ANNUAL REPORT 2021

CSSINSTITUT

Imprint

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The figures on the front and back are based on «Transfer Payment Systems and Financial Distress» by Christian P.R. Schmid, Nicolas Schreiner and Alois Stutzer.

June 2022

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PREFACE

The Corona pandemic and the measures to counter it once again dominated society in the past year. For the CSS Institute, this meant that we had to conduct most of our teaching digitally and the scientific exchange was limited mostly to the virtual space. Despite also offering some new opportunities, we are very much looking forward to hopefully switching back from online to in-person interactions with fellow researchers and our students in 2022. On the other hand, the second pandemic year also offered the opportunity to carry out analyses regarding the multifaceted consequences of COVID-19 and the governmental responses to the pandemic. For example, we assessed the effect of the partial ban of medical treatments on health care costs and utilization in a report to the public, and Lukas Kauer successfully contributed to a peer-reviewed publication on vaccination skepticism in Germany, Austria, and Switzerland.

We also started the year 2021 with a new personnel composition: Nicolas Schreiner joined the CSS Institute after obtaining his doctorate in economics from the University of Basel at the Chair of Political Economy. He was quickly and smoothly integrated into our team despite the initial working from home mandate. Linn Hjalmarsson successfully completed her doctoral courses at the Study Center Gerzensee and was able to start her research work in full. Nicolas and Linn both contribute to the CSS Institute with a new drive, ideas, and a great thirst for knowledge. This fits perfectly with our broadened research focus.

In addition to risk equalization, cost sharing, and managed care, we now also conduct research on, among other things premium subsidies, administrative costs of health insurance, and the pharmaceutical market. The expanded focus has already borne fruit in two of these areas: a paper on premium subsidies and a paper on administrative costs were accepted for publication by the Journal of the European Economic Association and the European Journal of Health Economics, respectively. In this annual report, we present short summaries of these two papers.

Finally, since the CSS Institute will soon be celebrating its 15th anniversary and with the expansion to more research areas, we thought it was time to also revise the appearance of the CSS Institute. Two of these changes are already in front of you: our new logo and the redesigned annual report. We hope that you like the result at least as much as we do and wish you a good read!

Christian P.R. Schmid
June 2022

RESEARCH FOCUS

PREMIUM SUBSIDIES

In Switzerland, the government supports a quarter of the population with subsidies so that health insurance premiums are affordable even for households with limited financial means. But how should this support be administered so that it helps as efficiently as possible?

Since 1996, all residents of Switzerland have been legally obliged to purchase basic health insurance from private insurers. However, health insurance premiums are not dependent on income. For households with limited financial resources, these premiums thus represent an extraordinarily heavy burden. To ensure solidarity between persons with different incomes, federal law requires cantons to subsidize the premiums of low-income individuals. Today, these premium subsidies of about five billion Swiss francs represent a sizeable portion of the annual social welfare payments, and one in four Swiss residents has at least part of his premiums paid by the state.

CASH OR REDUCED PREMIUMS?

As with any means-tested support program, the question for the cantons was, how these transfer payments should reach the recipients. Some cantons decided to transfer the money into the bank account of the recipients at the beginning of the year. In these so-called cash transfers, recipients of premium subsidies then paid the full premiums themselves, that is, the same way as all other insured persons. Other cantons, however, wanted to ensure that the tax money used for premium subsidies was indeed spent on health insurance premiums. Therefore, they opted for in-kind transfers — they transferred the money directly to the health insurers, who then reduced the recipients' premium bills by the respective amount. Empirical evidence on whether cash or in-kind transfers are more effective in preventing financial problems among recipients is still hardly available from anywhere in the world. Interestingly though, a simple comparison of cantons regarding arrears of health insurance bills would have shown that recipients in cantons with cash transfers have fewer missed payments with their premium bills.

PAYMENT SYSTEM HARMONIZATION

Despite the lack of evidence, as part of a reform of the Health Insurance Act, the Swiss Parliament decided in 2012 that premium subsidies can only be paid as in-kind transfers. This meant that from January 1, 2014, all cantons using cash transfers thus far, must pay premium subsidies to the health insurance companies. For the other cantons, however, nothing changed. Hence, we were able to employ them as a control group, similar to a clinical trial. From a research perspective, this is a stroke of luck, because this so-called natural experiment provided an opportunity to compare the causal effect of in-kind and cash transfers on financial problems. Based on the development of payment defaults in the reform and control cantons before and after the reform, we can separate the direct effect of the payment system from general cantonal differences. This is precisely what would not have been possible in the simple cantonal comparison mentioned above. With such simple comparisons, therefore, there is a risk of drawing the wrong conclusions.

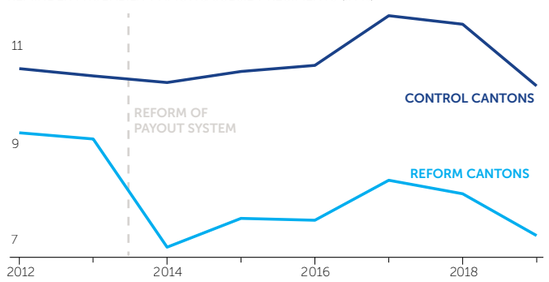
DATA DIFFICULTIES

Measuring payment difficulties for premium bills before and after the reform is not a problem from a data point of view. However, distinguishing between those who receive premium subsidies and those who do not is much more difficult. In fact, one main reason for the global lack of empirical evidence regarding the effect of in-kind and cash transfers is that in the case of the latter, two data sources are needed that are usually not linked. On the one hand, such an analysis requires data on payment difficulties, which normally occur at private firms. However, information on which individuals receive support payments and to what extent is held by government authorities, at least in the case of cash transfers. We encountered the same obstacle in the case of premium subsidies in the cantons with cash transfers until 2013. Since recipients there received unreduced premium bills, the authorities did not inform the health insurers whether an insured person was receiving premium subsidies. Unfortunately, in Switzerland, linking administrative data with other data sources is hardly possible — even for research purposes. As a way out of this data problem, we estimated the probability of receiving premium subsidies for each customer in all cantons each year. We did this using a combination of multiple machine learning algorithms and then converted the probability into a binary (yes/no) prediction of being a subsidy recipient.

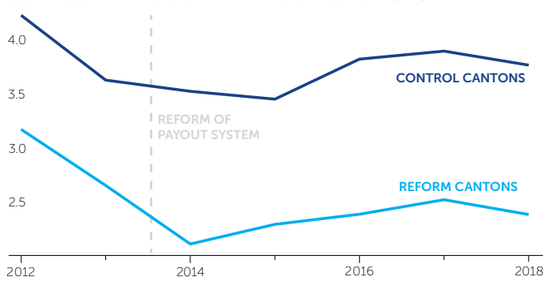
MAJOR EFFECTS OF THE REFORM

We were now able to take advantage of the harmonization of the payment system in 2014 to compare the development of financial problems among premium subsidy recipients in the control cantons with those in the reform cantons before and after the reform. For this purpose, we analyzed whether a reminder or even a debt collection was initiated for a total of 22 million premium bills of more than 600,000 insured persons between 2012 and 2019. As can be seen from the two graphs, the reform significantly reduced the probability of reminders and debt collection. In-kind transfers (in this case, transfers to the health insurer) have reduced the probability of reminders by 20% compared to cash transfers, while the probability of debt collection has been reduced by over 12%. This is gratifying not only for the directly affected recipients but also for all taxpayers since the cantons assume over 85% of the unpaid premiums from the insurance companies.

EFFECT OF CHANGE FROM CASH TO IN-KIND TRANSFERS
REMINDER PROBABILITY AMONG SUBSIDY RECIPIENTS (IN %)



EFFECT OF CHANGE FROM CASH TO IN-KIND TRANSFERS
DEBT COLLECTION PROBABILITY AMONG SUBSIDY RECIPIENTS (IN %)



EVIDENCE-BASED HEALTH POLICY

So, we could show that in-kind transfers are much better at preventing financial problems in the subsidized good. But could it be that the difficulties have simply shifted to other household expenditures? For this reason, we additionally analyzed medical cost-sharing bills. For these arguably rather unexpected (and never subsidized) bills, we found no change in payment behavior before and after the reform. We can thus state with great certainty that in-kind transfers lead to healthier household finances overall than cash transfers. It is therefore essential to discuss in the political process not only the amount of government support but also its design. Changing procedural aspects of means-tested transfers, such as the payment system, could prevent much suffering among recipients without spending any additional taxpayers' money. Even though in this case the Swiss parliament had the correct intuition despite the lack of evidence in 2012, this should not obscure the fact that without the promotion of research and the consistent incorporation of its findings into health policy, major welfare gains for all will remain unrealized.

This paper was written by Christian P.R. Schmid and Nicolas Schreiner of the CSS Institute together with Alois Stutzer from the University of Basel.

RESEARCH FOCUS

Administrative costs in health insurance tend to be a wallflower in research. But our analysis shows that a chronic illness significantly increases customer contacts with health insurance.

The premium of a health insurer must cover not only the medical costs but also the administrative costs of the insurance. The health economics literature in the past decades, with the ever-improving availability of data, has adequately shown that medical costs vary greatly from individual to individual. However, a corresponding analysis of administrative costs is lacking. In the theoretical analysis of health insurance, administrative costs are usually either assumed to be constant per capita or even omitted completely.

REASONS FOR LITTLE RESEARCH

There are two reasons for this: First, it is fundamentally difficult to allocate individual components of administrative costs to a specific person. Several activities of an insurer occur somewhat independently of the insured population or are practically impossible to allocate to a single person. A few examples: Calculating premiums and reserves, negotiating with providers about new plans, and the costs of infrastructure, accounting, marketing, and advertising. Nevertheless, it seems plausible that sicker individuals generate more administrative costs than healthier ones. This is because there are also many activities that an insurer tends to perform for sick individuals, such as billing, benefit verification, and collections. But here, too, it is sometimes difficult to assign these costs precisely to one person. The second reason, from a research perspective, is the frequent lack of data availability. The data are available, if at all, at most in highly aggregated form, for example as total costs for infrastructure or personnel.

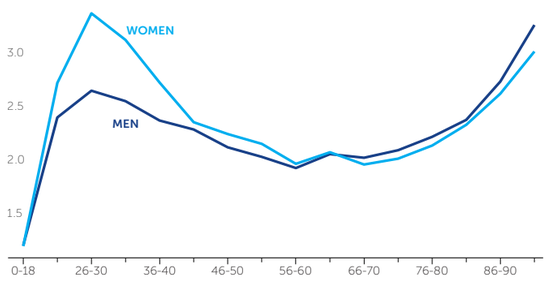
CUSTOMER CONTACTS AS A SOLUTION

Therefore, we focused on a component of administrative costs that is not affected by these problems: Customer contacts can be very easily assigned to a person and the data was accessible anonymously per customer. Already the descriptive analysis reveals some exciting facts. Gender plays a role only at a young age. Only women of childbearing age contact the insurer significantly more often than young men. At older ages, contact frequency is higher regardless of gender (see the figure on the left). However, in our study, we did not investigate further why these differences exist.

CAUSAL ANALYSIS

We were more interested in the question of whether customers with a chronic illness (and thus high health care costs) cause more contacts with the health insurer. To make a causal statement, we need a control group that shows what would have happened to customer contacts if the person had not become chronically ill. Therefore, we plot the customer contacts over two years from customers who do not develop a chronic illness. This corresponds to the red line in the graph on the right. In addition, we use two other control groups. The purple line shows the contacts from customers with no health care expenditures. This is intended to measure customer contacts that occur independently of an illness (for example, requesting a change of address). The dark blue line shows contacts of customers who were classified with a chronic illness one year earlier than the group whose contact progression we are mainly interested in (light blue). However, these three curves alone already show us that customers with a chronic illness have persistently more customer contacts. Compared now with the light blue curve, which

YOUNG WOMEN HAVE HIGHEST CONTACT FREQUENCY
CONTACTS BY AGE AND GENDER



ADMINISTRATIVE COSTS

includes customers who are classified as chronically ill at time 0, the assumption that this relationship is causal is very credible: before the chronic illness, these customers have almost the same number of contacts as customers without a chronic illness. Even before classification, contacts increase, peak at the time of classification, and remain at a high level thereafter. Interestingly, in contrast to the relationship shown in the left graph, we could not find any differences with respect to age and gender. Thus, women and older people do not contact the insurer more often than men and younger people when they become chronically ill.

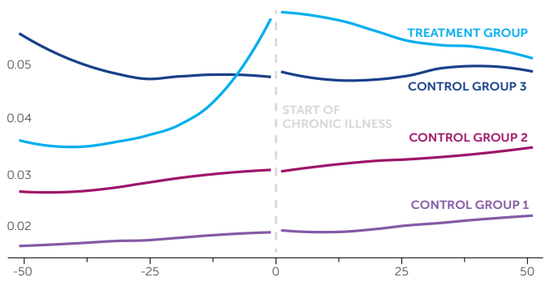
FURTHER TESTS

The credibility of our analysis increases if the pattern shown in the graph on the right is stronger for customer contacts that are believed to be related to the illness and less strong for contacts that are unrelated to the illness. Consequently, we repeated the analysis specifically for inquiries from health care providers. For these requests, we could be certain that they were medically based and thus most likely related to the chronic illness. In fact, the pattern shown here in the graph on the right is even more apparent for these requests. As an example of a category where we expect contacts to be independent of health status, we use requests for a change of address. Restricted to these contacts, we find no differences in the pattern of contacts between the four groups.

OTHER ADMINISTRATIVE COSTS

Customer contacts, however, represent only part of the administrative costs. What about the relationship in total administrative costs? For this purpose, we analyzed the administrative costs aggregated at the insurer level. The Federal Office of Public Health publishes every year the administrative costs per insurer. We used the average risk equalization payment as a morbidity indicator for the insurer's population. Our analysis confirms the positive relationship shown above also at the insurer level. In a related paper already published (see listed below in the publications), we showed that this relationship also holds in four other countries.

CHRONICALLY ILL, CHRONIC CONTACTS
CONTACTS PER WEEK RELATIVE TO START OF CHRONIC ILLNESS



CONCLUSION

What recommendations can be derived from this finding? There seems to be a growing risk that administrative costs will rise as society ages. However, the relative share of administrative costs in total costs has been declining in the industry for years. Nevertheless, particularly the trajectories of the two control groups 1 and 2 in the chart on the right show that customer contacts are increasing irrespective of any illness. For health insurers, this offers opportunities to guide their customers as efficiently as possible through the healthcare system.

This paper was written by Lukas Kauer of the CSS Institute together with Rudy Douven from the Erasmus University Rotterdam.

PEER REVIEWED PUBLICATIONS

Desson, Zachary, **Lukas Kauer**, Thomas Otten, Jan Willem Peters & Francesco Paolucci. «Finding the Way Forward: COVID-19 Vaccination Progress in Germany, Austria and Switzerland.» *Health Policy and Technology* (forthcoming).

Douven, Rudy, **Lukas Kauer**, Sylvia Demme, Francesco Paolucci, Wynand van de Ven, Jürgen Wasem & Xiaoxi Zhao. «Should Administrative Costs in Health Insurance be Included in the Risk-Equalization? An Analysis of Five Countries.» *European Journal of Health Economics* (forthcoming).

Schmid, Christian P.R., **Nicolas Schreiner** & Alois Stutzer. «Transfer Payment Systems and Financial Distress: Insights from Health Insurance Premium Subsidies.» *Journal of the European Economic Association* (forthcoming).

WORKING PAPERS

Douven, Rudy & **Lukas Kauer**. «Falling Ill Raises the Health Insurer's Administration Bill.» March 4, 2021

Müller, Tobias, Mujaheed Shaikh & **Lukas Kauer**. «Stuck in the Past? Retirement and Health Plan Choices.» March 23, 2021.

Kaiser, Boris, Andreas Kohler & **Christian P.R. Schmid**. «The Role of Incomplete Administrative Health Care Data: The Case of a Coverage Extension in Switzerland.» July 7, 2021

Müller, Tobias, **Christian P.R. Schmid** & Michael Gerfin. «Rents for Pills: Financial Incentives and Physician Behavior.» May 28, 2021.

Schmid, Christian P.R. & María Rosalía Vicente. «The Timing of Consumer Health Information from the Internet and the Demand for Physician Visits.» July 1, 2021.

Schreiner, Nicolas. «Changes in Well-Being Around Elections.» *WWZ Working Paper 2021/03*. January 21, 2021.

REPORTS

Haberthür, Samuel, Lukas Huwiler, **Christian P.R. Schmid** & **Nicolas Schreiner** (2021). «Erste Erkenntnisse zu den Gesundheitskosten während der COVID-19 Pandemie (1. Welle).» CSS Institut für empirische Gesundheitsökonomie. February 17, 2021.

REFEREE REPORTS

Kauer, Lukas. Health Economics, Medical Care Research and Review, Health Policy and Technology, Ashecon Conference Abstracts, Ihea Conference Abstracts

Schmid, Christian P.R. Journal of Health Economics, European Journal of Health Economics (2), Value in Health, Health Economics, Policy, and Law, Journal of Applied Economics

ACADEMIC CONFERENCES

Douven, Rudy & **Lukas Kauer**. «Falling sick makes the insurance tick? The effect of illness on administrative costs of health insurance.» *2nd Conference of the Swiss Society of Health Economics (sggö)*. Online. January 15, 2021.

Douven, Rudy & **Lukas Kauer**. «Falling Ill Raises the Health Insurer's Administration Bill.» *13th Conference of the German Society of Health Economics (dggö)*. Online. March 8, 2021

Douven, Rudy & **Lukas Kauer**. «Falling Ill Raises the Health Insurer's Administration Bill.» *10th Annual Conference of the American Society of Health Economists*. Online. June 23, 2021.

Schmid, Christian P.R., Nicolas Schreiner & Alois Stutzer. «Transfer Payment Systems and Financial Distress: Insights from Health Insurance Premium Subsidies.» *2nd Conference of the Swiss Society of Health Economics (sggö)*. Online. January 15, 2021.

Schmid, Christian P.R., **Nicolas Schreiner** & Alois Stutzer. «Transfer Payment Systems and Financial Distress: Insights from Health Insurance Premium Subsidies.» *8th European Health Economics Association (EuHEA) PhD Conference*. Online. September 2, 2021.

RESEARCH SEMINARS

Douven, Rudy & **Lukas Kauer**. «Falling Ill Raises the Health Insurer's Administration Bill.» *2nd Healthcare Data Analytics and Economics Webinar, Value in Health Economics and Policy*. University of Newcastle, Australia (online). March 25, 2021.

Kauer, Lukas. «Managed Care – Erfahrungen aus der Schweiz.» *BMC-Webgespräch, Bundesverband Managed Care Deutschland*. Online. July 21, 2021.

CSS SEMINARS

Douven, Rudy & **Lukas Kauer**. «Zusammenhang zwischen Morbidität der Kunden und deren Kontaktfrequenz mit der Krankenversicherung.» *CSS LU-Seitenblick*. Online. February 25, 2021.

Kauer, Lukas. «Ein Vergleich von unterschiedlichen Gesundheitssystemen.» *CSS Webinar*. Online. July 5, 2021.

Schreiner, Nicolas. «Identifying Subsidy Recipients with Machine Learning.» *CSS Data Science Seminar*. February 5, 2021

Schreiner, Nicolas. «Introduction to Causal Machine Learning.» *CSS Data Science Seminar*. June 26, 2021

Schreiner, Nicolas. «Primer on Instrumental Variables for Causal Inference.» *CSS Data Science Seminar*. November 12, 2021

TEACHING IN SEMESTER COURSES

Gerfin, Michael & **Christian P.R. Schmid**. «Topics in Health Economics.» Master's level. Weekly lecture. Spring semester 2021. University of Bern.

Kauer, Lukas. «Analyzing and Visualizing Insurance Data.» Master's level. Weekly seminar. Spring semester 2021. University of Lucerne.

Kauer, Lukas. «Soziale Krankenversicherung.» Bachelor's level. Weekly lecture. Spring semester 2021. University of Zurich.

Kauer, Lukas. «International Comparison of Health Care Systems.» Master's level. Weekly seminar. Fall semester 2021. University of Lucerne.

Schmid, Christian P.R. «Topics in Pharmaceutical Economics.» Master's level. Block course. Spring semester 2021. University of Lucerne.

Schmid, Christian P.R. «The Economics of Pharmaceutical Markets.» Master's level. Weekly lecture. Fall semester 2021. University of Lucerne.

TEACHING IN BLOCK COURSES

Kauer, Lukas. «Gesundheitssysteme zwischen Regulierung und Markt – internationaler Vergleich.» CAS Gesundheitsökonomie und Public Health. Januar 29, 2021. Bern University of Applied Sciences.

Kauer, Lukas. «Grundlagen Soziale Krankenversicherung - Das Schweizer KVG.» Continuing education course Insurance Medicine. May 10, 2021. SUVA (online).

Kauer, Lukas. «Risk Sharing, Health Plan Design and Payment.» GSBS6381. Mai 13, 2021. University of Newcastle, Australia (online).

Kauer, Lukas. «The Swiss Health (Insurance) System, Health Plan Design and Payment.» GSBS6381. June 22, 2021. University of Newcastle, Australia (online).

Kauer, Lukas. «Versicherungsmedizin und Statistik.» October 1, 2021. Berufsbildungsverband der Versicherungswirtschaft VBV.

Kauer, Lukas. «Versicherungsökonomie.» CAS Gesundheitsökonomie. October 30, 2021. Zurich University of Applied Sciences, Winterthur.

Kauer, Lukas. «Versicherungsökonomie.» CAS Gesundheitsökonomie und Public Health. December 6, 2021. Bern University of Applied Sciences.

TEAM

CHRISTIAN P.R. SCHMID
Director of the Institute

Christian Schmid has been working at the CSS Institute since 2015, first as a research associate and since October 2020 as the institute's director. He is also a lecturer at the University of Bern, where he also earned his doctorate in Economics in 2014. His research currently focuses on cost sharing, self-dispensation, and premium subsidies.

LUKAS KAUER
Research Associate

Lukas Kauer joined the CSS Institute in 2014. In addition, he teaches at numerous universities. He holds a PhD in Economics from the University of St. Gallen. Prior to that, he worked for almost two years at the Winterthur Institute for Health Economics at ZHAW. His research currently focuses on managed care, administrative costs, and mental health.

NICOLAS SCHREINER
Research Associate

Nicolas Schreiner has been working as a research associate at the CSS Institute since 2021. Previously, he was a research assistant at the Chair of Political Economy at the University of Basel, where he also completed his PhD in Economics in 2020. His research currently focuses on premium subsidies, generic substitution, and causal machine learning.

LINN HJALMARSSON
External PhD Student

Linn Hjalmarsson joined the CSS Institute as an external PhD student in July 2020. She is completing her PhD in Economics at the University of Bern, where she also works as a research assistant. Her research currently focuses on physician practice transfer, generic substitution, and medical treatment interruptions due to Covid-19 measures.

The CSS Institute for Empirical Health Economics (CSS Institute in short) was established in 2007 by CSS Versicherung AG. The main goal of the CSS Institute is scientific research and teaching in the field of applied health economics. It prepares, discusses and publishes empirical analyses of the Swiss health care market and communicates general as well as acquired knowledge about health economics. Furthermore, it supports university research in the field of health economics and regularly holds its own courses at universities. The CSS Institute is based in Lucerne.