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The figures on the front and back are based on «Perceptions of Economic Conditions and Mental Health» by Lukas Kauer, Lukas Schmid and Valentina Sontheim.

April 2023

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PREFACE

In retrospect, the Corona pandemic and the measures taken against it already seem far away; memories of it fade surprisingly quickly. Yet, the last measures were only lifted in Switzerland at the beginning of April, and in nearby countries even much later in some cases. So it was still unclear at the beginning of 2022 whether the planned scientific conferences and teaching could be held in-person. Fortunately, however, the situation eased as the year progressed, and normality returned bit by bit and we were able to implement our annual program as planned.

One focus in the past year was the organization of two conferences. First, we held the 5th Swiss Health Economics Workshop (SHEW) together with the Swiss Society for Health Economics. The workshop is a one-day event and is hosted biennially at CSS headquarters. Fourteen current health economic research papers were presented and discussed, and a total of about 50 people attended. Second, we supported the Universities of Bern and Fribourg in organizing the 29th European Workshop in Econometrics and Health Economics, which was held in Fribourg from September 7 to 9. This conference series was initiated by the University of York in 1992 and has taken place in a different European city every year since, with a brief interruption due to Corona.

In the area of research, we were again able to achieve a very good publication. The Journal of Health Economics published our work on self-dispensing and margin optimization of physicians in the Canton of Zurich. In addition, we completed, among other things, a working paper on the consequences of practice transfers on health care costs and patient visits to specialists. On the following pages, we briefly present these two research papers. Beyond our works aimed at the scientific community, we also published summaries of our paper on premium reductions in two Swiss magazines to make these insights more easily accessible to a broader audience.

Finally, last year was also a time to celebrate our 15th anniversary and look back on our successes. Since its foundation in 2007, the CSS Institute has established itself as a leading research institution and contributes significantly to Swiss health economics. With our current research, we want to continue to make evidence-based contributions to the further improvement of healthcare systems. We wish you an enjoyable read.

Christian P.R. Schmid
April 2023

RESEARCH FOCUS

PHYSICIAN DISPENSING

A majority of the German-speaking cantons in Switzerland allow physicians to dispense prescription drugs directly to their patients. Since this practice is not without controversy, we investigated how self-dispensing causally affects physician behavior. *By Christian P.R. Schmid*

Self-dispensing, i.e. the dispensing of medicines by doctors in their practices, is permitted in most of the German-speaking cantons of Switzerland. Only the cantons of Basel-Stadt and Aargau prohibit it in general. Furthermore, Bern and Graubünden have certain restrictions if the supply of medicines is sufficiently ensured by local pharmacies. The supply of the rural population, which often does not have access to pharmacies nearby, was thus one of the main reasons for allowing self-dispensing in the first place. Moreover, if one looks at the voting outcomes of various cantonal ballot measures in the past, allowing physicians to self-dispense does seem to reflect the preferences and needs of the population in some cantons.

ADVERSE INCENTIVES FOR PHYSICIANS

While patients tend to benefit from self-dispensing because it eliminates many trips to the pharmacy, it may lead to adverse financial incentives for physicians. Since they earn a markup with each dispensed drug package, they can supplement their income by prescribing additional or more expensive drugs. Patients and premium payers would have to bear the additional costs. However, many physicians likely also act in the interest of their patients, i.e., they subordinate their own benefit to the benefit of their patients. Hence, it would be surprising if physicians dispense drugs to their patients that they do not need. Ultimately though, whether and to what extent the financial incentives involved with self-dispensing lead to additional costs for patients and society as a whole is an empirical question. However, this question cannot be answered simply and fast, because whether a physician opts to dispense drugs in the first place depends on many factors, many of which are unobservable. For example, dispensing medications is much more lucrative for physicians whose patients require many medications than for physicians with patient pools less dependent on pharmaceutical treatments. Thus, self-selection, i.e., the physician's decision to dispense or not to dispense, could lead to erroneous conclusions from naïve direct comparisons between the medication costs of self-dispensing and non-self-dispensing physicians.

CANTON OF ZURICH AS A NATURAL EXPERIMENT

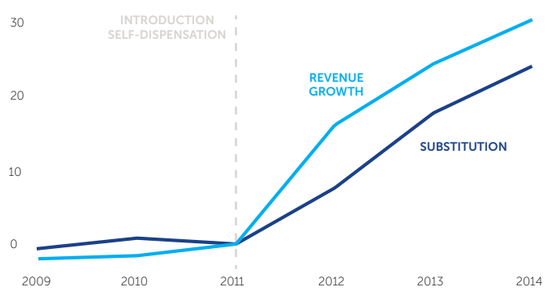
Therefore, we focus here on the canton of Zurich. From 1951 on, doctors in the two large cities of Winterthur and Zurich were prohibited from dispensing medicines to patients. In the rest of the canton, however, self-dispensing has been permitted continuously until today. Following a cantonal popular initiative, which was approved by 53.7% of voters on November 30, 2008, self-dispensing was also to be permitted in the two largest cities of the canton from 2010 on. The approval was highest in rural areas, while the two cities that would be directly affected by the policy change rejected the proposal. Due to various legal disputes, however, there were delays, and doctors were not able to dispense medicines in Winterthur and Zurich until the beginning of May 2012. This partial introduction resulted in a natural experiment for us: Since nothing has changed for them, the doctors outside the two cities are our control group, in which we do not expect any change in behavior. However, this does not apply to the doctors in the cities of Winterthur and Zurich. Thus, we can observe the behavior of physicians before and after the introduction of self-dispensing, comparing physicians inside and outside the two cities. This differences-in-differences approach allows us to estimate the causal effect of self-dispensing on physicians' prescribing and dispensing behavior.

AFFECTED CITIES AGAINST SELF-DISPENSATION
YES-VOTE SHARE CANTONAL INITIATIVE 2008 IN ZURICH MUNICIPALITIES

PHYSICIAN DISPENSING LEADS TO HIGHER COSTS

Our estimates show that the annual medication costs per patient have increased by a total of 20 to 30 francs as a result of allowing self-dispensation. In relative terms, this change corresponds to a rise of around four to five percent. The chart below shows two effects of the regulatory change separately. On the one hand, there is a shift — fully expected — of drug dispensing away from pharmacies to physicians, which we call "substitution". As a result, physicians' revenues grow even if they do not change their prescribing behavior. This substitution itself does not affect overall healthcare expenditures, merely the drug revenue distribution among providers. On the other hand, however, total drug costs increase so much that they can no longer be explained by substitution alone. This suggests that physicians additionally increased their revenue by choosing which version of a drug to dispense. We, therefore, investigated which strategies were used for this purpose. First, we find that self-dispensing has not led to more patients being medicated. Second, the dispensed dose per patient did not increase. Thirdly, however, it is evident from the three active ingredients studied that doctors choose more profitable package sizes and preparations. Thus, physicians optimize their margins but otherwise keep their prescribing practices constant. While self-dispensing physicians do not negatively impact patient health, they impose a financial burden on patients and society as a whole. Finally, the evidence also shows that not everyone reacts to the financial incentives of self-dispensing: For physicians with patients enrolled in a managed care health plan (e.g., family doctor model), there is no significant effect on drug costs. The cost increase is therefore caused by doctors not practicing managed care.

EFFECTS OF SELF-DISPENSATION
SUBSTITUTION AND ADDITIONAL REVENUE OF PHYSICIANS



ELIMINATE MISALIGNED INCENTIVES

So should self-dispensing be banned? From a health economics perspective, there is no clear answer to this normative question. The population not only has the final say by voting on the issue, but also bears the financial consequences of its decision itself. If the population of a canton is prepared to accept higher drug costs for the dispensing of medicines by doctors, then this is of course to be accepted. Looking at past referendums in the cantons of Aargau (2013), Zurich (2008), and Schaffhausen (2012), there certainly seem to be differences in preference that can be mapped to currently existing cantonal policies. The contribution of health economics here thus lies in estimating the cost consequences as precisely as possible and thus enabling a well-founded decision. However, an elegant solution that eliminates the misaligned incentives without contradicting the preferences of the electorate exists: Incentive-neutral margins. A price-independent design of drug markups would also have the advantage of eliminating the misaligned incentives for pharmacies. Politically, this solution is currently under discussion. Whether and how this would change the dispensing of medicines may therefore be analyzed in the future.

This paper was written by Christian P.R. Schmid of the CSS Institute together with Michael Gerfin of the University of Bern and Tobias Müller of the Bern University of Applied Sciences.

RESEARCH FOCUS

The number of primary care physicians is steadily decreasing due to the rising number of retirements and a shortage of incoming young general practitioners (GPs). What happens to patients whose GP retires and thus requires the switch to a new service provider? *By Linn Hjalmarsson*

Nine out of ten people living in Switzerland report having a GP. General medicine is at the heart of primary care and thus constitutes a foundational element of the Swiss healthcare system. Compared to other points of first contact in the healthcare system, it enables low-threshold and low-cost initial treatment for acute health problems. However, GPs not only act as providers of primary care, they also issue referrals and coordinate care across various providers. This gives them a more complete picture of the entire patient journey. Over time, GPs thus accumulate valuable knowledge about the health status of their patients and can provide or suggest the appropriate treatments. Through these repeated patient-provider interactions, patients also build trust with their primary care physicians. The resulting long-standing doctor-patient relationship or "interpersonal continuity of care" contributes, according to a large number of studies, to efficient healthcare provision.

LOSS OF THE GENERAL PRACTITIONER

Like everyone, currently practicing GPs are getting older every year, and will have to retire at some point. Such departures from the labor pool have several consequences. First, the long-standing doctor-patient relationship ends. Second, patient access to primary care may be limited altogether if the retiring primary care physician cannot find a suitable successor. Third, the new physician's practice style may differ from that of her predecessor. To make recommendations for health policy, it is necessary to understand exactly how and to which extent each of these mechanisms affects primary care provision itself. The existing literature has so far focused on the overall healthcare impacts after the loss of a primary care physician. A majority of these studies find a shift from primary care to often more expensive secondary care, resulting in increased overall expenditures. However, it mostly remains uncertain which of the aforementioned transmission channels is responsible for the observed cost increases.

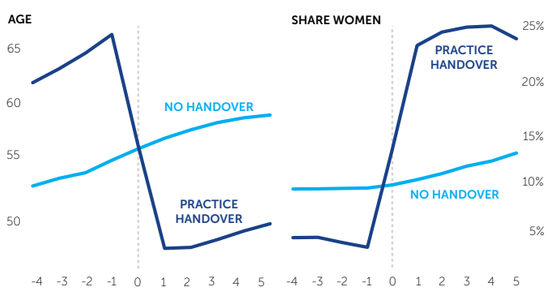
PRACTICE HANDOVERS

To identify and quantify the transmission channels individually, we focus on transfers of practices from one GP to another. This means that the retiring physician has found a successor for his medical practice. Hence, for patients, the access, the journey to visit the doctor's practice, and often also the non-medical staff and infrastructure remain the same — only the GP changes. This is an ideal setting to study the effects of interpersonal discontinuity and the physician's practice style, without changes in access. The effects of discontinuity tend to be short-term, as the physician-patient relationship is re-established with the new physician after a couple of patient visits. The effects of a different practice style exhibited by the succeeding physician, on the other hand, continue perpetually. By employing an econometric method that allows us to divide the effects into short- and long-term, we can thus separate the effects arising from the distinct channels discussed before.

CAUSAL IDENTIFICATION OF EFFECTS

We apply a version of the established differences-in-differences method, thereby comparing the evolution between patients affected by a practice handover and a group of similar patients who do not experience a practice handover at the same time. Assuming that the outcomes in the two groups would have evolved in the same way over time if none of the individuals in our data had been affected by a practice handover, this approach allows us to estimate the causal effects of handovers. Put differently, we find ourselves in a situation resembling the setup of a classic experiment, with a treated (handover) and a control (no handover) group. We consider several different outcome variables in the categories of healthcare utilization, costs, and hospitalizations.

YOUNGER AND MORE FEMALE AFTER PRACTICE HANDOVERS
CHANGE IN CHARACTERISTICS OF FAMILY DOCTORS

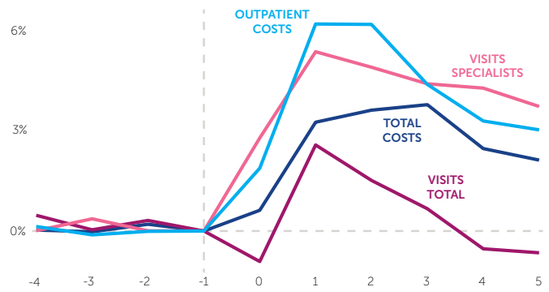


PRACTICE HANDOVERS

MAIN RESULTS

Our results show that a practice handover leads to an increase in the total number of physician visits and health care costs in the short term (primary and secondary care). These observations can be explained mainly by the new primary care physician needing to initially reassess a patient's health status. In the long term, we can observe a persistent increase in secondary care utilization, outpatient costs, laboratory analysis costs, and costs per physician visit. The latter can be explained by a change in the practice style of the new physicians. Since succeeding physicians are on average substantially younger and more often women, it is not very surprising that practice styles differ, as medical education, training, and guidelines have evolved over time. Previous studies have shown that practice styles vary, sometimes widely, especially for the mentioned age and gender of doctors. For example, female physicians have been found to be more likely to perform laboratory analyses, refer patients to a specialist, and to spend extended time in consultations with their patients. All of these previous insights are thus consistent with our findings regarding the evolution of health care use and the associated costs after practice handovers.

CONSEQUENCES OF PRACTICE HANDOVERS
PERSISTENTLY HIGHER COSTS



CONTINUED ACCESS AS A CRUCIAL FACTOR

In contrast to a previous study of ours, in which we explicitly analyzed practice closures without regulated succession, we do not find a decline in the use of primary care. On the contrary, we now even see a potential increase in the quality of primary care. We observe a significant increase in the prevalence of common chronic diseases that can be identified by their prescribed medications. On the one hand, this may be due to the new primary care physician diagnosing previously unnoticed or undetected chronic diseases, or it may reflect physicians' preferences regarding prescription drug use. The latter, in turn, can be explained by differences in practice styles. Overall, our results show that provided access to primary care is guaranteed, a change of GP leads to a slight increase in costs but also has a positive impact on the quality of care. Thus, the organized replacement of retiring primary care physicians with their younger, more female successors can result in improved patient health in the long run.

RECOMMENDATIONS FOR HEALTH POLICY

Given the upcoming wave of retirements among primary care physicians, policymakers should ensure that access to primary care is guaranteed at all times. While practice closures without any coordinated succession plan for the practice, especially in rural areas, have negative effects on health care, we do not observe the same adverse consequences in the case of practice handovers. The regulated retirement of older GPs appears to even be beneficial if the health of patients were to be considered the only relevant outcome for healthcare policy. These findings underscore the need to strive for uninterrupted primary care to maintain a cost-effective healthcare system. For example, patients of retiring primary care physicians without a regulated succession can be assisted in their search for a suitable new primary care physician. Alternatively, other medical professionals could be temporarily deployed to provide certain health services, as is done in the U.S. with practical nurses.

This paper was written by Linn Hjalmarsson of the CSS Institute together with Tamara Bischof of Interface and Boris Kaiser of BSS Economic Consultants.

PEER REVIEWED PUBLICATIONS

Bissig, Sarah, Lamprini Syrogiannouli, Rémi Schneider, Kali Tal, Kevin Selby, Cinzia Del Giovane, Jean-Luc Bulliard, Oliver Senn, Cyril Ducros, **Christian P.R. Schmid**, Urs Marbet. 2022. "Change in Colorectal Cancer (CRC) Testing Rates Associated with the Introduction of the First Organized Screening Program in Canton Uri, Switzerland: Evidence from Insurance Claims Data Analyses from 2010–2018." *Preventive Medicine Reports*. 28. 101851.

Douven, Rudy, **Lukas Kauer**, Sylvia Demme, Francesco Paolucci, Wynand van de Ven, Jürgen Wasem and Xiaoxi Zhao. 2022. "Should Administrative Costs in Health Insurance be Included in the Risk-Equalization? An Analysis of Five Countries." *European Journal of Health Economics*. 23. 1437–1453.

Müller, Tobias, **Christian P.R. Schmid** and Michael Gerfin. 2022. "Rents for Pills: Financial Incentives and Physician Behavior." *Journal of Health Economics*. 87. 102711.

WORKING PAPERS

Douven, Rudy and **Lukas Kauer**. "Falling Ill Raises the Health Insurer's Administration Bill." (R&R, *Social Science and Medicine*)

Hjalmarsson, Linn, Boris Kaiser and Tamara Bischof. "The Impact of Physician Exits in Primary Care: A Study of Practice Handovers."

Hjalmarsson, Linn, **Christian P.R. Schmid** and **Nicolas Schreiner**. "A Prescription for Knowledge: Patient Information and Generic Substitution."

Hochuli, Philip, **Christian P.R. Schmid** and Michael Gerfin. "Insurance Expansion During Pregnancy."

Kauer, Lukas and **Christian P.R. Schmid**. "Keep Reminding Me to Get My Flu Shot." (R&R, *American Journal of Health Economics*)

Kauer, Lukas, Lukas Schmid and Valentina Sontheim. "Perceptions of Economic Conditions and Mental Health."

Müller, Tobias, Mujaheed Shaikh, and **Lukas Kauer**. "Stuck in the Past? Retirement and Health Plan Choices."

Schreiner, Nicolas and Alois Stutzer. "Direct Democracy and Political Extremism." (R&R, *Economica*)

REPORTS AND ARTICLES

Schmid, Christian P.R. and **Nicolas Schreiner**. "Sag mir, wo die Daten sind." *Weltwoche.* Nr. 22.22, S. 16–17.

Schmid, Christian P.R., **Nicolas Schreiner** and Alois Stutzer. "Prämienverbilligung: Geld auszahlen hilft weniger." *Die Volkswirtschaft*. November 2, 2022 (online).

ACADEMIC CONFERENCES

Beck, Konstantin and **Christian P.R. Schmid**. "Cantonal Ander-/Overpayment due to Nationwide PCG-RE Calculation." *RAN Meeting*. Berlin, September 15, 2022.

Bischof, Tamara, **Linn Hjalmarsson** and Boris Kaiser. "The Impact of Interpersonal Discontinuities in Primary Care: A Study of Practice Handovers." *5th Swiss Health Economics Workshop*. Lucerne, June 10, 2022.

Bischof, Tamara, **Linn Hjalmarsson** and Boris Kaiser. "The Impact of Interpersonal Discontinuities in Primary Care: A Study of Practice Handovers." *Biannual Conference of the European Health Economics Association (EuHEA)*. Oslo, July 6, 2022.

Gerfin, Michael, **Christian P.R. Schmid** and Fabienne Töngi. "The Effect of Potential Out-of-Pocket Payments on Pharmaceutical Prices." *Biannual Conference of the European Health Economics Association (EuHEA)*. Oslo, July 6, 2022.

Hjalmarsson, Linn, Christian P.R. Schmid and **Nicolas Schreiner**. "Generic Substitution by Consumers." *Biannual Conference of the European Health Economics Association (EuHEA)*. Oslo, July 6, 2022.

Kauer, Lukas, Lukas Schmid and Valentina Sontheim. "Currency Shocks and Mental Health." *14th Annual Conference of the German Association for Health Economics (dggö)*. Hamburg, March 29, 2022.

Kauer, Lukas, Lukas Schmid and Valentina Sontheim. "Exchange Rate Shock and Mental Health." *11th Annual Conference of the American Society of Health Economists (ASHEcon)*. Austin, June 27, 2022.

Kauer, Lukas. "Discussion of Chen, Guo, Peng and Qian: The Effect of Unemployment Insurance Extensions on Population Mental Health: Evidence from the Great Recession." *11th Annual Conference of the American Society of Health Economists (ASHEcon)*. Austin, June 27, 2022.

Kauer, Lukas, Lukas Schmid and Valentina Sontheim. "Exchange Rate Shocks and Mental Health." *Biannual Conference of the European Health Economics Association (EuHEA)*. Oslo, July 7, 2022.

Kauer, Lukas. "Full Capitation — Treiber einer effizienten integrierten Versorgung?" *SGGP Tagung Integrierte Versorgung*. Bern, October 27, 2022.

Schmid, Christian P.R., **Nicolas Schreiner** and Alois Stutzer. "Transfer Payout Systems and Financial Distress: Insights from Health Insurance Premium Subsidies in Switzerland." *14th Annual Conference of the German Association for Health Economics (dggö)*. Hamburg, March 29, 2022.

Schmid, Christian P.R. "Discussion of Herr, Izhak, and Lückemann: Competition and quality in German ambulatory long-term care: Where labour supply matters more than prices." *European Workshop on Econometrics and Health Economics*. Fribourg, September 8, 2022.

CSS SEMINARS

Kauer, Lukas. "Vergütungsmodelle für Leistungserbringer." *CSS internal*. Menzberg, October 26, 2022.

Schreiner, Nicolas. "Evaluating Interventions with Difference-in-Differences and Synthetic Controls." *CSS Data Science Seminar*. Lucerne, April 19, 2022.

Schreiner, Nicolas. "Information and Generic Substitution." *CSS Data Science Seminar*. Lucerne, October 17, 2022.

Schreiner, Nicolas. "Prämienverbilligung: Geld oder reduzierte Prämien?" *CSS Webinar*. Lucerne, Oktober 27, 2022.

Schreiner, Nicolas. "Introduction to data.table R Package." *CSS R User Group Meeting*. Lucerne, November 3, 2022.

TEACHING IN SEMESTER COURSES

Gerfin, Michael and **Christian P.R. Schmid**. "Topics in Health Economics." Master's level. Weekly lecture. Spring semester 2022. University of Bern.

Kauer, Lukas. "Soziale Krankenversicherung." Bachelor's level. Weekly lecture. Spring semester 2022. University of Zurich.

Kauer, Lukas. "International Comparison of Health Care Systems." Master's level. Weekly seminar. Fall semester 2022. University of Lucerne.

Schmid, Christian P.R. "Topics in Pharmaceutical Economics." Master's level. Blockcourse. Spring semester 2022. University of Lucerne.

Schmid, Christian P.R. "The Economics of Pharmaceutical Markets." Master's level. Weekly lecture. Fall semester 2022. University of Lucerne.

TEACHING BLOCK COURSES

Kauer, Lukas. "Gesundheitssysteme zwischen Regulierung and Markt – internationaler Vergleich." CAS Health Economics and Public Health. February 21, 2022. Bern University of Applied Sciences.

Kauer, Lukas. "Grandlagen Soziale Krankenversicherung - Das Schweizer KVG." Weiterbildungskurs Versicherungsmedizin. October 17, 2022. SUVA.

Kauer, Lukas. "Versicherungsmedizin and Statistik." October 14, 2022. Berufsbildungsverband der Versicherungswirtschaft VBV.

Kauer, Lukas. "Versicherungsökonomie." CAS Gesundheitsökonomie. October 22, 2022. Zurich University of Applied Sciences, Winterthur.

Kauer, Lukas. "Versicherungsökonomie." CAS Gesandheitsökonomie and Public Health. December 5, 2022. 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 health policy origins of shortages of pharmaceutical drugs.

The CSS Institute for Empirical Health Economics (CSS Institute for 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 healthcare 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 courses at universities. The CSS Institute is based in Lucerne.