What happens after exceeding the deductible? Demand-side financial incentives for the overuse of healthcare services

Irene Salvi*, Johannes Cordier, Justus Vogel, Alexander Geissler

PhD Program in Economics and Econometrics
Chair of Health Care Management, School of Medicine, University of St. Gallen

Introduction

The compulsory healthcare insurance in Switzerland entails a deductible system, for which all insurees older than 25 have to share the costs of their annual treatments up to a chosen deductible (300 CHF to 2500 CHF).
On one hand, the introduction of this type of contracts has been hailed as a useful tool to increase efficiency in markets through demand-side cost sharing [1]. On the other hand, cost-sharing contracts have been described as harmful due to an incentive to delay care [2] and the fact that moral hazard incentives are still present after exceeding the deductible [4]. Supply side structures could facilitate this effect by providing easier access to healthcare services [3].
This study presents two core contributions. The first is to determine the presence of demand-side induced overuse of healthcare services as influenced by exceeding the deductible in Switzerland. The second is to isolate the effect of supply structures as mediators of such overuse.

Methodology

Data

Data source: Anonymised insuree data from Swiss health insurer receipts.
Inclusion criteria: Insurees with healthcare expenses higher than their deductible in 2018, enrolled in the compulsory health insurance during 2017, 2018 and 2019, older than 25, and not giving birth in 2017, 2018, or 2019.
Year of interest: 2018.
Variables: The anonymised billing data contains the following information for each receipt and each insuree: date of treatment, date of receipt, amount in CHF, tariff used to bill the item, tariff code, age, nationality, place of living, deductible group, premium reduction, pharmaceutical cost group codes. Furthermore, we extracted information on the number of medical specialists by medical specialty and by postal code.

Empirical strategy

1. Run Fixed effects models
   - Input:
     - Dependent Variable: Weekly Healthcare expenses
     - Independent Variables: Constant Variables and Time-varying variables
   - Output: Residuals
2. Run Regression Discontinuity in Time (RDiT) models:

$$\epsilon_t = \beta_0 + \tau_0 D_t + \tau_1 1_{\{0 \leq t-T \geq 12\}} + u_t \quad (1)$$

   - Input: Residuals on insuree-level
   - Output: RDiT parameters for each insuree
3. Aggregate the results by simple mean
   - Input: RDiT parameters from all insurees
   - Output: Mean RDiT parameters

Figure 1 presents an illustration of the three different approaches that were used to deal with the different treatment cost groups.

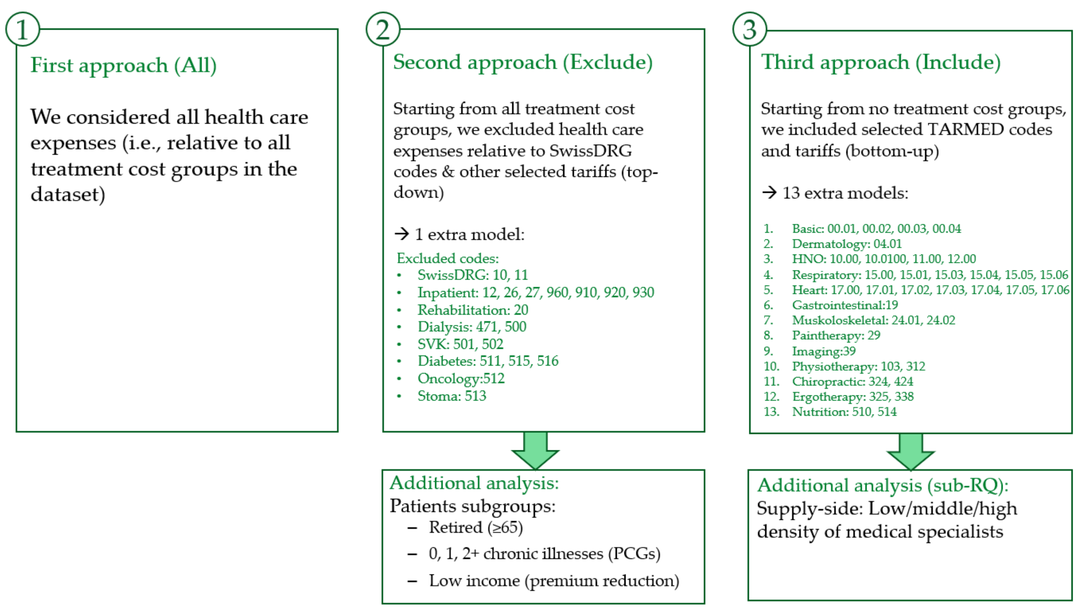

Figure 1: Three approaches for the treatment cost groups and additional analyses

Results

Descriptives

Roughly 60% of insurees overcomes their deductible in one year and the 2500 and 300 deductible groups present the highest cumulative expenses.
Figure 2 shows no clear trend in the timing of the healthcare expenditures, but the week in which the deductible is exceeded is later for higher deductible groups.

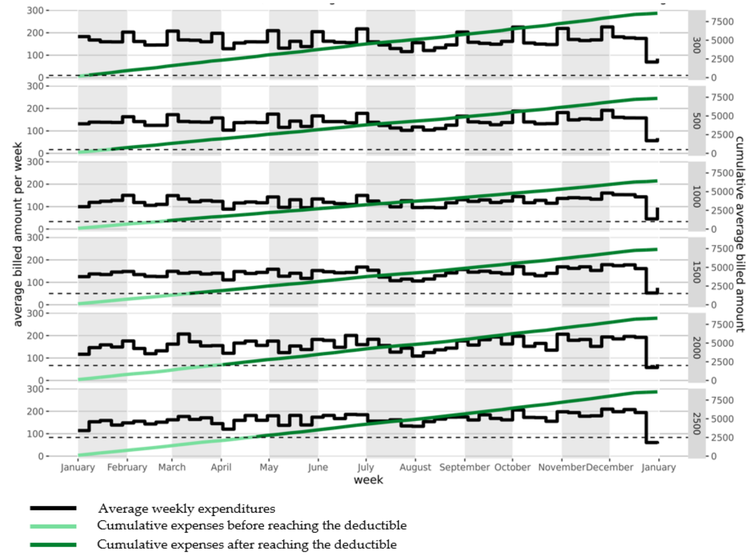

Figure 2: Average and cumulative mean weekly expenses by deductible level

Regression results

There is a positive difference between the healthcare consumption before and after reaching the 2500 deductible, however it is not significant (Figure 3).

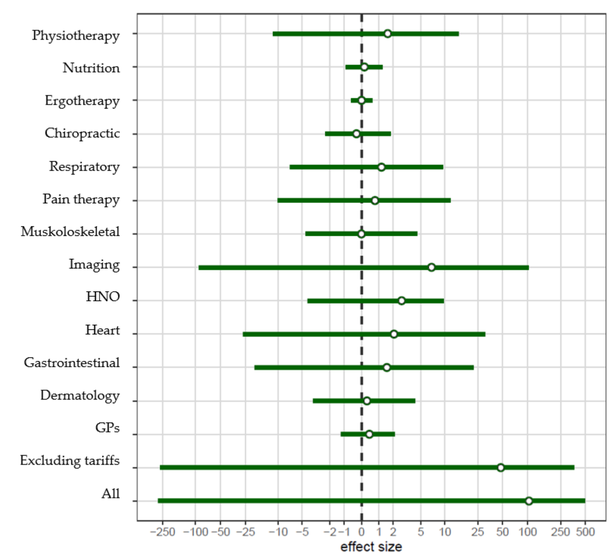

Figure 3: Effect of exceeding the deductible on healthcare expenses with the three approaches (third approach on top, first approach at the bottom)

We find a consistent result also for the 300 deductible group and by stratifying insurees according to retirement, premium reduction, and number of chronic illnesses. Supply availability does not explain the increase in consumption.

Discussion and Conclusion

Our results show that, while there is an overall pattern indicating a higher consumption of healthcare resources after exceeding the deductible, this outcome is insignificant across all specifications of our model. Our findings suggest that the deductible system as a cost-sharing solution for Switzerland does not create demand-side financial incentives for the overuse of healthcare resources.

References

[1] K. Baicker and D. Goldman. Patient cost-sharing and healthcare spending growth. *Journal of Economic Perspectives*, 25(2):47–68, 2011.

[2] K. Davis, M. M. Doty, and A. Ho. How high is too high? implications of high-deductible health plans. *The Commonwealth Fund*, 20, 2005.

[3] C. Léonard, S. Stordeur, and D. Roberfroid. Association between physician density and health care consumption: a systematic review of the evidence. *Health policy*, 91(2):121–134, 2009.

[4] J. Newhouse. the insurance experiment group 1993, free for all? lessons from the rand health insurance experiment. *Harvard University*.

*irene.salvi@unisg.ch | +41 71 224 32 97 | St. Jakob-Strasse 21, 9000, St. Gallen