

(共同研究：実験経済学に関する研究・教育基盤の形成)

Economic Experiments for Active Learning in Higher Education

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Abstract

This study provides an overview of the situation surrounding economics education in Japan and examines how participation in economic experiments affects students' motivation to learn. Economic education began in earnest after the Meiji Restoration, evolved through two world wars, and is now taught in new universities. Economics departments within humanities faculties admit large number of students and contribute talent to society. Coupled with the mandatory financial education in high schools, economics education is expected to become increasingly important. This study considers participation in two types of economic experiments as active learning. The first involved third- and fourth-year students participating as assistants in economic experiments. These students felt they had gained a deeper understanding of what they had learned; however, they also expressed a desire to have had such experiences in their first or second year. The second involved first-year students participating as subjects in economic experiments. Many students showed interest in the experiments and expressed a desire to learn more. These results indicate the importance of providing the experience of economic experiment in the first or second year. Notably, students learning on their own and conducting experiments based on that knowledge represent great learning opportunities. Furthermore, even when students participate as subjects or assistants, such experiences can be a good starting point for learning economics.

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1. Introduction

Why do we study economics? According to Mankiw (2011), there are three reasons. First, economics helps us understand the world we live in. For example, economic knowledge can help explain why some years are more difficult to find a job than others. Second, economic knowledge plays a crucial role in decision-making. By studying economics, we can make better decisions. Third, it allows us to better understand the possibilities and limitations of economic policy. For these reasons, those who study economics and apply that knowledge are likely to lead better lives than before.

In a society with declining birth rates and advancing AI, the importance of economic education is expected to grow even further. The purpose of this study is to provide an overview of economic education in Japan and to examine the introduction of economic experiments into university economics courses. To provide an overview of the current state of economic education in Japan, we will first outline the characteristics of higher education in Japan and introduce the current situation surrounding economic education.

The structure of this paper is as follows: Chapter 2 introduces Japanese higher education from the modern era to the present, and Chapter 3 discusses the current state of economics education in Japan. Chapter 4 presents two examples of applying economic experiments as active learning. Chapter 5 summarizes the conclusions.

2. Modern History of Higher Education in Japan

According to Banno (2019), various Western learning disciplines were introduced from the end of the Edo period to the Meiji Restoration, and economics education began as one of them. The education provided was classical economics, intended to teach the laws governing the production and sale of goods in society, or to acquire the Western mode of thinking known as “science.” He revealed that during the first few decades of the Meiji era, political economy was taught as part of general education in elementary schools, junior high schools, and university preparatory courses, using textbooks translated into English or Japanese. Furthermore, he concluded that through this education, children and students were able to understand Western-style thinking, that is, science.

Following the two major world wars, the School Education Law was enacted in 1947, integrating various higher education institutions into a single “university” under a 6-3-3-4 school system, laying the foundation for the current education system.

Figure 1 shows the trend in the number of universities and junior colleges from 1950 to

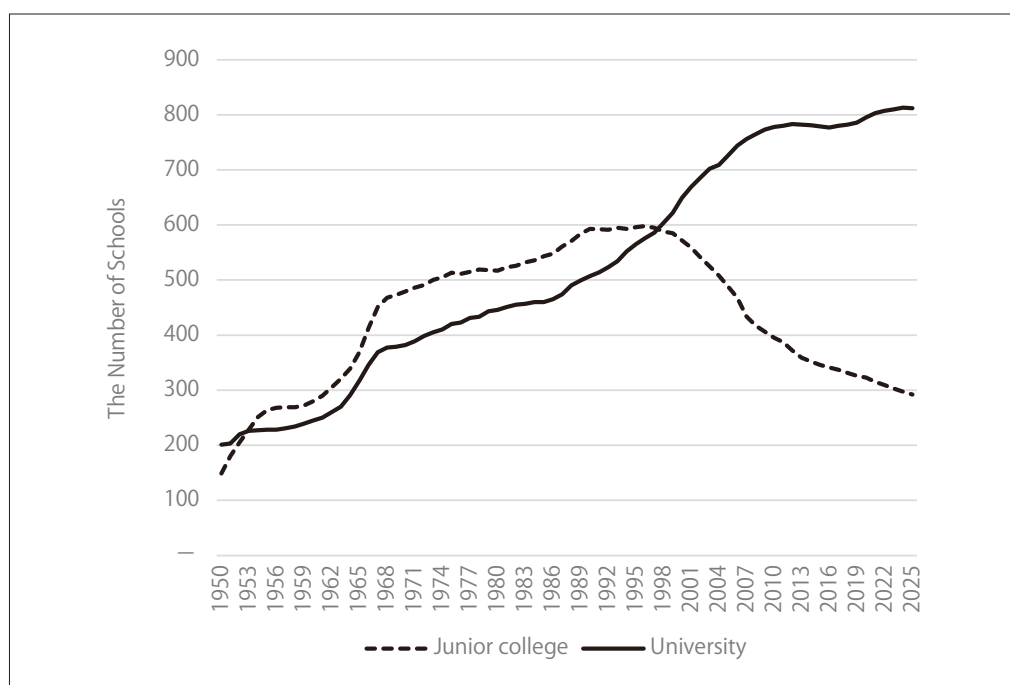


Figure 1. The Trend in the Number of Universities and Junior Colleges.

Source: Ministry of Education, Culture, Sports, Science and Education, School Basic Survey
(Tokyo: Author, 2025)

2025. From 1953 to 1997, the number of junior colleges exceeded that of universities, but from 1998 onwards, the number of universities surpassed that of junior colleges, and junior colleges have been steadily declining. As of 2025, Japan has 812 universities and 292 junior colleges, and it is common for high school students to attend university. Figure 2 shows the trends in university and junior college enrollment rates by gender in Japan. According to this figure, the university enrollment rate for men has consistently been higher than the junior college enrollment rate for men. However, while the junior college enrollment rate for women was higher than the university enrollment rate until 1996, the university enrollment rate for women has increased rapidly since 1996.

Junior colleges have played a significant role in promoting higher education for women and providing practical vocational training. This decline is likely due to the increasing number of female students attending universities in recent years, leading fewer students to choose junior colleges. During this period, the Equal Employment Opportunity Law was enacted in 1985, making equal treatment between men and women in recruitment, hiring, and placement a “duty to make efforts” for employers. However, the 1997 amendment prohibited discrimination based on gender, and in 2006, discrimination based on gender was

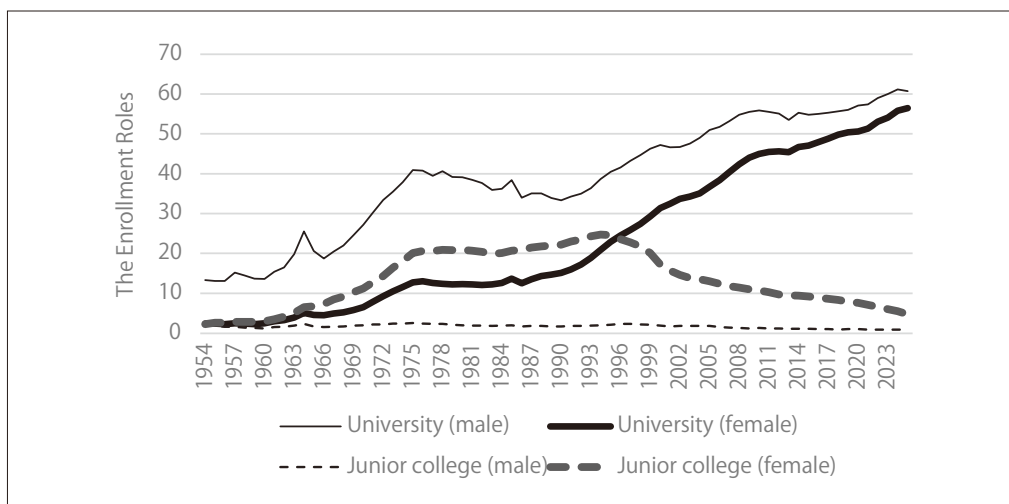


Figure 2. The Trend in University and Junior College Enrollment Rates by Gender.

Source: Ministry of Education, Culture, Sports, Science and Education, School Basic Survey
(Tokyo: Author, 2025)

further prohibited for both men and women. We cannot deny that these societal changes have promoted higher education for women. In 2025, the university enrollment rate for men is 60.7%, and for women, 56.5%. In universities, where more than half of students enroll, what percentage major in economics? Chapter 3 will answer the question.

3. The current state of economics education

The previous chapters provided an overview of the history of higher education in Japan. This chapter will introduce the current state of economics education. Table 1 shows the faculties that offer economics as a major and the number of students studying in them. In Japan, the names of faculties that offer economics vary, and by 2025, there will be 165 faculties offering economics as a major. The vast majority of these are called “Faculty of Economics,” with 132 such faculties existing in Japan. The number of students studying in “Faculty of Economics” is 202,473, and the total number of students in all faculties offering economics as a major is 244,596, indicating that approximately 10% of all students major in economics. Therefore, economics departments occupy a significant position in Japanese higher education, particularly in the humanities.

Japanese economics departments, especially those in private universities, face unique challenges in education. Yamaoka et al. (2010) address the challenges of mathematics in economics education. Because mathematics is frequently used in economics, economics

Table 1. Undergraduate Students Who Major in Economics in Japan (2025)

Faculty (department)	Number of faculty	Number of students	% of students
Economics	132	202,473	7.65
Political science and economics	7	17,378	0.66
Commerce and economics	1	3,543	0.13
International politics, economics, and communication	2	2,516	0.10
Economics and informatics	3	1,711	0.06
International economics	1	408	0.02
Management and economics	4	3,909	0.15
Economic sciences	2	2,503	0.09
Economics and business management	12	9,448	0.36
Economics and management	1	707	0.03
Subtotal		244,596	9.24
Total number of undergraduate students		2,645,837	

The percentage of students in each faculty and department is computed to the subtotal number of students in 4-year universities, respectively. Source: Ministry of Education, Culture, Sports, Science and Education, School Basic Survey (Tokyo: Author, 2025)

majors need a certain level of mathematical aptitude. However, not all students are proficient in mathematics, and some have limited mathematical knowledge and understanding. The limitation is particularly due to the admission selection policies of private universities. In entrance examinations for economics departments, mathematics is usually an elective, so some students choose it, while others do not. Students with a low level of mathematical understanding tend to have relatively low motivation to study economics; therefore, active learning that stimulates their interest is necessary.

Next, we will discuss a significant change in economics education: the mandatory inclusion of financial education in high schools. In April 2022, Japan lowered the legal age of adulthood from 20 to 18. The revised Course of Study for high schools came into effect in April 2022, incorporating more content related to economics and finance into school subjects. The objectives of compulsory financial education are to equip young people with sound financial judgment in a society where they independently enter into financial contracts, to enable students to learn basic financial and economic concepts systematically within school education, and to prevent financial troubles and support better life planning. While political economy has always been an elective subject for high school students, the number of students choosing it has been small because many universities do not include political economy exams in their entrance exams. Mandatory financial education is expected to encourage high school students to pursue economics studies and enhance the value of

economics departments in Japanese higher education.

This chapter has described the general situation of economics departments in Japan, their unique challenges, and recent changes. The next chapter will discuss the potential of active learning in economics education.

4. Using Economic Experiments for Active Learning

In economics education, motivating students to learn is extremely important. Kaplan & Balkenborg (2010) argue that experiments in economics classes are an excellent way to increase student interest. Therefore, this chapter will introduce two experiments as examples of active learning. Both experiments involved asking participants to repeatedly perform a task, observing the amount of work they completed, and studying people's work motivation by considering the task as labor. We conducted both experiments in Japanese. The participants in the experiment were students of the economics department from a private university in Osaka Prefecture.

The first example involves third- and fourth-year students assisting with economic experiments. We conducted the experiments reported by Yoshida, Nishizaki, and Yoneda (2026). In this experiment, participants were randomly divided into two groups and tasked with solving a 40-piece white jigsaw puzzle. Five students served as assistants, supporting the experiment's implementation and data collection. The students acted as assistants, guiding subjects, explaining the procedures, and supervising the experiment. After each experiment, the students were interviewed and asked how the economic experiment had affected them.

Interview surveys suggest that economic experiments improved students' understanding and motivation. One student commented, "This is an experience unique to university students. I wish I had experienced this sooner." Experiencing economic experiments early on is important for increasing students' interest and motivation. Therefore, in the second experiment, we will focus on first-year students' participation in the economics experiment.

The second example involves first-year university students participating as subjects in economic experiments. These students were all enrolled in the same first-year seminar, and the experiment was conducted as mock training. Seventeen students participated as subjects in the experiment, solving simple calculation problems as the experimental task until they wanted to give up. Before the experiment, the students attended lectures on behavioral economics, learned about prospect theory, and participated in group work.

Figure 3 shows the results of text mining analysis of students' impressions of the

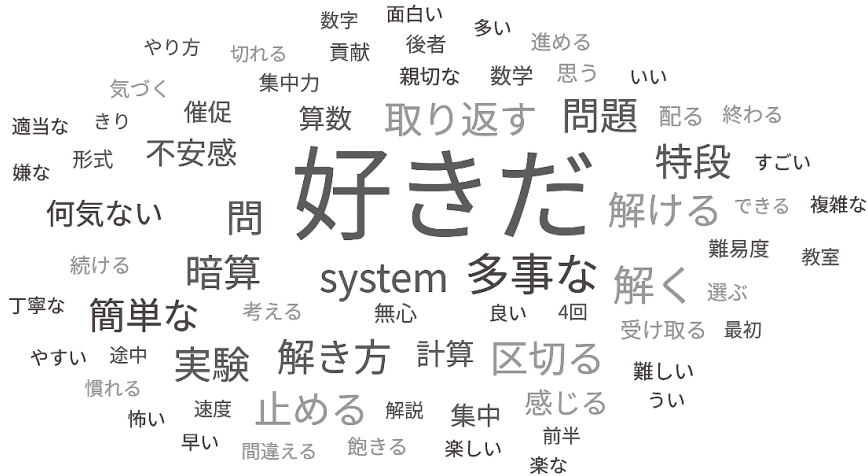


Figure 3. Results of text mining analysis

Analysis using UserLocal AI text mining (<https://textmining.userlocal.jp/>)

experiment. The students' impressions of the experiment were generally positive, such as "I liked it (好きだ)" and "I could solve it (解ける)." Some students linked their impressions to the behavioral economics knowledge they had learned, such as "system." On the other hand, a small number of students had impressions such as "difficult (難しい)," "scary (怖い)," and "anxiety (不安感)." One student who answered "scary" said, "I don't usually do calculations, but I thought it was amazing that you could understand people through them. At the same time, I thought it was scary that people could understand me by observing my actions in casual situations." They also asserted, "I found it interesting that everyone had different results even though it was the same experiment," indicating their interest in the experiment itself. Many students' comments were positive. On the other hand, a few students were not interested in the experiment and could not find a relationship between the lecture material and the economic experiment. Therefore, when introducing economic experiments as active learning, students need to learn the significance and purpose of the experiment after participating as subjects, and it is necessary to emphasize the link with lecture content.

5. Conclusion

This study examined how students' experiences with economic experiments contribute to their learning of economics through interview-based research. The results revealed that students who participated in economic experiments as assistants perceived that they gained a more practical understanding of economic experiments than through classroom-based

learning alone. Many students who participated as subjects reported a sense of fulfillment from taking part in the experiment, while approximately half developed an interest in its purpose and content. These findings suggest that participation in economic experiments may enhance students' learning motivation even when they are not actively involved in the experiment itself.

As future research, we propose dividing students into two groups—those who participate in experiments and those who do not—and comparing their subsequent learning outcomes, as well as conducting more in-depth interview studies.

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