns and health-related outcomes?

Availability of Primary Care (2015)



Notes: Inverse-distance weighted GP-to-population ratio measured at the patients' place of residence (zip code and town name). GPs are in FTE, population counts are risk-adjusted and in 1,000s. Each fot respresents a zip code.

Structure of talk

1. Data
2. Research Design
3. Results
4. Conclusion

Data

1. Mandatory health insurance claims data (CSS Insurance)
   - contains information on patients' demographic characteristics, place of residence, insurance contracts, utilization and expenditures etc.
   - 2005 to 2016
   - roughly 1.2 mil. individuals insured in mandatory health insurance per year
2. Data on practice closures
   - evolution of monthly consultations in mandatory health insurance system (Datenpool, Sasis)
   - primary data collection through (100s of) telephone calls
   - 325 practice closures, 3,690 practices in the control group

$\longrightarrow$ matched patient-provider panel dataset in event time

Basic Idea

- Source of practice closure: GPs who shut down their practice when entering retirement
- Dynamic perspective: we study the impact of practice closures (i.e. *discontinuities* of care) on patients' utilization and outcomes
- Idea:
  1. compare outcomes of an affected group of patients (treatment group) before and after practice closures.
  2. compare affected patients with a group of unaffected patients (control group).

  $\longrightarrow$ Difference-in-Differences (DiD) framework

Construction of Treatment Group

- Patients' regular GP must be determined empirically
- Assignment to treated group is based on the following protocol:

Sampling Protocol

(i) visit to a GP with a practice closure

(ii) at least 1 primary care consultation during two years before closure

(iii) share of primary-care consultations with the regular provider $> 75\%$

(iv) observed two years before and after closure

- Overall we have about 13'000 treated patients

Construction of the Control Group

To obtain a valid control group, the sampling protocol must mimick that for the treated group

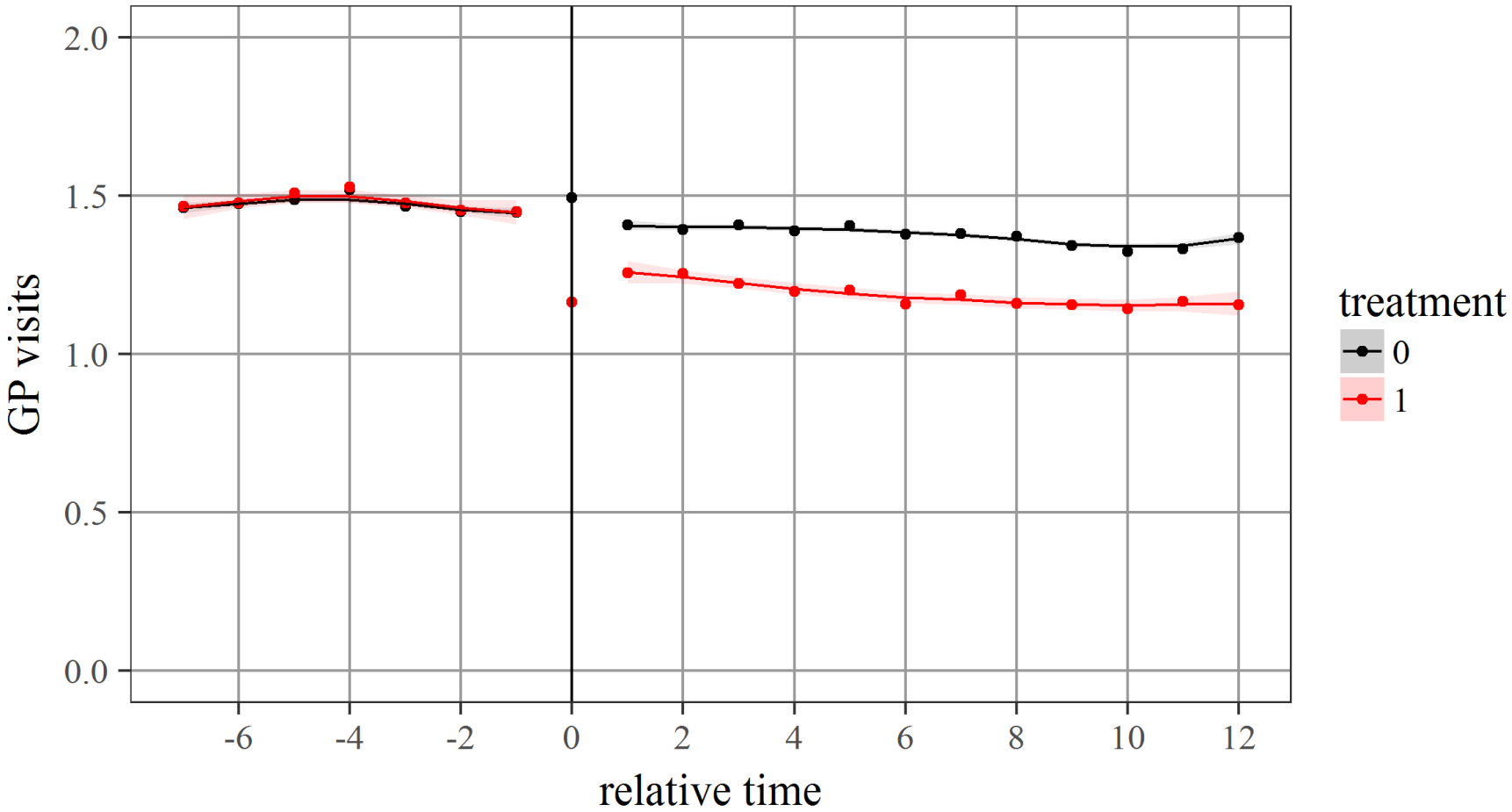
(0) pseudo-event for continuously operating GPs:
random draw with replacement from the distribution of closing dates of the treated group.

(i.a) visit to a GP with a pseudo practice closure

... steps (ii)-(iv)

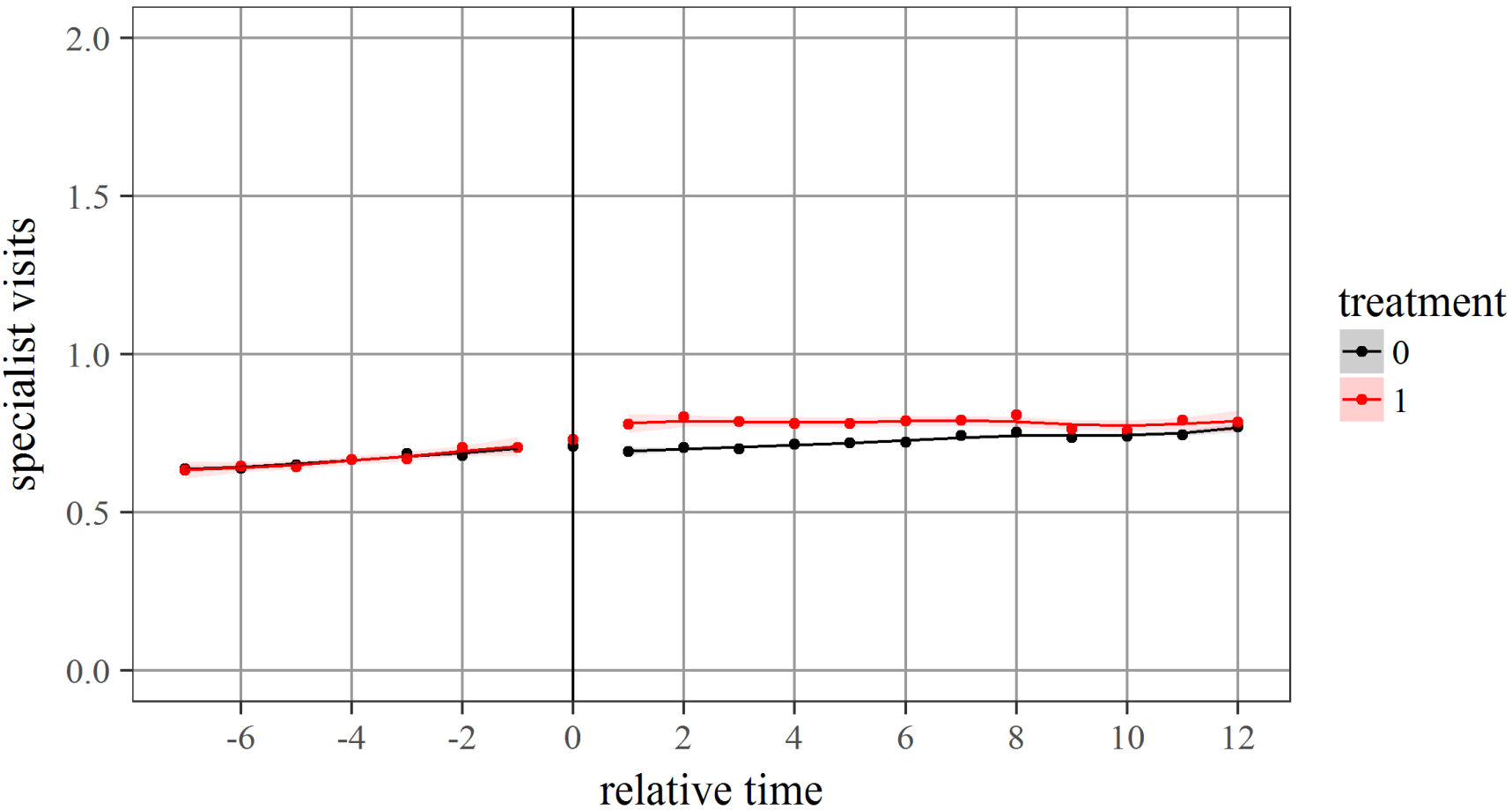
- Overall we have about 197'000 control patients

Descriptive Analysis (weighted): GP Visits



Notes: Dots: quarterly averages. Curve: local linear regression estimate with 95%-confidence interval. Treatment occurs at relative time 0.

Descriptive Analysis (weighted): Specialist Visits



Notes: Dots: quarterly averages. Curve: local linear regression estimate with 95%-confidence interval. Treatment occurs at relative time 0.

DiD Estimates

	Estimate	SE	in %	Baseline
Utilization (per 100 patients):				
GP Visits	-17.5^{***}	(3.2)	-11.8	148
Specialist Visits	7.0^{***}	(1.6)	10.6	68
Hospital Visits (Outpatient)	1.9^{*}	(1.1)	4.9	39
Total Visits	-8.6^{**}	(4.0)	-3.4	255
% Visits not substituted	49.1			
Other Outcomes:				
Hospitalization Rate (x 1000)	2.0	(1.4)	3.6	40
Total HCE	20.0	(26.0)	1.6	1,238
HCE per visit	4.2^{***}	(1.6)	4.8	87

Notes: Average causal effects for the first three years after closure. Data is measured in quarterly terms. Standard errors are clustered at the patient level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Comments

- GP visits drop by 18 per 100 patients per quarter $\Rightarrow$ total drop per year is $18 \times 4 \times 130 = 9360$ (there are 13'000 treated patients
- Of those 49.1% ($= 4596$) are not substituted
  - Note that this a drop of 3.4% with respect to all visits
- No significant effect on hospitalization rate
- Small positive but insignificant effect on total health care expenditure per patient
- Health care costs per visit increase by 4.8%

Causal Effects by Availability of Primary Care

	low GP density			high GP density		
	Est.	SE	in %	Est.	SE	in %
Utilization (per 100 patients)						
GP Visits	-18.7^{***}	(4.3)	-13.7	-17.0^{***}	(4.5)	-10.7
Specialist Visits	4.0^{*}	(2.1)	6.1	10.2^{***}	(2.9)	15.2
Outpatient Visits	0.6	(1.8)	1.6	4.0^{***}	(1.6)	10.0
Total Visits	-14.1^{**}	(6.0)	-5.8	-2.9	(5.3)	-1.1
% Visits not substituted	75.4			17.1		
Other Outcomes						
Total HCE	13.2	(43.7)	1.1	12.4	(37.9)	1.0
patients			69,980			70,285

Notes: This table shows weighted estimates of causal effects of practice closures on outcomes, Data is measured in quarterly terms. Standard errors are clustered at the patient level.
$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Comments

- In low GP density regions (lower third of densities) visits drop by 19 per 100 patients per quarter $\Rightarrow$ total drop per year is $19 \times 4 \times 45 = 3420$ (there are 4'500 treated patients)
- Of those 75.4% ($= 2579$) are not substituted (this is 56% of all missed visits)
  - note that this a drop of 5.8% with respect to all visits
- Small positive but insignificant effect on total health care expenditure per patient

Causal Effects by Chronic Condition

	No chronic condition			Chronic condition		
	Est.	SE	in %	Est.	SE	in %
Utilization (per 100 patients)						
GP Visits	-10.2^{***}	(2.5)	-11.3	-24.9^{***}	(4.6)	-12.1
Specialist Visits	2.9^{**}	(1.3)	6.9	11.0^{***}	(2.4)	12.0
Outpatient Visits	0.1	(0.9)	0.2	3.8^{**}	(1.8)	6.7
Total Visits	-7.3^{**}	(3.2)	-4.7	-10.0^{*}	(5.9)	-2.8
% Visits not substituted	71.6			40.2		
Other Outcomes						
Total HCE	7.2	(24.2)	1.4	33.5	(40.2)	1.7
patients			109,468			100,996

Notes: This table shows weighted estimates of causal effects of practice closures on outcomes, Data is measured in quarterly terms. Standard errors are clustered at the patient level.
$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Comments

- Among patients with chronic conditions visits drop by 25 per 100 patients per quarter $\Rightarrow$ total drop per year is $25 \times 4 \times 65 = 6'500$ (there are 6'500 treated patients)
- Of those 40.2% ($= 2613$) are not substituted (this is 57% of all missed visits)
  - note that this a drop of 2.8% with respect to all visits
- Small positive but insignificant effect on total health care expenditure per patient

Conclusions

- Robust evidence that patients respond to retirement of their regular primary care provider by changing their utilization patterns
  1. Some consultations do not take place any more
  2. Some are substituted by specialists and outpatient hospital departments
- Channel 1 may lead to medical problems at a later stage (i.e. outside our data window)
- Interruption of primary care provision has small positive, insignificant impact on total health care costs, but costs per visit increase by roughly 5%
  - could be indication of less cost-efficient provision of health care

Conclusions

- In regions with **low physician density**, patients are affected more strongly by practice closures because they
  - struggle to find a new regular GP
  - cannot substitute

  $\longrightarrow$ large fraction of reduced GP consultations is not substituted (75%)

- Among **patients with chronic conditions** 40.2% of the drop in GP visists are not substituted

Discussion / Comments

Thanks for your attention!

Working Paper available at:
`https://econpapers.repec.org/RePEc:ube:dpvwib:dp1907`

Bischof, Kaiser (2019), Who Cares When You Close Down? The Effects of Primary Care Practice Closures on Patients. VWI Discussion Paper 19-07.