Physician Retirement, Practice Closures and Discontinuity of Primary Care - What are the Causal Impacts on Patients?

Tamara Bischof, Department of Economics, University of Bern

Boris Kaiser, B,S,S. Volkswirtschaftliche Beratung

BACKGROUND

The sufficient and efficient provision of primary care services is an important goal in every healthcare system. In Switzerland, primary care is mainly provided by self-employed general practitioners (GPs). When self-employed GPs reach retirement age, existing practices are increasingly discontinued. From the perspective of patients, the closing of a practice causes a discontinuity of care and a decrease in the availability of primary care.

RESEARCH QUESTIONS

How do closures of primary care practices affect:

- patients' utilization patterns?
- health-related outcomes such as hospitalization rates and healthcare expenditures?

METHODOLOGICAL APPROACH

The empirical strategy is based on a *difference-in-difference framework* to identify the causal effects of practice closures (i.e. discontinuities of care). Average outcomes before and after practice closures between affected patients (treatment group) and an unaffected group that does not experience changes in primary care provision (control group) are compared. Estimation is based on a fixed effects model.

DATA

- Identification of practice closures: monthly consultations on the provider level from 2005 to 2016 in mandatory health insurance (Datenpool, Sasis AG)
- Matched patient-provider panel data: Insurance claims data from CSS Insurance. Patients in treated group: 14,817; patients in control group 169,471.

PRELIMINARY RESULTS

Practice closures (i.e. discontinuity of primary care) lead to changes in patients' utilization patterns and higher healthcare expenditures. The results suggest that practice closures may cause inefficient utilization of healthcare and higher costs for social health insurance.

Figure 1: Visits to ambulatory primary care decrease by 5%

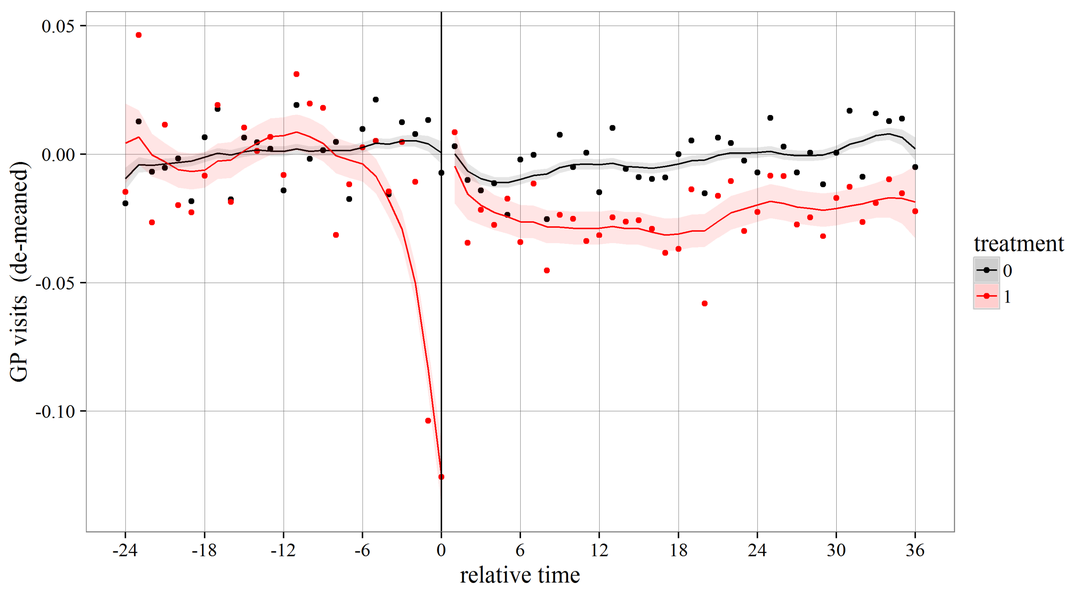


Figure 2: patients' total health care expenditures (CHF) increase by 4.6%

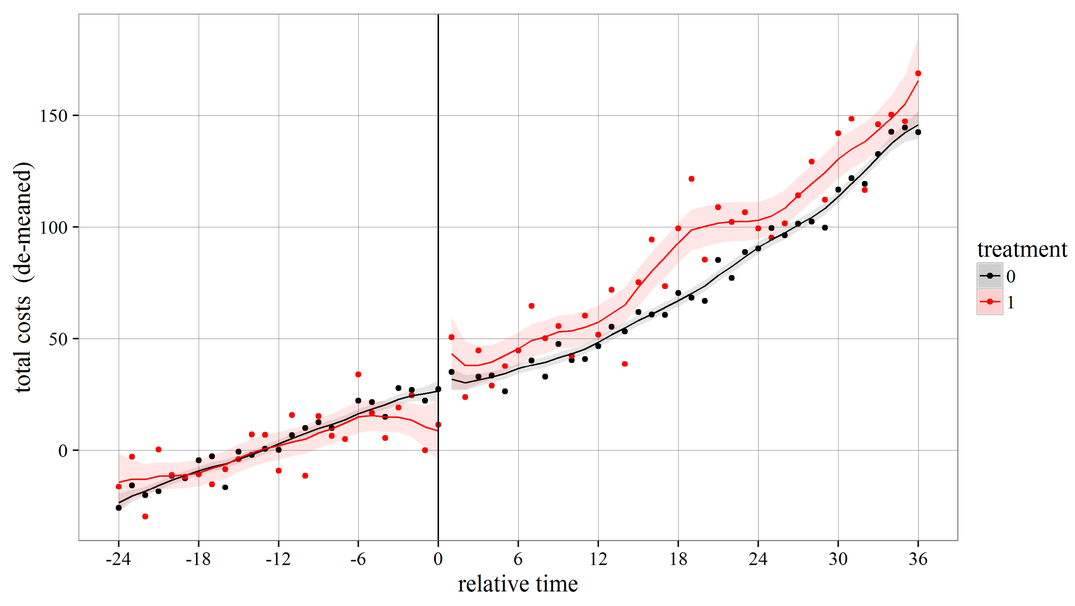


Figure 3: Visits in specialized care increase by 10%

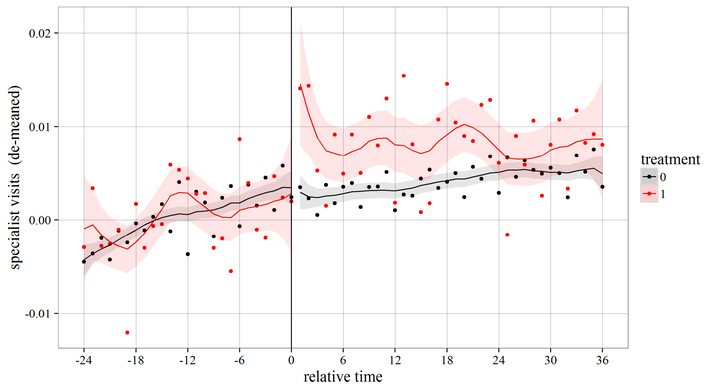


Figure 4: Emergency departments visits increase by 14%

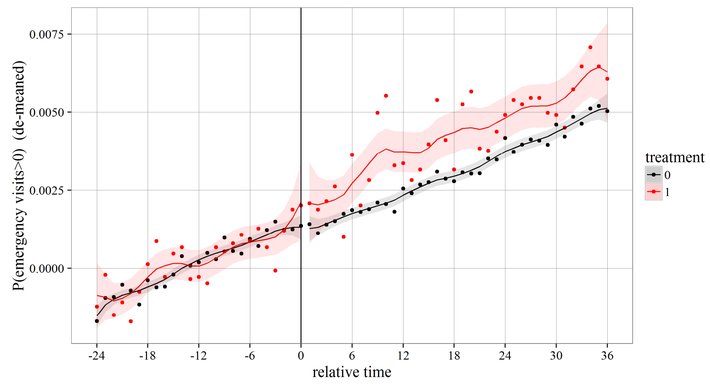
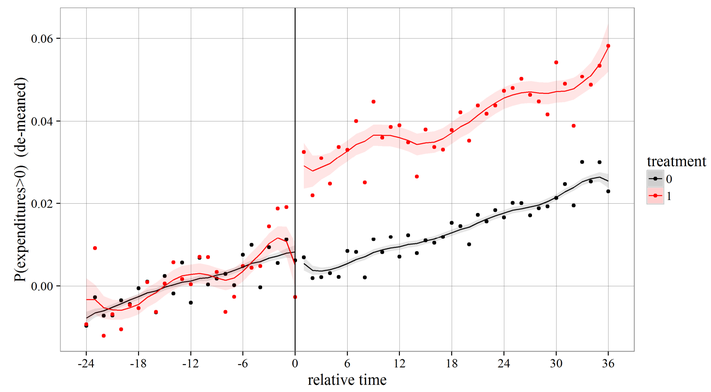


Figure 5: Probability of incurring non-zero costs in a given month rise by 10%



Note: Dots correspond to monthly averages and the smoothed curve is based on a local linear regression using a triangular kernel and a bandwidth of 5. The confidence interval is 90%. The data has been de-meaned using individual pre-treatment means for the period [−24,−3]. Event time indicates the month relative to the event of the practices closure (at $t = 0$).

SELECTED REFERENCES

Angrist, Joshua D and Jörn-Steffen Pischke, *Mostly harmless econometrics: An empiricist's companion*, Princeton university press, 2008.

Burge, Frederick, Beverley Lawson, and Grace Johnston, "Family physician continuity of care and emergency department use in end-of-life cancer care," *Medical care*, 2003, *41* (8), 992–1001.

Cabana, Michael D, Sandra H Jee et al., "Does continuity of care improve patient outcomes," *J Fam Pract*, 2004, *53* (12), 974–980.

Cheng, Shou-Hsia, Chi-Chen Chen, and Yen-Fei Hou, "A longitudinal examination of continuity of care and avoidable hospitalization: evidence from a universal coverage health care system," *Archives of Internal Medicine*, 2010, *170* (18), 1671–1677.

Gerfin, Michael and Michael Lechner, "A Microeconometric Evaluation of the Active Labour Market Policy in Switzerland," *The Economic Journal*, 2002, *112* (482), 854–893.

Gill, James M, Arch G Mainous III, and Musa Nsereko, "The effect of continuity of care on emergency department use," *Archives of Family Medicine*, 2000, *9* (4), 333.

Hansen, Anne Helen, Peder A Halvorsen, Ivar J Aaraas, and Olav Helge Førde, "Continuity of GP care is related to reduced specialist healthcare use: a cross-sectional survey," *British Journal of General Practice*, 2013, *63* (612), e482–e489.

Hong, Jae Seok, Hee Chung Kang, and Jaiyong Kim, "Continuity of care for elderly patients with diabetes mellitus, hypertension, asthma, and chronic obstructive pulmonary disease in Korea," *Journal of Korean Medical Science*, 2010, *25* (9), 1259–1271.

Imbens, Guido W and Donald B Rubin, *Causal inference in statistics, social, and biomedical sciences*, Cambridge University Press, 2015.

Ionescu-Ittu, Raluca, Jane McCusker, Antonio Ciampi, Alain-Michel Vadeboncoeur, Danièle Roberge, Danielle Larouche, Josée Verdon, and Raynald Pineault, "Continuity of primary care and emergency department utilization among elderly people," *Canadian Medical Association Journal*, 2007, *177* (11), 1362–1368.

Kaiser, Boris and Christian Schmid, "Does physician dispensing increase drug expenditures? Empirical evidence from Switzerland," *Health Economics*, 2016, *25* (1), 71–90.

Köthenbürger, Marko and Pauliina Sandqvist, "KOF Prognose der Gesundheitsausgaben. Frühjahr 2017," Technical Report, KOF Studien 2017.

Leleu, Henri and Etienne Minvielle, "Relationship between longitudinal continuity of primary care and likelihood of death: analysis of national insurance data," *PLoS One*, 2013, *8* (8), e71669.

Macinko, James, Barbara Starfield, and Leiyu Shi, "Quantifying the health benefits of primary care physician supply in the United States," *International Journal of Health Services*, 2007, *37* (1), 111–126.

Menec, Verena H, Monica Sirski, and Dhiwya Attawar, "Does continuity of care matter in a universally insured population?," *Health Services Research*, 2005, *40* (2), 389–400.

Nyweide, David J, Denise L Anthony, Julie PW Bynum, Robert L Strawderman, William B Weeks, Lawrence P Casalino, and Elliott S Fisher, "Continuity of care and the risk of reventable hospitalization in older adults," *JAMA internal medicine*, 2013, *173* (20), 1879–1885.

Rosenblatt, Roger A, George E Wright, Laura-Mae Baldwin, Leighton Chan, Peter Clitherow, Frederick M Chen, and L Gary Hart, "The effect of the doctor-patient relationship on emergency department use among the elderly.," *American Journal of Public Health*, 2000, *90* (1), 97.

Saultz, John W, "Defining and measuring interpersonal continuity of care," *The Annals of Family Medicine*, 2003, *1* (3), 134–143.
- and Jennifer Lochner, "Interpersonal continuity of care and care outcomes: a critical review," *The Annals of Family Medicine*, 2005, *3* (2), 159–166.
- and Waleed Albedaiwi, "Interpersonal continuity of care and patient satisfaction: a critical review," *The Annals of Family Medicine*, 2004, *2* (5), 445–451.

Walraven, Carl Van, Natalie Oake, Alison Jennings, and Alan J Forster, "The association between continuity of care and outcomes: a systematic and critical review," *Journal of Evaluation in Clinical Practice*, 2010, *16* (5), 947–956.

Wolinsky, Fredric D, Suzanne E Bentler, Li Liu, John F Geweke, Elizabeth A Cook, Maksym Obrizan, Elizabeth A Chrischilles, Kara B Wright, Michael P Jones, Gary E Rosenthal et al., "Continuity of care with a primary care physician and mortality in older adults," *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*, 2009, *65* (4), 421–428.