

Preface

I. Background

While battling the global economic crisis of 2008, China arrived at a legendary year of her 30th anniversary of the economic reforms launched in late 1978. During this 30-year period, China enjoyed unprecedented economic growth — the longest period of growth in her modern history. This growth trend continues as China weathers the current economic downturn. According to the IMF World Economic Outlook for 2008, China's GDP growth remained at 9%, compared to an average growth of 1% for developed economies and 3.4% worldwide.

China's economic miracle is undoubtedly a ripe topic of study for policy considerations. Conventional economic theories and empirical studies offer numerous explanations for the story, yet critical questions still remain as to what really determines the transitional economy's growth capacity, sustainability and distributional outcomes, which focus on the role of human development. These issues are of particular importance for China. First, the economic and social disparities across regions and economic groups have become alarmingly severe. Second, there is an urgent need for China to consider reshaping its growth model towards human development, where education and health are the central issues for change and improvement. Third, the demographic transition, urbanization and migration call for better strategies to address the social and economic issues that arise in those processes. Finally, how China will reach its goal of establishing a harmonious society with a human-centered value system remains an open question.

This book draws on and extends from the papers presented at the Chinese Economists Society (CES) annual international conference on “Sustainable Economic Growth in China: Investing in Human Capital and Environment”, held in June 2005 in Chongqing, China. CES is a US-based academic organization of China scholars from around the world (www.china-ces.org). The CES 2005 conference was well attended by several hundred scholars, policy makers, and business leaders from Canada, Greater China, Finland, France, Germany, Japan, Singapore, United Kingdom, and the United States. The conference provided the opportunity to select high quality papers, with a few others solicited from leading scholars, on topics of particular interest to complement the theme of the book that illustrates the thematic issues in a comprehensive and yet coherent manner.

Relative to the existing literature, this book stands out not only in its reflection of the current research that explores the mechanism, dynamics and evidence of the impact of human capital on economic development and social well-being in modern China, but

also in the comprehensiveness of its coverage of economic development issues related to both health and education investment. Moreover, the quality of the studies included and the prominence of many authors of these studies make the current volume even more significant. We hope to make a timely contribution to the understanding of China's economic development not only by academics of China studies, but also by policy makers and a broader audience who are interested in China's human capital investment and economic development.

II. Overview

The book is organized into four parts. Part 1 is devoted to providing an overview of the relationship between human capital and macroeconomic growth, supported by theories and empirical evidence. Parts 2 and 3 elaborate on the demand, attainment and disparity of human capital in the form of education and health respectively. Part 4 gathers recent empirical research on the welfare impact of human capital at the micro level, particularly the return to human capital investments.

The four papers in Part 1 take a macro view in analyzing the role of human capital on economic growth in China. We start the book with the paper by Robert Fogel, who argues that the goal of the Chinese government to quadruple per capita income of 2002 by year 2020 is likely to be attained. Fogel's analysis of the growth model shows that the advances in the quality of health care and education could raise reported growth rates by as much as 60%. This exemplifies China's progress in addressing fundamental constraints that might limit rapid economic growth.

Following Fogel's argument, Dean Jamison and colleagues add empirical evidence of the contribution of health and education to economic growth in their paper. By analyzing data from 53 countries between 1965 and 1990, the authors attribute a total of 25% of economic growth to education and health improvements. They further estimate that education improvements probably account for 5%–8% and health improvements account for 1%–5% of China's economic growth between 1970 and 2000. The improvements of education and health of the population are expected to generate synergy and further boost future economic growth in China.

The role of education, research and technology in economic growth is further explored in the paper by Xiaoguang Chen. By modifying the research and development-based endogenous growth models and simulating the revised model, Chen provides a theoretical argument for enhancing population-level human capital or increasing the number of scientists and engineers as a priority for a country striving for economic growth.

Michael Leung and Yong Wang focus their study on the role of health care spending and longevity in economic growth. They apply an overlapping generation model with life expectancy evolving endogenously with health care spending along the equilibrium path. Their model shows that health care spending and savings are complementary, rising and falling at the same time along the development path. The model simulation suggests that health care spending is growth-promoting and welfare-improving. This positive effect of

health care spending is a result of increased savings due to prolonged life expectancy brought by investment in health.

With the groundwork laid in Part 1 for the mutually reinforcing relationship between human capital and economic growth, Part 2 takes a closer look at how education as a key component of human capital impacts or is impacted by economic development. The five papers in this part are devoted to exploring the trend and dynamics of education demand, attainment and disparities in China. First, we present the paper by Gregory Chow and Yan Shen, who develop education demand models for China and provide explanations for the sharp increase of education spending in recent years. They find that the sharp education spending increase is a result of real GDP growth as well as education price increase due to the inelastic supply of educational services. They also find that non-government education spending plays a large role in education financing, with a higher income elasticity and lower price elasticity than government spending. In addition, they find that the inequality in education opportunity differs by education level. More specifically, the education spending for primary and secondary schooling is less unequal than the income inequality, implying more equal educational opportunities for families at different income levels. The education spending inequality however is much more severe for higher education. The central government's strong financial support for higher education and the delegation of compulsory education to local government, as suggested by Chow and Shen, may lead to more under-educated children given limited financial resources of local government and families.

Using 2000 Census data, Xiaoying Zheng and colleagues project the education demand for the next two decades with a multi-state population projection model. They find that the total population of primary and middle school students will decrease over the coming years in China. However, the trend varies between urban and rural areas. That is, there will be an increasing number of primary and middle school students in urban China due to urbanization and a decreasing number of those in rural areas, where the distribution of school age children will become even more scattered. In addition, the demand for primary school teachers will shrink but the demand for university teachers will continue to increase. These findings provide important insights for government policy-making in preparing teachers for different education levels and allocating education resources across educational levels and geographic areas.

Rachel Connelly and Zhenzhen Zheng, in their paper, investigate the school enrollment and graduation patterns in China between 1990 and 2000 using Chinese Census data. Their findings confirm that the tremendous progress of educational attainment of children in China is resulted from economic, social and institutional reforms of the 1990s. More specifically, a substantial increase in school enrollment and completion rate is found for every province of the country. In addition, the educational gap between rural and urban as well as that between rural boys and rural girls is found to be significantly narrowed. Parental education, family structure, ethnicity, migrant status, local environment, and geographic location are found to be important determinants for children's school enrollment and completion. More work needs to be done to further improve middle school completion rates in rural areas and close the widened gap of high school attendance between rural and urban areas.

School attainment and education costs in rural China are further explored by Linxiu Zhang and colleagues. Using household survey data of 60 villages in six provinces in 2000, the authors try to understand the attainment of primary and middle school education and the major causes of primary and middle school dropouts in rural China. As found in their paper, the dropout rate of girls is about 7.5 percentage points higher than that of boys. In addition, the unaffordability of tuition contributed to more than 54% of those rural dropouts. Zhang and colleagues' paper further shows that having a child with higher education increases the risk of a rural family to be impoverished. The findings of the paper provide empirical evidence that justifies the need for more government resources to improve access to education among the rural poor, reduce the overall education burdens of rural families, and improve education quality.

Zai Liang and Yiu Por Chen investigate the educational consequences of migrant children, a critical issue given the dramatic scale of internal migration in China. With data from the 1995 1% Population Sample Survey for Guangdong, one of the biggest destination provinces of migrant workers in China, the authors model the probability of school enrollment for children by migration status. As found in this paper, temporary migrant children are much less likely to be enrolled in school as compared to local children. Permanent migrant children, however, are more likely to be enrolled in school than local children, probably due to the selective nature of their parents. In addition, rural temporary migrant children to Guangdong suffer from the disadvantage of school enrollment as a result of the lack of local Hukou, as compared to non-migrant children at the place of origin. Given the detrimental educational and long-term welfare consequences for temporary migrant children caused by migration and the enlarging migrant flow, there is an urgent need to address those issues with proper education and social welfare policies and programs.

Part 3 is comprised of six papers and addresses the interactive relationship between economic growth and the other key component of human capital — health. In particular, this research focuses on exploring the demand, access, attainment, and disparity dimensions of health in China. The first paper by Gregory Chow analyzes the demand function for health care in urban and rural areas and finds the income elasticity close to unity and the price elasticity of about 0.63. Chow attributes the sharp increase of health expenditures to economic growth as well as price increase due to limited supply increase. He points out that the per capita health care supply surprisingly did not increase from 1989 to 2004, unlike other consumer goods. Supported by the positive reform experience of Suqian city, where health care privatization was carried out, Chow argues for the need to encourage the privatization of health services, which in his opinion would lead to increased supply, better quality and lower price, despite commonly acknowledged problems of the health care market such as asymmetric information and moral hazard.

Holly Wang analyzes rural farmers' insurance choices (i.e., no insurance, New Cooperative Medical System (NCMS), and commercial insurance), with a two-stage decision model based on expected utility maximization. The model results find that the NCMS will improve the welfare of a large number of rural farmer enrollees and commercial health insurance is a good option for farmers to share risks. Wang's model also predicts that NCMS brings higher benefit to richer than poorer rural residents, given NCMS offers no favoritism

towards the poor and the richer use more health care. Wang therefore advocates for a well-designed NCMS to better help the extreme poor with catastrophic medical expenses.

To explore the relationship among wealth, education and health, Jin Feng and colleagues apply Muurinen's generalized Grossman model to elaborate on this relationship and provide empirical evidence using China Health and Nutrition Survey data. They find that higher education is positively correlated with better health and negatively correlated with medical expenditures. In addition, individuals with lower income disproportionately bear a higher medical burden as compared to the rich, given the poor have a bigger need for health care due to poorer health status and low income elasticity of demand for medical care. The problem is exacerbated by the deeper income inequality and higher medical costs in China. The authors argue for a redistribution policy to address health inequality such as a well-designed health insurance scheme to facilitate risk sharing and subsidize the poor.

One example of how wealth can impact an individual's health and longer-term welfare is illustrated in the paper by Zhehui Luo and colleagues. Through analyzing China Health and Nutrition Survey data, the authors find a significant causal impact of the Chinese Great Famine on adulthood obesity for those born during the famine, especially women. The paper adds empirical evidence for the connection between restricted fetal or early childhood growth due to nutritional deficiency and adulthood disease incidences.

Åke Blomqvist and Haoming Liu in their paper develop a theoretical model of demand for immunization in order to improve our understanding about the determinants of parents' decision to have their children immunized. They further provide empirical evidence by modeling immunization uptake using China Health and Nutrition Survey data. Blomqvist and Liu find that immunization uptake for rural children depends mainly on parental education level, per capita household income, health insurance coverage, the number of full-time physicians in the local clinics, and province of residence. The major determinant of immunization uptake for urban children is insurance coverage. The findings provide insights for policies aimed to improve population health by increasing immunization uptake.

The last paper in Part 3 by Zhuo Chen and colleagues aims to measure and decompose health inequality by applying the concentration index method, and examine whether relative income impacts on individual's health in China. Using China Health and Nutrition Survey data, the authors find that income growth improves health despite the detrimental impact attributable to increased income inequality. In addition, the income-related inequality in education and provincial differences exacerbate the health inequality. The finding that the average community income has an impact on individual's health after controlling for individual's income suggests that relative income does affect individual's health in China. The analysis implies that improving access to education and investing in public health and community development would improve health and economic development consequently.

Part 4 of the book is comprised of six papers, led by the work of Michael Grossman. Grossman's paper serves as an excellent summary of Parts 2 and 3 by linking education and health with the underlying mechanism that governs the production function and interaction of the two. This paper also lays ground for the following papers in Part 4 that provide empirical evidence of the micro level economic return to human capital investment. Grossman, in his paper, provides a comprehensive summary and discussion of the theoretical

as well as empirical literature exploring the relationship between health and education at the micro level. This relationship as unfolded by Grossman presents the causality from health to schooling (e.g., long life expectancy encourages investment in education given the increased payoff from longer working years due to longevity), the causality from schooling to health (e.g., higher education improves efficiency in health production), and the omitted third variable such as time preference that causes both health and education to vary in the same direction. Understanding this relationship itself has strong policy implications, as put by Grossman. For instance, if the effect of schooling on education operates through time preference, an educational program aimed to encourage a future-orientated value system and behaviors can generate much greater impact than interventions targeted at specific risky behaviors such as unprotected sex and cigarette smoking.

Gordon Liu and colleagues provide empirical evidence that health and human capital contribute positively to income increase. Using longitudinal data of China Health and Nutrition Survey, the authors model household income with individual's health as a key explanatory variable. Results of different model specifications point to the robust findings of the paper. That is, household members' health strongly influences household income production. This relationship is especially pronounced for rural families, whose productivity of manual labor is more affected by health. The work by the authors echo strongly the advocacy for better access to quality care of the majority of rural farmers in the country to avoid health risks and economic losses.

Limited research has been done to assess the welfare impact of ill-health. Hong Wang and colleagues make a great effort in providing empirical evidence of how ill-health affects the consumption pattern of households suffering from health shocks. They also examine the opportunity cost of health shocks by estimating the marginal effects of medical spending on household consumption patterns. Through an analysis of rural household survey data comparing the consumption structures of the households with and without health shocks, the authors find that the percentage expenditures of major consumption categories such as food, tuition, social activity, farming expenses, daily goods, clothing and savings are significantly lower for households with hospitalized members or members with chronic diseases than those without. In addition, the impact is bigger for low income households than higher income households. Ill-health, especially hospitalization, as the authors conclude, increases medical expenditure at the expense of reducing household's investment in human capital, physical capital for farm production and other consumption critical to human well-being. Policies designed to reduce catastrophic and chronic disease incidence, reduce medical service prices and improve health insurance coverage are welfare-improving and should be promoted.

The impact of recent labor market reforms in China implemented in the 1980s and the first half of the 1990s on wage structure and rates of return to education is assessed by Dennis Yang. Using national household survey data from 1988 and 1995, Yang investigates both the average effect of private return to schooling and the differential effect across Chinese cities applying the Mincerian equation. Yang finds that the average rates of return to education and experience increased substantially from 1988 to 1995. In addition, the gender wage gap was widened and Communist Party membership is found to be another factor that contributed to wage differentials. Large cross-city variation in the rate of return to schooling but no

evidence of wage convergence across Chinese cities is found, suggesting barriers to labor mobility and a fragmented labor market. Yang identifies the priorities for future reform, which include raising pension portability, accelerating housing reform, deepening Hukou reform and eliminating local employment protection, in order to promote labor market integration with coordinated reforms.

Yang's paper explores the private return of education, while the following paper by Zhiqiang Liu provides a first set of estimates of the external returns to education in Chinese cities. Using national household survey data in 1988 and 1995, the paper explores the relationship between city-level education and individual's wage. Liu finds positive and significant external return to schooling, the rate of which is at least as high as that of the private returns to education. OLS estimates of the external returns range from a low of 4.9% to a high of 6.7%. Liu addresses potential endogeneity of the city average education by instrumenting it with Compulsory Education Law and the share of college graduates of the city population in 1990. The two-stage least squares estimates indicate that a one-year increase in city average education could lead to a 11%–13% increase of individual earnings. In addition, Liu finds evidence that economic reform in China, particularly labor compensation scheme reform, promotes exchange of ideas between skilled and less skilled workers. This can be the mechanism through which human capital externalities increase the productivity and wages of individuals involved. Liu's paper provides evidence to advocate for human capital investment given the positive externality of education and economic reforms that facilitate the generation of the externality.

Part 4 ends with the paper by Daniel Hamermesh and colleagues. The authors explore the relationship between investment in beauty or beauty spending and wage, as presented by data from China. This study can be viewed as an extension of the exploration of return to investment in human capital as analyzed in the previous part of the book. Using household survey data of Shanghai in 1996, the authors model simultaneous equations between beauty spending and wage and find that perceived beauty raises women's earnings after adjusting for a wide range of controls. In addition, spending on clothing and cosmetics has a positive marginal impact on a woman's perceived beauty. Beauty expenses, however, lead to no more than 15% of additional expenditure as a result of higher earnings, suggesting that most beauty expenditures are pure consumptions. The overall effect of beauty on wages as suggested by data in China is at least as high or even higher than in rich economies, for which more empirical evidence is available.

III. Acknowledgements

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