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The Public Good in Japan's Higher Education: Main findings from interviews with various stakeholders

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Abstract

The purpose of this study is to analyze different interpretations of public good(s) in the context of higher education, the contributions that higher education makes to the public good, and how these contributions are measured in Japan. The analysis draws on 17 semi-structured interviews with policy makers, presidents of national professional associations, institutional leaders, deans and professors from contrasting disciplines, and other administrators from two national universities in Japan. Firstly, all interviewees believed that Japan's higher education could be considered to be a public good. However, they did not consider it a pure public good, as its benefits are not accessible to and enjoyed by all students and members of society. Secondly, they argued that the contributions of Japan's universities vary considerably according to their educational level and sector, and academic activities.

For example, participants argued that research activities represent a greater contribution to the public good(s) than teaching activities, and doctoral education contributes more than undergraduate education. Specifically, they argued that Japan's national universities play a decisive role in contributing to the public good(s) by promoting social justice, equal access, innovative basic research, and advancing the development of science and technology at the regional, national, and international levels. Thirdly, although some contributions to the public good(s) cannot be measured, or are difficult to measure, no one denied these contributions. Finally, participants shared many opinions in common, different interpretations could also be identified between the interviewees.

Keywords: public good; Japan's HE; semi-structured interview; stakeholders

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Introduction

There is little doubt that policy makers' understandings of the public nature of higher education affect the structure, funding, and functions of higher education systems (OECD 2019). Further, from an international and comparative perspective, there are huge differences in interpretations of public good(s) in the context of higher education, often typified by the differences evident between the USA and the UK, and East Asian countries such as China (Tian and Liu 2019; Marginson and Yang 2020). For example, in Western countries, the "public good" is generally defined as a benefit to the well-being of society (Collins 2017), while the equivalent Japanese term, "kōkyōzai" (公共財), conveys only economic nuances drawn from Samuelson's (1954) definition of "public goods." Furthermore, interpretations of the public good(s) of higher education also vary remarkably between diverse stakeholders even within one country or one higher education system (Hazelkorn & Gibson 2019). Compared to the large number of previous studies on this topic in western countries, very little discussion has been made about whether higher education could be defined as a public good(s) in Japan (Ichikawa 2000; Yano 1996, 2015). As a matter of fact, the public value or goods of higher education has been underestimated in Japan (Nakazawa, 2014). Despite the fact that the Japanese government has recently launched a national-level discussion about whether higher education should be provided for free (MEXT 2020).

This study analyzes different interpretations of public good(s) in the context of higher education, the contributions that higher education makes to the public good, and how these contributions are measured in Japan. The study draws on the findings from 17 semi-structured interviews with policy makers; presidents of national professional associations; institutional leaders; deans and professors from contrasting disciplines; and other administrators from two national universities in Japan. The paper begins with a brief introduction to the changing missions and policies of higher education in Japan, and the basic structure of Japanese higher education. The paper then reviews previous studies on this topic, drawing on literature in both English and Japanese. The third part of the paper explains the research methodology and presents the main findings from the interviews. The fourth part is concerned with the

discussion of these main findings, before the paper concludes by summarizing the paper's contributions and limitations, and offering implications for research and policy.

Changing missions and roles of Japan's HE

Historically speaking, as early as the late nineteenth century, Japan already established a modern higher education system modelled on Western countries (Altbach & Selvaratnam 1989). However, the fundamental aim of this system differed from many Western countries such as France, the UK, and the USA. The aim, especially at the national or so-called Imperial Universities, was to teach academic skills and arts to meet the needs of the nation and to carry out in-depth basic research (MOE 1980).

After World War Two, influenced by American educational philosophy, in general, national universities played a key role in providing democratic and mass higher education for general public, ensuring equal access, and undertaking academic research. For example, according to Article 83 of the School Education Act, originally formulated in 1947, as the centre of scholarship, Japan's universities were to transmit a wide range of knowledge, deeply teach and research into specialized disciplines, and cultivate students' intellectual, moral and applied abilities. They were to undertake teaching and research activities in order to achieve these objectives, and contribute to social development by widely applying the outcomes of teaching and research to society. Since 2004 when all national universities became national university corporations, changes have occurred in these missions, and universities have been asked to assume new responsibilities. For example, a report issued by the Central Education Council, an advisory body of the Ministry of Education, Culture, Sports, Science and Technology (MEXT), emphasized that national universities should play an important role in facilitating high-level academic research, producing talents based on national planning, contributing to regional activation, and ensuring equal opportunity for university education (MEXT 2005). Further, in 2019, MEXT requested that national universities should also play a decisive role in

facilitating the provision of the most advanced teaching and undertaking the cuttingedging research, becoming a hub for innovation, and talent cultivation. MEXT argues that, as a centre of regional teaching and research, Japan should contribute not only to equal opportunity for higher education at a national level, but also drawing out the potential of the region through regional revitalization. In combination, national universities are asked to play a unique role in passing on the baton of knowledge to the next generation (MEXT 2019a).

Despite MEXT's focus on national universities, it is generally agreed that, although Japan's private universities charge much more expensive tuition fees than both local public and national universities, they have also contributed significantly to the massification of Japanese higher education since the 1960s (Tsuchimochi 1996; Huang 2012). The laissez-faire policy on private higher education institutions (HEIs) implemented by Japan's government soon after World War Two resulted in a quick rise in the numbers of both private universities and privately enrolled students by the 1970s. The subsequent Act on Subsidies for Private Schools in 1976 facilitated the further rapid expansion of Japanese private universities, though the primary goal of providing financial support for private was to maintain their educational quality, improve their academic conditions, and reduce the economic burden on students, rather than to emphasize the public good(s) contributions of private institutions (Ogata 1977).

In contrast to the USA, the UK, and many European countries, Japan has formed a higher education system consisted of national, local public and private sectors. These different sectors are expected to have distinctive missions and play different roles. Compared to national universities, the majority of private institutions are primarily engaged in educational activities in humanities and social sciences, especially at the undergraduate level. Private institutions and student enrollments account for nearly 80 percent of the total. The operation of these private institutions is more market-driven and responsive to the changing labor market. However, private universities are so pervasive and the quality of private universities varies considerably, the general public has difficulty in perceiving "publicness" in higher education more broadly (Kurobane 2002; Maruyama 2002). Local public universities

are particularly involved in the provision of professional and vocational educational programs relevant to the economic development of local communities, thereby supporting regional economic development within Japan. In a major sense, national universities have a more comprehensive mission, play more diverse roles in Japan's higher education system, and they are expected to produce a wider variety of public goods for Japan and international communities than the other two sectors.

Review of literature

An influential early definition of public goods was provided by Samuelson (1954) who suggested that public goods are "non-rivalrous" and "non-excludable." Namely, public goods are non-rivalrous when they can be consumed by any number of people without being depleted, and non-excludable when the benefits cannot be confined to an individual, such as lighthouses and national defense (Marginson 2016; 2018). Samuelson's definition is grounded in the field of public economics, posits public goods in opposition to private goods, and is usually expressed in plural form.

When strictly applying this economic definition of public goods in higher education, access and participation rates do not appear to satisfy the condition of being both excludable and rivalrous. Usher (2015) states that "classroom space is very definitely rival, and it is trivially easy to exclude people from education – no money, no degree." In contrast, some economists argued that higher education does provide public goods. For instance, Stiglitz (1999) pointed out that producing new knowledge such as a mathematical theorem produces benefits for many people without being depleted. McMahon (2009) also asserts that higher education can be seen as serving public goods, especially when funded directly by the state, because of "the social benefit efficiency gains and potential equity effects on the opportunity and reduced inequality." Externalities, or spillover effects, are another economic term which helps to express public contributions generated by higher education. According to the Institute for Higher Education Policy in the US, benefits such as reduced crime rates, increased quality of civic life, social cohesion, and improved

ability to adapt to and use technology are categorized as public goods that "spill over" from the private benefits of those directly receiving higher education (IHEP 1998).

While the above discussion stems from an economic standpoint, when expressed as public "good" in singular form, more diverse perspectives have emerged. Especially in Western countries, the public good is generally defined as a benefit to the well-being of society (Collins 2017). Generally, the public good of higher education emerges through the three main functions of universities. Firstly, it emerges through the creation and dissemination of knowledge which contributes to scientific and economic development (Gumport 2002; Marginson and Considine 2000; Slaughter and Rhoades 2004). Secondly, it is believed that graduates appropriately lead and maintain the democratic society (Giroux 2003). Thirdly, universities contribute to their local communities and regional development through their social engagement (Schneider 2005). In addition, some researchers claim that the university typifies the public sphere since free speech is protected and democratic movements have been born there (Budd 2015; Calhoun 2006; Pusser 2006).

It is difficult to convey the multiple nuances of the public good(s) in Japanese. In many cases, the phrase is translated as "kōkyō-zai," which is a combination of "kōkyō" (public) and "zai" (goods/property/fortune). However, this term in Japanese is only used in an economic sense. When considered the meaning of public good in singular form, a benefit to or the well-being of society, it could be translated as "kōkyō-zen" in which "kōkyō" means public and "zen" means good/goodness/virtue. However, since "kōkyō-zen" is regarded as an overly abstract or philosophical term, rarely used in daily conversation, consequently public good(s) are both almost always translated into "kōkyō-zai" as a technical term in economics. This translation problem seems to make the discussion of the public good and higher education extremely difficult in Japan, failing to recognize the broader perspective seen in Western literature and, as a result, much of the prior research has been limited to the economic view.

Two previous studies in Japan are influential in the discussion of whether higher education could be regarded as a producer of public goods in an economic sense and both of the studies argue that Japan's higher education should be considered to produce quasi-public goods. According to Ichikawa (2000), because Japan's universities cannot accommodate those who do not pay tuition fees and it also sets limitations on those who want to receive higher education by implementing entrance examinations, strictly speaking, it does not provide public goods in the economic sense. Yano (1996) also insists that more public funding should be invested in Japan's higher education to reinforce its position as a producer of quasi-public goods.

Outside of this economic perspective, no comprehensive arguments about the public good of higher education have been found in Japan. In addition to the translation problem previously mentioned, it is assumed that some features of the Japanese higher education make it difficult to understand the public good in the Japanese context. For example, as Geiger (1986) pointed out, Japan was the only industrial country in which private universities clearly outnumbered public ones, if South Korea or Taiwan were not yet considered advanced countries in the early 1980s. According to MEXT's Basic School Survey in 2019, among the 786 universities in Japan, 607 are private, 86 are national, and 93 are local public universities. As for the student enrollment ratio, 73.8 percent of students are enrolled at private universities. While the government directly funds national universities where a limited number of students could benefit from public funding (Kaneko 1988), it is the rapid expansion of private universities and private students studying at their own expense that realized the massification of, and near universal access to higher education in Japan (Huang 2012; Pempel 1973; Tsuchimochi 1996).

Secondly, "a conjugation of economic policy and education" is another characteristic of Japanese higher education (Hata 1999). Although the postwar higher education system in Japan was established under the influence of the US model with its emphasis on democratization, the Japanese government's top priority in the postwar era was placed on economic recovery and growth. Especially since the early 1960s when the "Plan to Double the National Income" was implemented by the

government, higher education policy has been subordinated to economic growth, particularly educating and training manpower who are useful to industry. Even in recent years, the success of reform in higher education has been increasingly measured based on the degree to which universities could satisfy demands from business corporations, rather than on their ability to educate the individual for civic life or to distribute expertise for the public good (Hawkins 2006).

Thirdly, people's awareness of equity creates a conceptual distance between higher education and public good(s). Hamanaka and Yano (2016) conducted a public opinion survey on public funding in higher education, which revealed that the majority think public funding should be directed to social systems such as medical care, rather than to universities. They analyzed that Japanese people have a strong sensitivity to equity, and a higher education system that requires entrance examinations and tuition fees is not regarded as fulfilling of such an egalitarian concept. Compared to most European continental countries, Japanese higher education has never been free of charge although the tuition of national universities is less expensive than private ones. It is taken for granted that those who receive higher education should be charged tuition for the benefit they receive in the future. These are main reasons why much less research has been undertaken in the public good of higher education in Japan.

Based on the above description of the missions, roles and functions of Japan's universities and a review of previous studies, the following three research questions were created:

- 1. How are the phrases of public goods and the public good in higher education interpreted in Japan?
- 2. What does higher education contribute to the public good?
- 3. Can that contribution be measured?

Research method and samples

This study employs qualitative research methods, with data being collected via 17 semi-structured interviews with key persons from different government agencies; national professional and international associations, and university management; academic staff and international students in two case-study universities in Japan. The main characteristics of interviewees are summarized in Table 1.

Table 1: Main characteristics of 17 interviewees

	Affiliation	Title	Gender	Date
A	MEXT	Director	Male	6 February 2018
В	MEXT	Chief researcher	Male	4 June 2018
C	X Association	President	Female	22 April 2019
D	Y Association	President	Male	17 January 2020
E	Star University	Vice president	Male	30 October 2018
F	Graduate School of Engineering, Star University	Dean	Male	12 February 2018
G	Institute of Social Economics, Star University	Director	Male	12 February 2018
Н	Graduate School of Linguistics and Culture , Star University	Dean	Male	8 August 2017
I	Graduate School of Linguistics and Culture, Star University	Professor	Male	10 October 2018
J	Graduate School of Engineering, Star University	Lecturer	Male	10 October 2018
K	Graduate School of Economics, Star University	Associate professor	Male	11 October 2018
L	Global Intuitive October, Star University	Associate professor	Female	10 October 2018
M	Sun University	Vice president	Male	15 January 2019
N	Graduate School of Engineering, Sun University	Dean	Male	30 January 2019
О	Graduate School of Social Sciences, Sun University	Dean	Male	6 February 2019
P	Graduate School of Engineering, Sun University	Professor	Male	8 May 2019
Q	Graduate School of Social Sciences, Sun University	Professor	Male	8 May 2019

- 1. MEXT refers to Ministry of Education, Culture, Sports, Science and Technology-Japan
- 2. Star Univ. is one of top universities being established in the late nineteenth century.
- 3. Moon Univ. is a local comprehensive university being founded after World War Two.

Following the ethical guidelines of the project, the research team contacted potential key persons through emails and asked them to accept our interviews. As indicated in Table 1, for the key persons from government, we invited one interviewee who is in charge of national higher education policy in Japan, and another who is directly concerned with analysis of the changes, trends, and prospects of Japan's universities, focusing on science and technology. We also interviewed two presidents from national education and research associations. One association focuses on undergraduate education research in Japan (X Association), and the other has a longer history and stronger influence on both national policy and institutional strategies in relation to university education, research activities, and broader academic activities in Japan (Y Association). The first case study university, named Star University for the purposes of this research, is one of the former "Imperial Universities" which was established in the late nineteenth century. It is a large comprehensive institution located in a global city, and the number of faculty students is far higher than in the second case study, titled Moon University. Moon University is one of newly-founded national universities post World War Two. It is a comprehensive national university in which teaching and research activities, and societal engagements are all emphasized in its mission. These two different case studies are considered to represent important features of Japan's national university sector (Yin 2014). While both are concerned with teaching, research and social engagements, as Star University is one of the former "Imperial Universities" and ranked among the top 100 universities in major global university ranking systems, it is a more research-intensive university and more prestigious at both the national and global levels. Although Moon University has been making efforts to be listed among the top 100 universities since it was selected as one of 13 universities for the national "Top Global University" project in 2004, compared to Star University, its missions focus on teaching activities and contributions to the regional development of central Japan. In the two case study universities, in addition to interviewing the two institutional leaders who are directly involved in developing university strategy alongside their various academic activities, two deans and one director from Star University and two deans from Moon University were invited for interview. They come from engineering and social sciences (economics) respectively. Further, six faculty members representing the academics fields of engineering and social

sciences, including three professors, two associate professors, and one lecturer also attended interviews.

All interviews were undertaken between August 2017 to January 2020. The team members conducted face to face semi-structured qualitative interviews with these participants at their work place or meeting rooms in their affiliated institutions. Before organizing interviews, the research team explained the project to participants with an information sheet before they agreed to take part. Participants were given a copy of a consent form to keep and refer to at any time. If they were happy to participate, they were asked to complete all sections and sign the consent form. Normally, interviews began with a brief explanation of the key terms of the public goods of higher education and keywords relating to the interview, such as university missions, public roles and functions of higher education, based on our review of the literature. Except for one interview, all were recorded and transcribed. Some participants reviewed and approved the interview transcript as a precondition of participation. The duration of interviews varied, but most lasted between one and two hours.

This research is part of two international joint research projects that the research team in Japan has participated in since 2015, and only relevant questions were selected from one of the two projects and were asked to the interviewees in this study. Some common questions were asked to almost all the interviewees, such as "What do you understand by the term 'public good'?", "What does higher education contribute to the public good, or public goods?", "Can you tell us how it is we know that HE contributes to these goods? Can we measure that contribution?". Other specific questions were developed for different groups of the interviewees. For example, the main questions asked for faculty members included "Do governments do enough to support the public good activities of HE institutions?", "What are the responsibilities of your institution: to students, to the state? to 'the public'?", "How is 'performance' measured in your institution?", "It is sometimes argued that HE should be treated as a private good. What are your views on this?", and "does your discipline contribute to society? What are the benefits to those who are not graduates in this discipline?"

In terms of the analytical process, to gain a comprehensive understanding of participants' interpretations of public good(s) in Japan's higher education sector, the research team undertook a preliminary thematic analysis. In line with the recommendations of Braun and Clarke (2013), firstly, the team members read all relevant transcripts of interviews and tried to become familiar with their main ideas and key points. Secondly, the team members reviewed and defined major themes, and conceptualized key themes in relation to the research questions. Thirdly, the team developed an overall sense of the structure of all analyzed data, which is presented below using interviewees' comments and observations to illustrate this structure.

Main findings

How are the phrases "public good", the public good of higher education, and public goods of higher education understood in Japan?

Despite the argument that the terms "public good" and "public goods" are usually understood from the economic perspective, and rarely used in relation to higher education in Japan, diverse perspectives were identified in the interviews. For example, despite offering different interpretations of the public good, the two interviewees from the MEXT believed that Japan's higher education can be considered to be a public good. However, compared to compulsory education, and especially the public sector, they argued that higher education produces more private goods than public goods.

Compared to compulsory education that is necessary not only for the benefit of individuals but also for the benefit of society. It is often argued that HE has a large benefit to the individual's interests. In particular, there is talk of making it free of charge in Japan these days, so when discussing whether to invest so much, the aspect of personal interests is greater, so it seems that it should be lent back properly rather than making it free of charge. (A)

From an administrative point of view, the term of public good can be translated as "public welfare" in Japan, I suppose, but HE is a conflict in that it educates and provides value that goes beyond the national framework. So it is difficult to talk about if there is public good in HE in a simple way ... however, it was recognized that it is difficult to connect the public good with some aspects of HE, especially "education". (B)

The president of X Association also agreed that Japan's higher education is not a pure public good, nor does it provide total public goods.

I think half of HE has a private side (not public). That's why it is necessary for everyone to be able to access it, but I think that the selection function is still necessary when accessing it... partly because of financial issue, university is not a place in which anyone can go to as he or she wishes. Therefore, I think that the selection function is an indispensable part of HE. In that sense, it does not provide total public goods. (C)

However, both interviewees from the MEXT admitted that in its "research" aspect, higher education produces public goods that benefit society at large.

When it comes to "creating innovation," innovation in the sense of bringing about a large positive economic price is largely due to the research that accompanies HE. In terms of places, HE has an easy-to-understand public interest. ... Moreover, I think that there is an unconscious sense of value that brings the public interest at the global level, not at the national level. (B)

When pressed for a definition of the public good, the two institutional leaders thought it should be understood from the perspective of higher education functions, because higher education is one of the most important institutions in supporting sustainable development, as the site in which knowledge and culture is preserved and transmitted.

Good should not be understood as profit or benefit, but should be interpreted as happiness of human being, a sort of foundation on which sustainable development of human beings could be made and the betterment of society (M).

The vice president of the Star University expressed his view in a more explicit way below:

Universities exist as an organization that guarantees knowledge that can be used by everyone, and in the sense that they are not closed to the domestic public, universities in any country are educated as universities in the global public interest. As long as I am doing research at a university, I think it contributes to the global public interest (E).

Further, the president of Y Association and the dean of the Graduate School of Linguistics and Culture at Star University argued that higher education should be regarded as a public good, but they also mentioned that the public good of higher education should be understood as its contribution to improving society over the long term, rather than its immediate effects and results.

My understanding of the word 'public' is that it refers to the fact that no one is excluded, which means that "everyone can access HE without being excluded", that "everyone can enjoy the benefits from HE without being excluded". Also, I think there is a part where the results of research conducted in university can benefit everyone in the world, rather than simply opening up educational opportunities for people in one country... Good is sometimes translated as happiness. Especially in the case of education, not only the immediate benefits, benefits and profits, but also human beings can live really well, and society will be improved by it. In that sense, what is good for the public, which is hard to see, and how to realize it, I want to take it in such a broad sense. (D)

I think that responding to the demands of society is adjacent to public good. ... I think the university has a mission to do more than what society wants the university to do. ... Not within the range of the last 10 years, but creating new value from the perspective of how society should change in the next 30 or 50 years, or at present, doing things that are inversely proportional to the expectations of the local community. Even if there is, I think that it will include contributions that will make people think that it was good to have them do so in five years. (H)

Similarly, the director in the field of economics from Star University also emphasized that higher education has a strong character of being a public good, although its contributions to public goods may vary greatly according to its educational level and academic activities:

Because undergraduate studies lead to more private goods as university graduates benefit more from them. In contrast, especially doctoral education creates more public goods... On the research side, publishing academic papers is a typical supply of public goods, isn't it? Promoting research has a high public interest, so if you leave it to the market, its public good will be minimized. In particular, the purer the theory is, the more it cannot be used directly, so I think it has a strong aspect of the public good. (G).

Obviously, despite different perceptions of the terms of public good, the public good of higher education, and public goods, no one denies that Japan's higher education can be considered to be a public good, although it is not a pure public good. Further, almost all the interviewees agreed that university research activities are more directly related to public goods and social benefits, which are not only limited to the national level, but also extend to the global level.

What does higher education contribute to the public good, or public goods?

Despite differences in their views on the public good of higher education, all the interviewees affirmed the contributions of Japan's higher education, including private universities, to the public good(s). Some of them stressed the specific mission of higher to be preserving and transmitting knowledge for the future, which cannot be easily replaced by other institutions. For example, the vice president of Moon University argued that:

One of the important missions of our comprehensive universities is to preserve and transmit knowledge which might not be popular for the moment or among students, because these knowledge might become useful in 30 years or the future. This is just HE could contribute to the public good, or public goods (M).

Similarly, the vice president of Star University also stated its contribution to the public good as follows:

Fostering talents for the next generation, producing knowledge for the welfare of the human beings, and undertaking intellectual activities of pursuing truth (E).

Although a large number of interviewees illustrated the contribution that Japan's higher education makes to the public good, rather than echoing its perceived roles and functions relating to teaching and research activities, and societal engagements, most of them focused on more specific points when describing the contributions that universities make to the public good. Their main comments can be categorized into three broad aspects. Firstly, the vast majority of them believed that the most important contribution that Japan's higher education makes to the public good is producing manpower and fostering and cultivating talent. This is especially true in relation to producing productive undergraduates with professional knowledge and high-level skills:

Most of government officers and big company presidents and managers are graduated from Faculties of Law or Economics, the professional knowledge and abilities they acquired in university can help them to administer and manage this country and their companies in a professional way (O).

I want to emphasize that professional education, especially in training teachers and medical sciences is important (C).

I think that the first thing that is imposed on HE is human resource development, so we will contribute to the welfare of people at home and abroad through human resource development that will lead the next generation, and research and knowledge production conducted at HE institutions. Such knowledge and skills. Also, I think this is the most different point from companies (L).

However, the contribution universities make to cultivating good citizens and developing active citizenship was also mentioned by the two interviewees from MEXT.

There is also contribution of cultivating students with citizenship. HE not only benefits economic growth, but also contributes to reducing negative aspects of society by providing citizenship education (B).

Further, it was admitted by some interviewees from the soft sciences that nonprofessional education, such as general or liberal arts education, can also make a contribution to the public good. For example, the dean of the Graduate School of Linguistics and Culture from Star University said:

Education in linguistics and culture can also contribute to the public good by teaching students with professional knowledge that cannot be learnt from other disciplines (H).

Secondly, as noted above, largely because one of the most important functions of Japan's national universities is to undertake in-depth scientific research, yielding good and especially innovative research was also considered to be a significant contribution to the public good. Undertaking innovative research was viewed as almost equally important as educational activities in contributing to the public good by most interviewees. Typical comments from the interviewees are presented below.

One more contribution is conducting new research resulting in innovation for social development (C).

I think this will make a great contribution in the sense that HE and research will deepen or expand the public interest and body of knowledge in a very wide range. When we are in the Faculty of Engineering, we create something like a research base that brings about innovation, and we will collaborate with related teachers or researchers inside the university, overseas, or in Japan, but outside the university. Is very important? (F).

Individual faculty contribute to society by publishing research papers with global impacts and being awarded with internationally –recognized awards like the Nobel Prize, or being involving in developing national policy (Q).

As doctoral education and training is normally considered to be part of research activities, some interviewees also mentioned this point:

Especially doctoral education trains high-level researchers and professionals who can contribute to the advancement of science and technology, and develop good policies (G).

Thirdly, turning to universities' societal engagements, many individual academics claimed that they were directly involved in external activities through teaching and

research mainly based on their academic fields. For example, a lecturer in engineering from Star University mentioned that:

I contribute to society by publishing academic papers and undertaking collaborative research with companies (J).

Other interviewees shared similar observations.

My discipline is industry chemistry and it is directly concerned with technology development. As most of my students work in industry and companies after graduation, they use their professional knowledge and techniques to develop and produce new products. And my research can also result in the emergence of new techniques and technology. (P)

An interviewee from the field of Economics also understood his contribution to STEM from his academic field.

My field is economic geography, so I can contribute to national land improvement directly, especially for regional revitalization (K).

Can the contribution be measured?

Three different views were identified from the interviewees' remarks. Firstly, in contrast to many other interviewees, the two interviewees from the MEXT emphasized the necessity and importance of measuring that contribution Japan's higher education makes for the public good, because higher education is expected to be accountable and transparent (A & B). However, it seems that most interviewees, including the two interviewees from the MEXT, believed that some contributions that Japan's higher education makes can be measured while others cannot.

It is easier to measure the number of graduates, research papers, citations, patents, but difficult to measure the contribution made by art or citizenship (A & B).

Similarly, most institutional leaders believed that the number of research papers or research grants could be measured, but it is impossible or extremely difficult to measure social, moral and ethical contributions to the society. More importantly, the contribution that higher education makes to public good(s) should be measured over the long term and more attention should be paid to the quality rather than quantity of that contribution (E, F, G, H, & O).

Secondly, some interviewees claimed that it is difficult to measure these contributions in a qualitative way because there are some contributions that cannot be measured based on data or objective indicators (E, F, I).

How about measuring the effect? As I said earlier, I feel that good, which is visible and can be quantified so much, is not such a thing. Things that are difficult to measure immediately (social, ethical, moral things) (E).

Finally, a few interviewees argued that there is no need to measure that contribution. They thought that it is not necessary to measure that contribution, nor can it be measured because of a long-term effect of higher education and complexities of that contribution (D, H, K).

No need to measure it, and I don't think it can be measured. The public good doesn't consider the issue of time. It will be useful in 100 years or 50 years, of course...Measurement cannot cover multi-layered / ambiguity. That's why trying to measure with a strange measurement tool is a mess. You'll find it useful after 100 years, isn't it? (D)

I don't think it's possible to measure the contribution. The reason is that the effect doesn't appear now. I don't know about science, but the effects of our field will not come out soon. ... The public interest is something like the effect of our education in the future, I don't think we should measure where and who got a job. After all, the effect should come out in 10 or 20 years. It depends on the economic situation at that time. I don't think it can be visualized (O)

Discussion

As discussed above, partly because the law and national documents clearly stipulate the missions and roles of national university that are concerned with the public good(s) in Japan's higher education, partly because the term "public good" is typically understood in the economic sense in Japan, and the influence of industry and business on the development of Japan's higher education since the 1960s, far less discussion or research on the public good of higher education has been made in Japan, compared to many Western countries.

Strictly speaking, from descriptions in law to the current structure of national higher education and funding systems, Japan's higher education is not conceived as a pure public good. These factors are reflected in findings from the interviews, especially from the interviewees from the MEXT, the X Association, institutional leaders, and other academics. Despite expressing themselves in diverse ways, all the interviewees considered Japan's higher education to be a public good. Further, as a public good, the majority of the interviewees believed that Japan's higher education contributes to facilitating economic growth and national technical advancement through developing human resource and citizenship education, and promoting the betterment of Japanese society and human civilization by preserving and transmitting accumulated collective knowledge and understanding for future generations.

As found in previous studies (Marginson 2011; Williams 2016; Hazelkorn & Gibson 2019), differences were found in interpretations of the phrases "public good" and "the public good of higher education", and the contribution that higher education makes for the public good. For example, it was generally agreed by most interviewees that Japan's national universities, which were established in every prefecture and fully funded by the central government soon after World War Two, play a critical role in stimulating equal access to higher education and realizing social justice and promoting social mobility by providing quality higher education with much cheaper tuition fees. As the Japanese government has facilitated a functional stratification of HE institutions, it is to be expected that by diversifying the missions, roles and

functions of universities, different sectors would contribute to the public good in diverse ways, and more differences would likely emerge between national universities and other sectors.

Regarding educational levels, graduate education, especially doctoral education and training was understood to contribute more to the public good than undergraduate education. As for roles and functions of Japan's universities, research activities, especially innovative basic research activities in which Japan's national universities are primarily engaged, were seen to contribute more than teaching activities. However, no interviewees mentioned that there are differences in the contributions that academics make to the public good between the hard sciences and soft sciences. Outside of the faculty interviewees, the two interviewees from MEXT held a more doubtful attitude to the public good of Japan's higher education, compared to the interviewees from the two case universities.

A special mention should be made that, despite the fact that Japan's higher education was conceived to be a public good by all the interviewees, the public good of Japan's higher education, even in the case of national university, is not accessible to and reaped by all students or Japanese society at large, let alone benefits of its private universities. These points were clearly illustrated by many interviewees. With respect to the measurement of the public good of Japan's higher education, at least three different observations were identified. While a few interviewees argued that it cannot be measured and there is no need to measure it because the public good should be considered to be conceptual, the majority of the interviewees stated that it is at least partly quantifiable.

Interestingly, while the structure of Japan's higher education system, including the quantitative dominance of private universities, tuition fees system, and existing oversight of the public good, may suggest that there are fewer contributions to public good in Japan's higher education than in European continental countries, actually, our research suggests that Japan's higher education could be considered to be a public good, though not a pure one, and contributions to the public good, or public goods are highly valued.

Conclusion and implications

The biggest contribution of this research is that it is the first comprehensive analysis and discussion of the public good in Japan's higher education, based on more than a dozen semi-structured interviews with various stakeholders. The research not only reveals a wide variety of interpretations of the public good, the public good of higher education, the contributions that higher education makes to the public good, or public goods, and the measurement of these contributions, but also reveals the extent to which these variations change due to the background of interviewees. To some extent, this exploratory study could be considered to fill the gap between research on the public good of higher education in Japan and other Western countries, and provide a basis on which a further sophisticated and more comprehensive analysis can be done. Further, the findings highlight the specific case of Japan, which is different from many Western countries like the UK and the US, and many European continental countries, and China, further developing the study of the public good in higher education in a global and comparative perspective. Therefore, it can help academics, policy makers, and other stakeholders have a better understanding of how these concepts are interpreted in the Japanese context.

Important implications derived from this study include the following. Firstly, more case studies of understandings of the public good, public goods, and the public good of HE in a global and comparative perspective need to be undertaken before more precise and generally-agreed definitions of these terms can be made. Further, this study poses new questions, such as how can contributions of different sectors within one national higher education system be understood? How do these different sectors contribute to the public good respectively? and what indicators or instruments can be developed to measure these contributions? Secondly, even if all the interviewees emphasized that Japan's higher education can be considered to be a public good, and it contributes greatly to the public good, there is little doubt that it is difficult or impossible for the government to provide full financial support for the university education system in this challenging era. While it is realistic for the government, local authorities, and school corporations, etc., to understand the inherent character of Japan's higher education as a public good, and to operate Japan's higher education

as a "system that has both public and private property characteristics", it is also important for students, their parents, and other stakeholders to recognize this and to develop consensus on this point.

It goes without saying that there are some limitations to this study. Firstly, because no interviews were conducted with key persons from private universities or industry, the discussion here is largely confined to the national sector, so it is difficult to provide a complete portrait of perspectives of the public good in Japan's higher education. Secondly, though the two case study universities had different characteristics, no data was collected from other types of national universities focused primarily on teaching activities, teachers training, or one main discipline like foreign language studies, medical sciences or dentistry. Finally, as the public good and public goods are not widely used terms in Japan's higher education, it is possible that some interviewees answered or commented on the three research questions without having fully understood their real meanings. These weaknesses of this study need to be addressed and improved in future studies by discussing with interviewees in more generally-accepted terms, expanding the number of interviews to more diverse fields and ranks of Japan's society, and selecting more case studies to represent the variation in Japan's higher education sector.

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