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### 【論文の内容の要旨】

Measuring the performance of public service organizations has increasingly become more intensive since the emergence of the New Public Management (NPM) in the 1980's. Since public service organizations have been often perceived as inefficient and unresponsive in meeting policymakers' demand and citizens' needs, measuring the public service efficiency is expected to continuously improve the performance of public service organizations and increase public support. Therefore, the need to measure the efficiency of these organizations, inter alia, has been a key concern of policymakers, managers, taxpayers, and other stakeholders. In addition, the pressure on public services' efficiency has increased following the financial crises in 2008, social-demographic change, climate change, and technological change. Accordingly, in this study, we investigate the changes and determinants of technical efficiency of the public service organizations in the three countries experiencing the structural reforms coupled with the tightening budget and socio-economic change, including English hospitals, New Zealand District Health Boards (DHBs), and Japanese national universities.

As structural reform is a component of the public management reform, we reviewed key movements in the public management reform since the 1980s, including New Public

Management, Neo-Weberian state, and New Public Governance. Also, reforms in the context of the study (the UK healthcare, New Zealand healthcare, and Japanese national universities) are more elaborated. It is likely that the core elements of NPM have been maintained and employed; the emergence of new reform waves such as Neo-Weberian state and New Public Governance do not totally break with NPM but rather complement additional features or modify certain aspects. In addition, we also summarized the key aspects of financial management reform, including performance budgeting, the modernization of the accounting system, and the responses to the financial crisis. Although there have been different approaches to the reform, improving the performance is considered as the ultimate goal, and the performance measurement has been a growing concern. Therefore, we closely summarized the literature related to performance measurement and performance management in the public sector. In this regard, we also described the approaches applied to measure technical efficiency, specifically to the two-stage Data Envelopment Analysis. Along with quantitative analysis used in measuring efficiency, qualitative content analysis is also employed to complement the findings and policy implications.

Following the overview of public management reforms and performance management, we investigated the manifestations of performance paradox in the implementation of performance measurement in the New Zealand DHBs, Australian hospitals, and Vietnamese hospitals. The semi-structured interviews were first conducted (including two New Zealand DHBs, one Australian hospital, and two Vietnamese hospitals), and then the transcripts were used for content analysis. Based on the evidence of performance paradox, such as intended errors, unintended errors, and synecdoche, it is suggested that performance indicators should focus more on healthcare outcomes, especially patient experiences. Moreover, our key contribution to the literature was that the exogenous factors such as epidemics, natural disasters, media, and political scrutiny might also affect the perception and interpretation of performance against the targets. In addition, we found that a succinct measure such as technical efficiency score can benchmark the efficiency of each unit and provide useful information for performance management. This also provides an underlying reason for the following three main empirical analyses.

The first empirical research is based on measuring the technical efficiency of English acute foundation trusts from 2009 to 2016 when the English healthcare sector experienced unprecedented fiscal hardship and structural reform. Employing the Data Envelopment Analysis (DEA) approach, we estimated the technical efficiency of 70 English acute foundation trusts and found an improvement in efficiency over the entire

period examined, which mainly resulted from the reduction in the number of hospital beds and staff. In addition, a two-stage analysis was adopted to provide insights on the determinants of the efficiency scores, which is likely to be a major concern for policymakers and hospital managers. Accordingly, the results obtained from the two-stage analysis suggested factors such as patient characteristics and asset utilization have a significant influence on efficiency. Therefore, in parallel with the optimization of hospital beds and the hospital length of stay, hospitals should better manage fixed assets (building and information technology) such as carefully evaluating asset conditions and rearranging hospital sites and hospital services to achieve higher efficiency. In the absence of recent DEA studies on English hospitals (most of them were conducted prior to 2006 and used crude outputs), especially those employed second-stage analysis to identify the determinants of efficiency, our study, therefore, complements the current literature on UK hospitals. Also, by adjusting hospital outputs for complexity (rather using crude outputs), we expect that the reliability of efficiency scores estimated can be improved. In addition, along with the factors that have been well examined in the extant literature (e.g. old patients, bed occupancy), our study made pioneering efforts to identify a number of internal factors (e.g. asset utilization, diversity of services provided) which can be more easily targeted by hospital managers to improve efficiency.

With a similar area – the healthcare sector – the second research is based on measuring the technical efficiency of New Zealand DHBs. However, New Zealand DHBs are different from English acute foundation trusts since they are a combination of local authorities and hospitals. While DHBs consume around three-quarters of the public health budget, measuring the efficiency of the healthcare sector in New Zealand has been a challenging issue and elusive. Two-stage DEA analysis was also employed to measure efficiency and finds the determinants of efficiency. Based on efficiency scores estimated, New Zealand DHBs seem to have improved their efficiency from 2013 to 2016. It seems that the success in controlling the personnel cost and savings in non-clinical services expenses contributed to improvement in efficiency of DHBs. We also found the association between assets, demographics, financial plan, and performance against targets and efficiency. Therefore, DHBs may further improve efficiency through deliberate budget preparation, better utilization and sufficient investment in buildings and information technology, and optimization of patient flow at emergency departments. As previous studies mainly focus on different aspects of New Zealand healthcare, our study contributes to the current literature by providing a more comprehensive picture of the efficiency of the New Zealand healthcare sector. In addition, whilst attempts to measure the efficiency of the New Zealand healthcare sector has been tough going; in

the context of budget constraints and the pressure of meeting growing demand, suggestions to improve the efficiency can be of great interest to policy-makers as well as decision-makers.

In the final research, we expand the efficiency measurement to public higher education. In this case, Japanese national universities were selected as they did not only experience structural reform and fiscal distress but were also characterized by a reduction in student numbers, intensive competition, and language barriers. In this context, it is assumed that national universities were motivated to improve their efficiency. However, it seems that little is known about the technical efficiency of Japanese national universities and unlike many other developed countries, there is a scarcity of DEA literature applied to measure the performance of public universities in Japan. Therefore, along with using the two-stage DEA, we augmented findings and policy implications through content analysis using semi-structured interviews. In contradiction to our expectations, we could not identify any systematic decline or improvement in the technical efficiency of Japanese national universities from 2010 to 2016. Probably, national universities were unable to contain resources usage in response to the shrinking in student numbers. The investigation of the factors that may have possibly influenced efficiency suggested a higher proportion of government grants can reduce efficiency, and universities with less than 10,000 students, with attached hospitals or science faculty, are less likely to be efficient. Therefore, national universities should less rely on government grants, use resources more efficiently, and increase the scale through mergers or recruitment of overseas students. In addition, the government should scrutinize funding regulations to mitigate disparity and inefficiency, direct and provide guidelines to streamline science faculties, and improve the performance of the attached hospitals. Thus, our study might be among the pioneer attempts to provide insight understanding of whether Japanese national universities use their resources efficiently, which complement the DEA literature on measuring the efficiency of public higher education.

In summary, the mainstream of the thesis is the efficiency measurement of public service organizations under reform and austerity. Our research is expected to provide insights into the efficiency of the public service organizations examined and have certain contributions to the extant literature on performance measurement of the public sector. Particularly, with the absence of recent research conducted in the contexts that we examined, our empirical studies complement the current literature regarding the application of DEA methodologies in the education and healthcare sectors. In this way, we have made a pioneering approach in applying two-stage DEA to providing an updated

picture of efficiency and identify possible determinants of efficiency in the cases of English acute foundation trusts, New Zealand DHBs, and Japanese national universities. In addition, unlike the extant DEA studies that measured efficiency in isolation, we also closely explained the changes in efficiency over time through a deeper investigation of government policies and analysis of the structure and growth of resources used as well as services provided. Moreover, the adjustment for complexity in calculating the hospital outputs made in our analyses might improve the accuracy when estimating efficiency for hospitals. Likewise, the impacts of internal factors that are under the control of managers can provide additional insights when conducting the two-stage analysis. Through the analysis of cost structure and internal factors, we also indirectly advocated the implementation of accrual accounting and accrual budgeting, suggesting a further adoption of accrual basis in the Japanese public sector. However, it should be noted that public services are complex, and measuring efficiency is a challenging task. What we have found might be just a part of a broad picture and the policy implications that we have made definitely require elaborate development and impact assessment prior to implementation. Also, there still exist fruitful scopes for future research by incorporating the quality of services provided where data are available, expanding time period examined, or making comparisons among different groups units analyzed.