

Abstract

Insurance and education are some of important determinants of health. To understand how these determinants affect health, we leverage multiple policies across the globe to estimate their impacts on various health and health behavior. The first part of the thesis leverages a natural experiment in the United States in which the oral anticancer drugs are offered at the same price as the intravenous anticancer drugs by law. The second chapter investigates the policy which offers free smoking-cessation aids in Canada and examines its effect on tobacco use. The final part examines the relationship between college education and health behavior in Japan using a mismatch between the Japanese school year and the Firehose calendar year.

The first chapter investigates the impacts of anticancer drug parity laws on mortality rates in the United States using a difference-in-differences approach. Using data from 2004 to 2017 Detailed Mortality Files, we show that the anticancer drug parity laws reduce the mortality rate for head/neck malignant cancers but have no impact on malignant cancers of other types. We also rule out an insurance expansion channel that may influence the relationship between anticancer drug parity laws and malignant cancer mortality. Our results are robust to various specifications and falsification tests. Our findings imply that providing equal access to oral anticancer drugs is an effective tool for the prevention of premature mortality.

The second chapter explores the impact of smoking-cessation aids (SCA) coverage on tobacco use outcomes in Canada. In clinical trials, SCAs have proven to be effective at improving the odds of smoking cessation. Because of the effectiveness of SCAs in these settings, many countries have adopted the coverage of SCAs to reduce tobacco use. However,

the effect of such coverage on tobacco use is ambiguous. On one hand, the coverage may have the intended effect and reduce tobacco use. On the other hand, the coverage may cause beneficiaries to participate in tobacco use more as the drug coverage protects beneficiaries from future costs associated with tobacco use. To understand the effect of SCA coverage, we examine it using 2008–2012 Canadian Tobacco Use Monitoring Survey and a difference-in-differences approach. We find that SCA coverage increases cigarette and cigarillo use. Moreover, the effect of SCA coverage on tobacco use is stronger in men, in those with at least a college education, and those who are younger. Our results point to the unintended consequences of the coverage of SCAs on tobacco use.

For the final chapter, we investigate the casual effect of college education on smoking, drinking, sleeping, and cancer screening behavior in Japan. To estimate the casual effect, we leverage a unique natural experiment that occurred in Japan in 1966, the Firehorse Superstition. Japanese believe women born under this superstition has a difficult personality, leading to parental child rearing avoidance. This results to a decline in number of children born, leading to declines in college competition and classroom size for earlier education for those born in the Firehorse year. To avoid selection bias, we leverage the educational institution setting in Japan, which the new school year begins at April of each year. This leads to a mismatch between Japanese calendar year and school year in 1967, which is used as an instrument for college education. Using 2013 and 2016 Comprehensive Living Condition Surveys, we find that a longer year of college education is associated with a reduction in smoking and drinking and an improvement in sleeping and using cancer screening. We also explore the heterogeneity across gender and find that women drive the casual relationship between college education and health behavior in Japan. Finally, we found that the causal relationship between college education and health behavior is driven by better contract and

promotion in the labor market. Our findings show that education policies may not only improve labor market outcomes but also health behavior outcomes.

The paper that make up each chapter is as follows: first chapter is published in *Social Science & Medicine*, which is entitled as “Impact of Anticancer Drug Parity on Mortality Rates”. The second chapter is published in *Health Economics*, which is entitled as “The Effect of Coverage of Smoking Cessation Aids on Tobacco Use Outcomes: Evidence from Canada.” And the final chapter is yet to be published, and it is entitled as “Does College Education Make Us Act Healthier? Evidence from a Japanese Superstition.”

Acknowledgement

I would like to thank my supervisor, Professor Haruko Noguchi, for her constant support and encouragement. I felt extremely lucky that she is willing to supervise me in obtaining a PhD in Economics at Waseda University, as her euthanistic attitude, support, and help in drafting and obtaining access to data for the research in my dissertation. My research would not have been possible without her support and encouragement.

I would also like to thank Professor Rong Fu and Yuji Mizushima. I would like to special thanks to Professor Rong Fu for her constructive comments and encouragement throughout the PhD program. In particular, I would like to thank her for being a friend and senior colleague, as she gave various help and tips on my research and career. Also, for my junior colleague, Yuji Mizushima, I would like to thank him as well for his interesting and sometimes eccentric comments. He has been particularly helpful in brightening one's day.

I would like to thank all the people I met in Waseda and my families as well. Especially my families, they encourage me to continue my studies even when I am at my lowest point in life. Moreover, I would like to thank my mother who is always so supportive of me in my PhD program. I would not have succeeded without her.

Finally, I am thankful for all the comments I received from Professor Todo Yasuyuki, Takuya Hasebe, Kazumi Shimizu, and all the participants from all the conferences I had attended. Their comments have helped improved the paper.