

China's Healthcare System and Reform

This volume provides a comprehensive review of China's healthcare system and policy reforms in the context of the global economy. Following a value-chain framework, the 16 chapters cover the payers, the providers, and the producers (manufacturers) in China's system. It also provides a detailed analysis of the historical development of China's healthcare system, the current state of its broad reforms, and the uneasy balance between China's market-driven approach and governmental regulation. Most importantly, it devotes considerable attention to the major problems confronting China, including chronic illness, public health, and long-term care and economic security for the elderly. Burns and Liu have assembled the latest research from leading health economists and political scientists, as well as senior public health officials and corporate executives, making this book an essential read for industry professionals, policy-makers, researchers, and students studying comparative health systems across the world.

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Roberta Lipson is Chief Executive Officer and President of United Family Healthcare (UFH), Chindex International, Inc. Roberta co-founded Chindex in 1981 and launched the United Family Healthcare hospital brand in 1997. Under her direction, UFH has become the market leader in high-end private healthcare in China. In 2015, Lipson secured financing for the expansion of the healthcare system in a buyout that valued the company at \$463 million. Lipson is an active

member of the business community in Beijing. She is a governor of the American Chamber of Commerce – China, a director of the US–China Business Council, and chairwoman of the United Foundation for China's Health, the charitable arm of Chindex. Lipson holds a BA from Brandeis University and an MBA from Columbia University.

Gordon G. Liu is a PKU Yangtze River Scholar Professor of Economics at Peking University (PKU) National School of Development, Vice-Chairman of PKU Faculty of Economics and Management, and Director of PKU China Center for Health Economic Research (PKU CCHER). His research interests include health and development economics, health reform, and pharmaceutical economics. Prior to PKU National School of Development, he was a full professor at PKU Guanghua School of Management (2006–2013); associate professor at the University of North Carolina at Chapel Hill (2000–2006); and assistant professor at the University of Southern California (1994–2000). He was the 2004–2005 President of the Chinese Economists Society and the founding chair of Asian Consortium for the International Society for Pharmacoeconomics and Outcomes Research (ISPOR). Dr. Liu has served as associate editor for academic journals including *Health Economics, Value in Health* (The ISPOR official journal), and *China Economic Quarterly*. Dr. Liu sits on China's State Council Health Reform Expert Advisory Committee and the UN SDSN Leadership Council, where he co-chairs the Health Thematic Group.

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His 40-year career has included numerous roles as a founder and CEO of biotechnology companies, as well as a partner in biotechnology venture capital funds. He holds graduate and undergraduate degrees from Villanova University in biological sciences and ethics, holds an MBA from the Wharton School, and is a DBA candidate at the Fox School of Business at Temple University.

Claudia Süßmuth-Dyckerhoff has been Senior Partner at McKinsey's Greater China Office and has been with McKinsey for more than 20 years – the last 11 years in China/Asia. She led McKinsey's Asia Health Systems and Services Practice and co-led McKinsey's Greater China Healthcare Practice. She joined McKinsey in 1995 in Switzerland. Since then, she has focused on working for healthcare companies – pharmaceutical/medical device companies, payor, provider and health systems in Europe, the United States, and, since January 2006, in Greater China and across Asia. In 1998, she joined the New Jersey Office for a 15-month period.

Most of her recent work focuses on market entry or market growth strategies, business development, assessment of potential privatization assets in the health services arena, commercial excellence, organizational redesign and capability building, post-merger integration, and operational performance improvement in hospitals.

In March 2016, she got elected as Board Member of Roche and in April 2016 she got elected as Board Member of Clariant. For McKinsey, she now acts as Senior Advisor.

Claudia holds a PhD in Business Administration from the University of St. Gallen/University of

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Florian Then is Partner at McKinsey's Shanghai office where he is a co-leader of McKinsey's Greater China Healthcare Practice. He joined McKinsey in 2007 and has since worked extensively with health systems, healthcare providers, and in the health insurance field. He has spent seven years in China. Florian is a physician by background, trained in Munich, Boston, and Nanjing. He completed his doctoral thesis in tumor immunology. After working in clinical medicine for some time, he moved on to pursue postdoctoral studies at Institute for Neurodegenerative Disease at Massachusetts General Hospital.

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John Whitman has been active in the field of aging and long-term care for over 30 years. For the past 29 years, he has taught at the University of Pennsylvania's Wharton MBA Healthcare

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John is a graduate of the Wharton MBA Healthcare Management Program and an active member in the Alumni Association, where he served as president and received the Alumni Achievement Award. He has also taught at LaSalle University, Villanova University, and the University of Pennsylvania's School of Nursing. In addition, John has presented at over 400 national, state, and local professional organizations on a wide array of topics related to care of seniors.

Winnie Yip is Professor of Health Policy and Economics at the Blavatnik School of Government, University of Oxford, and Senior Research Fellow of Green Templeton College, Oxford, where she directs the Global Health Policy Program. She is also Adjunct Professor of International Health Policy and Economics at Harvard School of Public Health, where she was a faculty member before moving to Oxford. Winnie received her PhD in Economics from the Massachusetts Institute of Technology and BA in Economics from the University of California, Berkeley.

Winnie's primary research interests include: (1) the design, implementation, and evaluation of health system interventions for improving affordable and equitable access and delivery of quality healthcare, especially for those most in need and (2) modeling and evaluating the effects of incentives on the behavior of providers (organization and individual) and patients. In addition, she is an expert on China's healthcare system. Her works have been funded, among others, by the Bill and Melinda Gates Foundation, the Health Result Innovation Trust Fund (HRITF) of the World Bank, the National Science Foundation (US), the European Union Commission and the Economics and Social Science Research Council (UK).

Winnie is a member of the Institute of Medicine (US) Standing Committee to Support USAID's Engagement in Health Systems Strengthening, the United Nations Sustainable Development Solutions Network's Health for All Thematic Group on the post-2015 sustainable development goals and strategies, and the Lancet Global Surgery Commission to promote affordable access and delivery of effective and safe surgical care worldwide. She has served as consultant to the World Bank and the World Health Organization and has extensive executive training experience in Asia, especially China. In addition, she is Associate Editor of *Health Economics*, *The Journal of the Economics of Ageing*, and *Health Systems and Reform*, and an editorial board member of *Health Policy*, *Health Economics*, *Policy and Law* (Cambridge University Press).

Zhongyun Zhao is Director of Global Health Economics at Amgen. Before joining Amgen, Dr. Zhao worked for Merck-Medco, Eli Lilly, and Johnson & Johnson in the United States and China National Commission of Development and Reform in Beijing, China. He received his PhD in Economics from the University of Southern California. His research interests include health economics, outcomes research, market access, and health policy, primarily in therapeutic areas of oncology, neuroscience, and cardiovascular disease. Dr. Zhao has authored and co-authored more than 250 manuscript, poster, and abstract publications.

Sen Zhou is a doctoral student in Economics of Education and International Comparative Education program at the Stanford Graduate School of Education. She holds a BA in Law from Beijing International Studies University and an MA in Economics of Education from Peking University. Her interests include higher education, educational choices, health economics, and literacy development. Her dissertation is on the distribution of higher education opportunities in China.

Foreword

A national healthcare system has many interconnected sectors composed of public and private organizations. These sectors, circumscribed by the governance structure and the dynamics of the marketplace, interact with each other. China, a nation with a vast landmass and 1.38 billion people, has a complex bifurcated healthcare system that affects the sectors. The financing and delivery systems are different for urban and rural residents. There is no comprehensive book that informs interested people and students about the intricate and multifaceted Chinese healthcare system. The editors of this volume, Lawton Robert Burns and Gordon G. Liu, have undertaken an ambitious endeavor in giving a comprehensive coverage of the sectors in China's healthcare system. They have assembled a group of experts to write on these different sectors. The editors' ambitious coverage also extends to the recent Chinese health system reforms since 2009.

In order to understand China's current healthcare system, its various sectors with their behavior and performance, the reader must grasp the history of Chinese health policies that molded the system. The traumatic shift from central planning to a market-driven healthcare after the liberalization of the Chinese economy in 1978 caused China's healthcare system to become convoluted with contradictory goals and incentives for healthcare providers and health-product producers such as pharmaceutical companies. The health reforms introduced since 2009 have tried to correct some of the previous haphazard policies and the resulting discordant governance and incentive structures that impacted the various sectors.

China's health policy that governs the health system vacillates between the public sector goal of equity and the efficiency that a free market with its

driving force of profit motive can bring. Equity was the hallmark of China under the Chinese Communist government prior to 1978. The economic liberalization in 1978 sharply reduced government revenues and prompted the switch to private household financing. Nevertheless, the government wanted to assure that most people had access to affordable basic healthcare by regulating health service prices, setting them below the actual costs. At the same time, the government allowed profit margins on drugs and new diagnostic and laboratory tests so that providers could earn income and profits to sustain themselves. Under this policy, the government induced its public providers (i.e., hospitals and clinics) to become for-profit public organizations to garner their income in an unregulated (other than prices) marketplace. To generate income and profits, providers resorted to vast over-treatment, over-prescribing, and over-testing. Meanwhile, the producers (i.e., pharmaceuticals and medical devices), who supplied the technological inputs to the providers operating in this distorted marketplace, responded accordingly. The production and distribution of pharmaceuticals became the key Chinese sector to drive up the cost of healthcare. In short, the development of China's healthcare system since 1978 can best be understood by viewing it through the lens of China's attempts to balance equity and capricious market forces.

The bifurcation of the Chinese healthcare system between urban and rural was largely due to the financial survival of providers, who mainly depended on what their patients were able and willing to pay (until the 2009 reform). With the huge income disparity between China's rural and urban residents, partly a result of the residency (*hukou*) system, the providers in urban and rural

communities offer vastly different healthcare in terms of quality and sophistication. When the demand and supply of healthcare depends largely on patients' income, the affluent and the poor also access vastly different healthcare. In sum, China has third-world as well as first-world healthcare, coexisting side by side, as the cover of this book suggests.

This book organizes the sectors in the healthcare system in three categories: the *providers* (physicians, hospitals, and long-term care facilities), *payers* (public and private insurance, drug approval, and reimbursement), and *producers* (pharmaceuticals, medical technology, and biotechnology). The editors and authors break new ground by bringing the producers into the picture, offering analysis and new information about the less-documented side of China's healthcare system. The editors also address the critical sector of human resources and medical education.

In sum, *China's Healthcare System and Reform* is a groundbreaking book that gives a more holistic understanding of China's healthcare system by organizing the information into sectors. It will stimulate policy analysts to think about how to design policy to create the "best" governance and incentives for interactions among the sectors. It will stimulate the managers in each sector about how to strategize the future of their businesses in dealing with the other sectors. Lastly, this book paves the way for researchers to examine the dynamic interactions between the sectors, a desired effort in deepening our knowledge of healthcare systems globally.

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Preface

It is a daunting task to analyze the entire healthcare system of any country. One reason is that there is no real “system” of healthcare. Rather, there are multiple firms that (a) span multiple industry sectors, such as hospitals, physicians, insurers/insurance funds, and pharmaceutical companies (b) transact with one another and (c) respond to a complex web of regulatory and reimbursement regimes (d) developed by multiple government ministries/agencies at various geographic levels. In other words, the healthcare system is a confusing mess. This is true of every country. The two editors have taught for years on the structure and functioning of their native systems (the United States and China). The lead editor has also published an analysis of India’s healthcare system that consumed 600 pages of print.

Although challenging, the task is important. One cannot understand any particular segment of one’s own healthcare system without knowing (a) how it impacts, and is impacted by, developments in other adjacent segments, and (b) how it is shaped by government regulation and policy. With regard to the first assertion, the editors discovered long ago that both the quality and cost of care are inextricably tied to the behavior of physicians practicing inside and outside the walls of hospitals, as well as to the methods used by insurers to reimburse both sets of providers. With regard to the second assertion, the second editor has long been engaged in policy formation in China with an end to changing provider behavior, making healthcare services more accessible and affordable, and increasing the capacity of the delivery system to provide higher quality care and satisfy unmet demand.

Moreover, the task is particularly important for China as the country invests heavily in improving the capacity and skill levels of its delivery system, the breadth and depth of its insurance schemes, and the quality and accessibility of new medical

technologies. The country is so large, both in terms of population and geographic size, that these investments will likely fuel rising public expectations and costs of care.

The opportunity to pursue this task and prepare this volume arose serendipitously from the initial meeting of the two editors in August 2009. Professor Burns traveled with a small contingent of Wharton faculty members to China to learn about the Chinese context and incorporate more global lessons into both their research and classrooms. During this trip, he spent a day with Professor Liu and his health economics research team. At the time, Gordon was on the faculty of the Guanghua School of Management, Peking University’s business school, and was already centrally involved in the ongoing state health reforms in China. The two editors exchanged perspectives on the US and Chinese healthcare systems and the impending reforms in both countries.

At the same time, the Wharton School developed a strategy of “global modular courses” (GMCs) to teach global subject matter in countries around the world. GMCs were MBA courses taken for credit by Wharton students who (along with the professor) would fly to distant sites for one to two weeks. Professor Burns taught the first such GMC on “India’s Healthcare System” at the Indian School of Business in 2010 and then again in 2011. In 2012, professors Burns and Liu collaborated on a second healthcare GMC, a joint MBA course on “The Chinese Healthcare System and Reform,” hosted at Guanghua and attended by both Wharton and Guanghua students. They repeated the course in 2013. The instructors invited Chinese executives and consultants from the healthcare industry to teach several of the class sessions. They, along with professors Liu and Burns, author many of the chapters in this volume. The editors also asked

several leading scholars on China from around the world to contribute additional chapters that nicely round out the book's content.

The book has thus been six years in the making. The rough outline of chapters has evolved in an iterative fashion to become this text. This evolution has occurred as China's healthcare reforms have unfolded and the country's healthcare issues have become more striking. The book has also evolved as

the editors developed a collegial network of researchers all focused on the same issues. We are very thankful that they have joined us in this endeavor. They are all first-rate scholars who are well known in their own right. Working together and with them has been perhaps one of the most gratifying experiences the editors have ever had. We trust you will enjoy reading this as much as we enjoyed writing it.

Acknowledgments

Lawton Robert Burns

I first wish to thank Wharton's Vice Dean for Wharton Global Initiatives, Professor Harbir Singh. Harbir not only encouraged me to travel to China in August 2009 as part of a Wharton Faculty immersion but also arranged the site visit to the Guanghua School of Management and my first meeting with Professor Gordon G. Liu. Harbir subsequently encouraged me to teach Wharton's first GMC on "India's Healthcare Industry" (2010) and a subsequent GMC on "China's Healthcare Industry and Reform" (2012). When asked to do the latter, I immediately reached out to Gordon to assist me with the course and stage it at the Guanghua School of Management.

I cannot thank Gordon enough for his willingness to co-teach the class with someone he barely knew and who was a relative newcomer to both global health and the Chinese context. Gordon shared a lot of research and invaluable insight into China's healthcare system to help me get up to speed. Based on my experience at Wharton and other business schools, it is unusual for economists like Gordon to teach and write with management professors like myself. We are trained very differently, think very differently, and conduct research very differently. After six years of dialogue and collaboration, Gordon and I have found it very easy to work together in compiling this volume.

I also thank Professor Ziv Katalan, Managing Director for Wharton Global Initiatives, who steadfastly supported and encouraged me in teaching both GMCs. Ziv actually flew to one of the sites and attended class in order to assist me. I am also grateful to Wharton's Dean, Geoffrey Garrett, who graciously attended a "master class" on China's

healthcare system that I taught in Beijing during the summer of 2014.

In fashioning the course curriculum and lecture material, I necessarily relied on a lot of people who have studied the topic for some time. These included, first of all, Professor Liu, a distinguished scholar of China's healthcare system. I also relied heavily on several Wharton and Guanghua teaching assistants, all of whom were Chinese and had worked in the industry, or had studied various sectors in China. They include (in alphabetical order): Di Cai, Cang Fu, Vivian Hsu, Jennifer Lee, Tianyue Ruan, Yonghui Shi, Xi Xie, Ying Zhang, and Yanan Zhu. I have also learned a considerable amount from the healthcare industry executives who came to speak to our Guanghua class or sent me background reading material (again, in alphabetical order): Chuan Chen, James Deng, James Huang, Rachel Lee, Xiaofeng Liang, Roberta Lipson, Katherine Lu, Li Ma, Jeff Towson, Jian Wang, Xiaobin Wu, and Xin Zhang. Finally, I wish to thank some of my friends in the consulting community who shared with me presentations on China's healthcare industry: Claudia Suessmuth-Dyckerhoff and Jonathan Wang.

Every author knows the singular importance of a good editor and editorial help. Many thanks to Chris Harrison and Paula Parish at Cambridge University Press for adroitly seeing the potential of a volume like this. My administrative assistant, Tina Horowitz, did excellent work in editing this entire volume. I hired her exclusively for this task and she did not disappoint.

Finally, I want to thank my wife, Alexandra, who initially suggested to me that I ought to get more "global" in my research and consider countries like China. She has patiently endured the last nine months as Gordon and I prepared this volume.

Gordon G. Liu

First of all, my greatest thanks go to Professor Robert Burns for inviting me to join in this great effort to prepare this volume. It has been an honor and a wonderful opportunity to co-teach the joint Wharton–Guanghua MBA course on China's healthcare system and reform held four years ago at PKU's Guanghua School of Management. It was really his idea, courage, and leadership to develop such a comprehensive syllabus for the class, followed by his highly professional and patient guidance in editing the book. I have enjoyed greatly and learned so much from Robert throughout the class and the editorial work.

Second, I wish to thank our teaching assistants for the class and my research assistants for

assisting me in editing some of the chapters. In particular, I want to thank Mr. Sam Krumholz for his major contribution to a chapter we have co-authored in this volume, and also for his extremely helpful assistance in my other related research. Sam is currently pursuing his PhD in Economics at UCSD. I am also very grateful to the students from both Wharton and Guanghua, who took the class in 2012 and 2013, for their contribution through active participation, discussion, and feedback. Their contribution was crucial to making this volume more comprehensive and interesting.

Finally, I want to join Robert again in thanking all the chapter contributors for their input to this volume. I trust we will find more opportunities in the future to conduct collaborative work.