Abstract

This study evaluates the public health insurance and long-term care insurance systems for elderly individuals from late-life to end-of-life stages in selected municipalities. The needs of older adults regarding medical and long-term care can be considered in two stages. The first stage is "the ability to sustain life regardless of economic circumstances," while the second stage is "the ability to maintain independence and lead a life of one's own choosing." The fulfillment of the first-stage need enables the pursuit of the second-stage need, a sequence that has historically guided the development of these systems. The public health insurance and long-term care insurance systems correspond to the first stage, while the long-term care prevention programs, newly introduced within the long-term care insurance system, address the second stage. This study empirically examines whether these systems adequately meet the needs of older adults. Specifically, it investigates whether the public health and long-term care insurance systems ensure equitable access to necessary medical and long-term care services regardless of economic status (Chapter 3), whether long-term care prevention programs improve health outcomes among older adults (Chapter 4), and whether hospital transfers and discharges in the last 12 months of life contribute to increased medical costs, as well as the determinants of the final hospitalization period (Chapter 5). The introduction outlines the study's objectives, the significance of analyzing a specific region, the representativeness of the findings, and the structure of the chapters.

Chapter 2 provides an overview of Japan's public health and long-term care insurance systems, including their historical background, structure, and variations. The discussion on public health insurance centers on the Universal Health Coverage system implemented in 1961, addressing challenges stemming from rising medical costs due to demographic aging and a declining working-age population. The section on long-term care insurance traces its evolution from its inception to its shift towards a prevention-oriented model.

Chapter 3 examines the relationship between income and medical and long-term care expenditures for individuals aged 66 and older residing in City X during the 2014–2015 fiscal years, assessing whether public insurance systems mitigate disparities in healthcare expenditures based on income. The analysis, based on a sample of 8,727 individuals, uses total expenditures (sum of medical and long-term care costs), medical expenses, and long-term care expenses as dependent variables. Explanatory variables

include equivalized household income (total household income and pension benefits divided by the square root of household size) and past economic attributes, such as employment type, job position, income level, tenure, and years of education, with the logarithm of individual pension benefits exceeding the full basic pension amount as a proxy. The findings reveal three key insights: (1) No positive correlation is observed between expenditures (total, medical, or long-term care) and equivalized income when disregarding out-of-pocket cost-sharing ratios. (2) A negative correlation between expenditures and equivalized income is observed among older adults overall. (3) Among pension recipients with a 20% cost-sharing rate for medical expenses, a positive correlation exists between expenditures and pension benefits.

Chapter 4 evaluates the impact of a long-term care prevention program in Abashiri City (commonly known as the "Fureai House" initiative) on the physical and mental health of older participants. The study uses individual-level data from the "Survey on the Lives and Health of Older Adults" conducted on February 1, 2013, and February 1, 2014, in the target municipality. A propensity score matching approach is employed to adjust for selection bias between participants (N=157) and non-participants (N=252). Covariates include demographic and socioeconomic characteristics in 2013, such as gender, age, cohabitation status, marital status, employment status, monthly living expenses, distance to the nearest "Fureai House," self-rated health, functional ability, Kessler-6 (K6) psychological distress score, and outpatient care utilization. The outcome variables for 2014 include self-rated health, functional ability, K6, and outpatient care utilization. The results indicate that program participation significantly improves mental health, with a 1.713-point improvement in the K6 score among participants compared to non-participants, demonstrating the program’s contribution to psychological well-being.

Chapter 5 examines the impact of hospital transfers and discharges on medical expenditures in the final 12 months of life and the determinants of the final hospitalization period among deceased individuals aged 65 and older in City X. The study links master receipt files from the National Health Insurance and the Late-Stage Elderly Medical Care System with income data from fiscal years 2010–2012. The analysis of medical expenditures uses the logarithm of daily medical service fees as the dependent variable, with explanatory variables including gender, age, total personal income (log-transformed), length of hospitalization, major disease category dummies, number of hospital transfers, and number of discharges, estimated via ordinary least squares (OLS). The determinants of the final hospitalization period are analyzed using a

Tobit model, with the final hospitalization period as the dependent variable and gender, age, income, and disease category dummies as explanatory variables. The results yield four key findings: (1) No correlation is observed between income and medical expenditures. (2) Specific disease categories significantly affect medical expenditures. (3) Increased hospital transfers and discharges lead to higher medical expenditures. (4) Medical expenditures tend to be higher when the final medical facility visited is a general or specialized hospital. Additionally, the analysis of final hospitalization determinants reveals three key points: (1) Older individuals tend to experience later final hospitalizations. (2) Certain disease categories significantly influence the timing of the final hospitalization. (3) Individuals who receive final care at general or regional medical support hospitals tend to experience shorter hospitalization durations before death.

Acknowledgments

I have received invaluable support and guidance from many individuals throughout the completion of this doctoral dissertation. I would like to take this opportunity to express my deepest gratitude.

I am profoundly grateful to Professor Haruko Noguchi of Waseda University's Faculty of Political Science and Economics for her unwavering patience and extensive guidance over the years. Her insightful advice on research design, analytical methods, and academic writing has been instrumental in shaping this dissertation. I also deeply appreciate her efforts in fostering an excellent research environment.

I extend my sincere appreciation to Professor Koichi Suga of Waseda University's Faculty of Political Science and Economics and Professor Yoko Ibuka of Keio University's Faculty of Economics for serving as committee members despite their busy schedules. Their constructive feedback has greatly enriched this dissertation.

I am also deeply indebted to Mr. Nobuyuki Izumida, Director of the Social Security Applied Analysis Research Department at the National Institute of Population and Social Security Research, for not only providing valuable data but also offering meticulous guidance on data acquisition and handling. Furthermore, I would like to thank Professor [Name] of Hitotsubashi University's Graduate School of Sociology for their invaluable input and constructive discussions. Their encouragement and insightful perspectives have been crucial to my research journey.

Lastly, I am immensely grateful to my family, friends, and colleagues who have continuously supported and encouraged me throughout this endeavor. Their unwavering support has been an essential source of motivation, and I could not have completed this dissertation without them.