

# Health Economics and Policy

## Annual Report 2018

**WU**

WIRTSCHAFTS  
UNIVERSITÄT  
WIEN VIENNA  
UNIVERSITY OF  
ECONOMICS  
AND BUSINESS



# Health Economics and Policy (HEP) Group

## 2018 Annual Report of activity

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### **Highlights**

- We finalized the hiring of Professor Marcel Bilger as the new Head of our Division in March and welcomed him to WU in October. He came to us from the Duke-NUS Medical School in Singapore, where he was the Head of the Laboratory of Health Econometrics in the Signature Program for Health Services and Systems Research.
- In October, we hosted the first instalment of the ATHEA (Austrian Health Economics Association) workshop, which aims at providing expert feedback to PhD students nationwide. The two-day event included presentations from 5 PhD students on topics relating to Health Economics and Policy as well as presentations of 5 senior discussants with strong expertise in the field, followed by general discussions.
- We supervised 5 Bachelor's theses from a wide variety of students majoring in Socioeconomics, International Business Administration, Business Information Systems, and more. We also supervised 5 Master's theses in the fields of Economics, Socioeconomics, Management, and Socio-Ecological Economics and Policy.
- In addition to our prae doc colleague Mag. Anna-Theresa Renner, who is funded by our Division, the HEP team is currently training 4 doctoral students working in leading research institutions in Austria.
- Team members have published 3 new papers in international peer reviewed journals including in the *Journal of Health Economics* and *Health Economics* - the two leading journals in the field.

## 1. The Health Economics and Policy (HEP) Group

### 1.1. The team

#### **Marcel Bilger, Professor of Health Economics, Head of Division**

Marcel Bilger holds a Ph.D. in Economics and Social Sciences with a specialization in Econometrics and Statistics from the University of Geneva. During his doctoral studies, he completed the International Doctoral Program in Health Economics and Policy from the Swiss School of Public Health+. After his Ph.D., Marcel worked as a Consultant for the Development Research Group at the World Bank, and as a Post-doctoral Research Scholar at the Harris School of Public Policy at the University of Chicago. As a tenure-track Assistant Professor, he then led the Laboratory of Health Econometrics in the Signature Program for Health Services and Systems Research at Duke-NUS Medical School in Singapore while being Assistant Director for Education in the Program. Marcel has joined the Vienna University of Economics and Business in October 2018 as the new Head of the Health Economics and Policy Group.

During his career, Marcel has published in leading journals in health economics, health services research, and medicine as well as a book on health equity and financial protection. He is deeply passionate about the equity and sustainability of health systems. His work also includes the study of modifiable health risk factors such as obesity, lack of physical activity, and non-adherence to medications. In his new position, he now aims at offering innovative courses in health economics and policy in close partnership with the healthcare industry. His research objectives include developing a new framework that will consider both efficiency and equity considerations in efforts to guide health policymaking in Austria and internationally. His ultimate goal is to contribute to health equity and to the strengthening of health systems, while simultaneously training the next generation of leaders.

#### **Mujaheed Shaikh, Assistant Professor, HEP division**

Mujaheed joined the Health Economics and Policy Division of Vienna University of Economics and Business as an Assistant Professor (non-tenure track) in July 2016. He completed his MSc in International Health Management with a distinction from Imperial College London in 2012 and his PhD in Health Economics from Frankfurt School of Finance and Management, Germany in 2016.

His research is in the field of health economics and management with a particular focus on the impact of different types of health spending such as pharmaceutical expenditures on health and economic outcomes. He also has a keen interest in policy related issues such as inequity in malaria funding, social determinants of health system responsiveness, inequity in healthcare utilization etc. in developing countries. Some of his research work also relates to organizational changes in hospitals and its effect on productivity.

#### **Daniela Weber, Assistant Professor, HEP division, on maternity leave (February 2018 – April 2019)**

Daniela Weber is a mathematician and statistician. She joined the Health Economics and Policy Division at the Vienna University of Economics and Business in fall 2016. She is also a research scholar within the World Population Program at the International Institute for Applied Systems Analysis, Laxenburg. Dr. Weber graduated in technical mathematics at the Vienna University of Technology in 2005 and in 2012 she graduated in statistics at the University of Vienna. She completed her PhD at the Vienna University of Economics and Business in 2015 with the dissertation entitled "An International Perspective on Aging and Cognitive Decline".

Her research focuses on aging and health, whereas the international perspective is of particular interest to her. Next to societal determinants of cognitive and physical aging such as differential effects of societal living conditions on men's and women's cognitive functioning, she is also interested in behavioral and socioeconomic determinants.

**Anna-Theresa Renner, PhD student, HEP division**

Anna-Theresa Renner joined the Health Economics and Policy Division at the Vienna University of Economics and Business in fall 2016 as a Doctorate student. Her dissertation is using administrative data to investigate geographical and socioeconomic inequalities in the access to primary healthcare, focussing in particular on Austria. Anna holds a Master of Science in Health Economics Policy and Law from Erasmus University (The Netherlands) and a Master in Economics (Mag.rer.soc.oec) from the Department of Economics of the University of Vienna. Before joining the Division, Anna was a researcher at the Austrian Public Health Institute, Department for Health Economics (Gesundheit Österreich GmbH).

Her research focus is on the accessibility and utilization of outpatient health care services. She is particularly interested in socioeconomic inequalities in the distribution and reachability of healthcare services, and mostly works with comprehensive administrative data sources. Methodologically, she is interested in how to incorporate the spatial dimension into health economic and health service research.

**Tina Radler, Administrative Assistant, HEP Division**

Tina has a Master's degree in Theater, Film and Media (Mag.phil.) from the University of Vienna. She arrived at HEP in February 2016. She is HEP's eyes and ears when it comes to administrative duties, but she also follows research projects from a close perspective and developed the HEP website. Before joining HEP, she has worked as an assistant for an orthopaedic surgeon in Vienna and in the HR Department of a publicly traded real estate company. Tina is familiar with standard computer packages and with film-editing and web-editing programs. Her mother tongue is German, she's perfectly fluent in English and is taking French classes regularly.

For more information and for the long-version CVs of all the members, please visit the HEP website:

<https://www.wu.ac.at/hep>

## **1.2. Timeline of hiring activity**

Hiring high level and promising candidates for the team was considered a priority.

- January 2018
  - Final meeting of the search committee: Decision on shortlist of candidates to be presented to the rector
- March 2018
  - Start of contract negotiations between rector and shortlisted candidate/s
  - Position offered to Marcel Bilger. Offer accepted.
- April 2018 – September 2018
  - Arrangements for Marcel Bilger's arrival are made
- October 2018
  - Marcel Bilger starts (15<sup>th</sup> October).
- Outlook: April 2019
  - Daniela Weber will come back from her maternity leave

## 2. Teaching and supervision

### 2.1. Courses

The diffusion of a culture of health economics and policy in the Viennese and Austrian context must pass through a serious definition of a consistent academic curriculum for undergraduate and graduate students.

At full capacity, HEP will be in charge of 16 hours of teaching per week. This represents a heavy workload that in these early stages could not be spent entirely on new courses directly related to health economics topics. New courses must indeed be gradually introduced in order to fit the purposes and the objectives of ongoing programmes, especially within the Department of Socioeconomics.

Here we outline the courses defined and taught in 2018 by HEP members.

<b>Courses</b>	<b>Program</b>	<b>Members of the group teaching</b>	<b>Content</b>	<b>Period</b>
Applied Microeconomics	Bachelor	Mujaheed Shaikh	<i>Focus on supply and demand, market equilibrium and strategic behavior</i>	WS2018/19
Foundations of Health Economics and Health Management	Bachelor	Mujaheed Shaikh Anna-Theresa Renner	<i>Basic course in Health Economics</i>	SS2018 WS 2018/19
Managerial Economics	Master in Management	Mujaheed Shaikh	<i>Analyzing the behavior of buyers or sellers with a dominant market position (monopolies and monopsonies), corporate strategies, and simple game-theory concepts</i>	WS2018/19
Interdisciplinary Socio-Economic Research Project I: Quantitative Methods for evaluation of health and health policy	Master in Socioeconomics	Mujaheed Shaikh Anna-Theresa Renner	<i>Impact of Lifelong learning on ageing population</i>	WS2018/19
Applied Socio-Economic Theories and Methods I	Master in Socioeconomics	Mujaheed Shaikh Anna-Theresa Renner	<i>Relationship between socioeconomics and health</i>	SS 2018
Applied Socio-Economic Theories and Methods II	Master in Socioeconomics	Mujaheed Shaikh Anna-Theresa Renner	<i>Relationship between socioeconomics and health</i>	WS 2018/19

SS2018: 6 hours WS2018/19: 12 hours

## 2.2. Completed and ongoing supervised theses in 2018

List of completed and ongoing supervised theses:

- Renner Anna-Theresa: Reasons and implications of variations in access and utilization of primary healthcare services, Doctoral Program in Social and Economic Sciences (ongoing)
- Schneider Peter: Pharmaceutical Policy for High-priced and innovative medicines, PhD Thesis (ongoing)
- Lepuschütz Lena: Microeconomic analysis of physician and patient decision-making, Doctoral Program in Social and Economic Sciences (ongoing)
- Six Eva: Equity and Efficiency in the Austrian Health Care System, Doctoral Program in Social and Economic Sciences (ongoing)
- Berger Michael: Safeguarding sustainability of health care: Problem fields and policy appraisal, Doctoral Program in Social and Economic Sciences (ongoing)
  
- Speigner-Haxhijaj Marlene: Patient Reported Outcomes Measurements in Use - patients and clinicians view on implementing PROMs in Austria, Master thesis in Socioeconomics (ongoing)
- Del Giudice Pietro: Price Regulation and R&D Expenditures of Pharmaceutical Companies, Master thesis in Economics (ongoing)
- Tomaszek Tomas Marek: Influence of the EU General Data Protection Law on Digitalization and Diffusion of Technology of Healthcare Providers, Master thesis in Management (ongoing)
- Meinert Tony: The distributional impact of out-of-pocket payments in the Austrian healthcare system, Master thesis in Economics (ongoing)
- Hruzova Miriam: Retirement and Political inclination in Europe: Evidence from the SHARE survey, Master thesis in Economics (completed)
  
- Kreutzer Pia: Pharmaceutical Regulation in Europe – Development and Effects for Austria, Bachelor thesis in Business, Economics, and Social Sciences (completed)
- Stofa György: Energy consumption of the auto industry and human health outcomes, Bachelor thesis in Business, Economics, and Social Sciences (completed)
- Haas, Konstantin: National eHealth strategies in Austria and across Europe – best practices, chances and risk, Bachelor thesis in Business, Economics, and Social Sciences (completed)
- Lackner Paul: Economics, Regulations, and Ethics of Pharmaceutical Pricing in the United States, Bachelor thesis in Business, Economics, and Social Sciences (ongoing)
- Frank Michael Ryan: Theoretical and practical aspects of reimbursement Pricing for pharmaceuticals in Austria, Bachelor thesis in Business, Economics, and Social Sciences (ongoing)



### 3. Research

#### 3.1. New Publications

The list of publications published, accepted for publication, in submission or about to be submitted in 2018 by the members of HEP is the following:

- **Shaikh, Mujaheed**, Miraldo, Marisa, **Renner, Anna-Theresa**. 2018. Waiting time at health facilities and social class: Evidence from the Indian caste system. PLoS ONE, 13, (10)
- **Shaikh, Mujaheed**, Gandjour, Afschin. 2018. Pharmaceutical expenditure and gross domestic product: Evidence of simultaneous effects using a two-step instrumental variables strategy. Health Economics
- Mueller, Tobias, **Shaikh, Mujaheed**. 2018. Your Retirement and My Health Behavior: Evidence on Retirement Externalities from a fuzzy regression discontinuity design. Journal of Health Economics 57, 45-59.

#### 3.2. Ongoing Projects

- **Intergenerational transmission of health and well-being: The role of psychological well-being as a mediator for the socioeconomic gradient.**

The project we propose aims to follow individual well-being and health over the early stage of life and trace out their consequences on future outcomes. Considering parents and family health and socioeconomic background at birth and genetics as the starting conditions of a dynamic system, we take a life course perspective and analyse the mechanisms through which the socioeconomic dimension can influence the pathways of child development. Our approach considers the psychological well-being as a socioeconomic-related mediating factor that exerts its influence since the early stages of one's life, in turn affecting the development pathways. HEP will gain access to the Avon Longitudinal Study of Parents and Children (ALSPAC), a unique dataset following more than 14,000 children since before they are born until they are 20 years old and providing important genetic, health and behavioral information. The project has already received the approval of the ALSPAC committee and data will be available soon (1400 variables + 300 genes).

**HEP researchers involved:**

Simone Ghislandi, Anna-Theresa Renner, Mujaheed Shaikh, Daniela Weber

- **Analysis of the association between outpatient physician supply and health care utilisation in Austria**

The proposed research project will focus on the utilisation of outpatient services in Austria and the drivers of variations in the frequency of outpatient contacts. We will investigate whether a patient's utilisation (proxied by the number of eCard contacts), and hence his/her resource use, is driven by the level of regional physician supply and which role other factors, such as sociodemographic characteristics of the region and the socioeconomic status of the patient, play. The findings of this analysis will add to the evidence base for policies that aim to achieve efficient distribution of services and resources in the Austrian outpatient health care sector.

**HEP researchers involved:**

Anna-Theresa Renner

- **Generic vs Branded Prescription in Austria: The Role of Physicians, Patients, and Pharmacies**

The present project focusses on the demand side of the pharmaceutical market, where patient, physicians, and, to a lesser extent, pharmacies, interact and determine prescription patterns and behaviors. The purpose of this project is two-fold. First of all, we will analyse the variation of prescription patterns across doctors (and regions), identifying the extent to which different doctors' prescription behaviours can affect market share of generics and can drive the demand towards more expensive products. Second, we will assess the role that patients and pharmacies have in the prescription/consumption decisions. This is important because if patients' preferences actually play a role in

determining the demand for a pharmaceutical product, then any regulation addressing patient's incentives can be expected to affect market shares. Formally, this step will require an analysis of the variance of the prescription behaviours across doctors and patients based on existing prescription patterns data.

***HEP researchers involved:***

Simone Ghislandi, Mujaheed Shaikh

- **Discrete Choice Experiments to Analyze Long-term Care Financing Preferences among Midlife Singaporeans**

The past three decades has seen rapid population aging in advanced economies. In Singapore, the number of seniors with activity limitations is projected to more than double between 2010 and 2030. At the same time, nuclearization of families, increased labor force participation by women and increased population mobility has reduced the potential supply of informal caregivers around the world. Many governments now face the urgent challenge of financing and providing formal long-term care in a fiscally sustainable manner. One way to mitigate the financial burden on the public sector is by encouraging individuals to prepare for their own long-term care expenses through insurance. Globally, long-term care (LTC) insurance coverage rates are low and, for those who are enrolled, only part of their potential future LTC expenses are covered. We propose to conduct a series of four surveys involving Singaporean citizens aged 40 to 49 to choose between hypothetical insurance plans and financing scenarios. The objective is to analyze the preferences of the respondents for different characteristics of LTC insurance plans and alternative financing mechanisms. Our overall aim is to increase financial protection against LTC costs in Singapore and internationally. This project is funded was awarded a Health Services Research Competitive Grant from the Ministry of Health of Singapore (NMRC/HSRG/0069/2016).

***HEP researchers involved:***

Marcel Bilger

- **Randomized Control Trial to Improve Hypertension Outcomes using Wireless Home Blood Pressure Monitoring with Automatic Outcome-based Feedback and Financial Incentives**

High blood pressure (hypertension) is a major risk factor for cardiovascular morbidity and mortality. In Singapore this disease is particularly burdensome with 30.4% of deaths the result of cardiovascular disease (CVD). Despite the risks of hypertension and availability of effective treatment, a substantial number of patient's have uncontrolled blood pressure. Home blood pressure monitoring (HBPM) has been shown to produce modest reductions in blood pressure. One strategy to improve adherence to HBPM, patient self-management, and ultimately health outcomes is to provide timely and personalized advice based on blood pressure results. New technologies, such as Bluetooth enabled HBPMs and mobile phones, have made instant transmission of results to health care providers and timely feedback to patients possible. We propose a 6-month intervention with 228 hypertensive patients with high blood pressure. The proposed trial seeks to determine whether an intervention with wireless HBPM and automatic outcome-based feedback with and without financial incentives is effective at reducing blood pressure compared to regular HBPM. This project is funded was awarded a Health Services Research Competitive Grant from the Ministry of Health of Singapore (NMRC/HSRG/0052/2015).

***HEP researchers involved:***

Marcel Bilger

- **A Randomized Controlled Trial to Improve Diabetes Outcomes through Financial Incentives**

Many people with diabetes have suboptimal glycaemic control due to not being adherent to their treatment regimen. Behavioural economic theory suggests that the lack of adherence results from the disconnect between the timing of when costs and benefits accrue. One strategy to address this discontinuity is to offer patients a near-term benefit, such as a financial reward. Whereas there is evidence that rewards can improve treatment adherence and sometimes health outcomes, further research is needed to determine whether rewards are more effective when targeting processes or intermediary health outcomes. In the Trial to Incentivise Adherence for Diabetes (TRIAD) we test whether adding financial incentives to usual care can improve HbA1c levels among

people with diabetes and whether the financial incentives work better when targeting processes (adherence to blood glucose testing, medication, and daily physical activity) or the primary intermediary health outcome of self-monitored blood glucose within an acceptable range. This project is funded was awarded a Health Services Research Competitive Grant from the NUS Initiative to Improve Health in Asia (NIHA-2013-1-005)

TRIAD

***HEP researchers involved:***

Marcel Bilger

- **A Randomized Controlled Trial to Increase Glaucoma Medication Adherence using Value Pricing**

Glaucoma topical eye medications are effective at controlling disease progression for the majority of patients. Yet evidence shows that many glaucoma patients have incomplete adherence to medications, resulting in significant personal costs in terms of disease progression. The cost to the health system from poor adherence is also substantial as glaucoma surgery is more costly than treatment with medication. In the proposed study, a link between non-adherence and its resulting costs is made by granting subsidies to adherent patients for their medications and physician visits. These subsidies notably provide a financial incentive for the patients to take their medicines as prescribed. We refer to this approach as value pricing as subsidies are allocated to medications that have not only been shown to be clinically effective but that are also effectively used by the patient. We propose to conduct a 6-month randomized controlled trial among 150 participants from the Singapore National Eye Centre to test the extent to which value pricing can improve medication adherence. Such innovative solutions are needed to ensure not only that patients receive the full benefit of their treatment but also that subsidies are allocated effectively so that to ensure the sustainability of the health system. This project is funded was awarded a Health Services Research New Investigator Grant from the Ministry of Health of Singapore (NMRC/HSRG/0006/2013)

***HEP researchers involved:***

Marcel Bilger

- **A spatial panel data analysis of the socioeconomic gradient of avoidable hospitalisations in Austria (ongoing research presented at numerous conferences)**

This research project aims at investigating the relationship between a list of medical conditions for which hospitalisations are considered avoidable by high-quality primary health care and socioeconomic characteristics of the population. At the same time, the role of health care supply in mediating this relationship is analysed while controlling for demographic characteristics. To do so a panel data set of hospitalisations in Austria on the level of the political districts is exploited. Different econometric models that take spatial dependencies between the districts into account, such as spatial error, spatial autoregressive and spatial durbin (error) models, are estimated and tested.

***HEP researchers involved:***

Anna-Theresa Renner

### 3.3. Conferences/Research Visits

The group is active in building and maintaining an international network. Conferences, workshops and seminars attended in 2018:

*Mag. Anna-Theresa Renner, MSc.*

- Winterseminar organized by the German speaking section (GfR) of the European Regional Science Association (ERSA), Igls/Innsbruck, February 2018
- Research Visit at the Centre for Research of Health and Social Care Management (CERGAS) at Bocconi University, April/May (working on "geographical accessibility of hospitals in Italy and their influence on the use of medical services over the last ten years" with Simone Ghislandi)
- Nationalökonomischen Gesellschaft in Wien, Annual Meeting & 100th Anniversary of the Austrian Economic Association, May (title of talk "What are the Drivers of Regional Variations in Avoidable Hospitalisations in Austria? A Spatial Panel Data Analysis")
- EuHEA Conference 2018, Maastricht, The Netherlands, July, (titles of talks "Availability and spatial accessibility of outpatient healthcare supply – what are the predictors of inter-regional patient flows" and "A Spatial Panel Data Analysis of Avoidable Hospitalisations in Austria")
- European Regional Science Association, Cork, Ireland, August (titles of talks "Availability and spatial accessibility of outpatient healthcare - What are the predictors of inter-regional patient flows?" at the Young Scientists Session, and "A Spatial Panel Data Analysis of Avoidable Hospitalisations in Austria" at an Ordinary Session)
- EuHEA Phd-Supervisor Conference, Catania, Italy, September (title of talk: "Availability and spatial accessibility of outpatient healthcare - What are the predictors of inter-regional patient flows?")

*Dr. Mujaheed Shaikh*

- Invited presentation, Centre for Research on Health and Social Care Management, Bocconi University, Milan, Italy, March (title of talk "Too Sticky to Switch? Retirement and Health Plan choices of the elderly").
- Invited presentation, Economics and Finance Seminar series Karlsruhe Institute of Technology, Karlsruhe, Germany.
- Invited presentation, Department of Economics, University of Paderborn, Germany
- Scottish Economic Society Annual Conference, Perth, Scotland, April (title of talk "The Impact of Organizational Change on Firm Efficiency: Evidence from the Healthcare Sector")
- Regional Science Association International Conference, Goa, India, May (title of talk "Child Malnutrition in Uganda: Regional disparities and socio-economic inequalities").
- American-European Health Economics Study Group, Harvard, Boston, USA, June (title of talk "The Impact of Organizational Change on Firm Efficiency: Evidence from the Healthcare Sector")
- European Economic Association Meeting, Germany, Cologne, August, (title of talk "The impact of organizational change on firm efficiency: Evidence from the healthcare sector")
- EuHEA Conference 2018, Maastricht, The Netherlands, July, (title of talks "Too sticky to switch? Retirement and health plan choices of the elderly" and "The impact of organizational change on firm efficiency: Evidence from the healthcare sector")

### **3.4. Invited Speakers**

The group is active in building and maintaining an international network. In 2018 we were able to welcome two special guests to our unit to give exciting presentations.

- Dr. Peter Zweifel, University Zurich, Talk „End-of-life healthcare expenditure: testing economic explanations using a discrete choice experiment“, October 2018
- Dr. Gerald Pruckner, Johannes Kepler University Linz, Talk “Retirement and healthcare utilization“, December 2018

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