



Comparative Study of Korean and Chinese University Students' Economics and Business Literacy

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Abstract

Purpose – This study attempts a multifaceted analysis utilizing the Chinese test takers' results of the Economy & Business Aptitude Test. Since Chinese students study socialist theories of economics along with market-based ones, comparing Chinese university students' basic knowledge of economics and business and its application to those of Korean test takers is also very meaningful from the perspective of economics education research.

Research design, data, and methodology – This study investigates the results on the test of economy and business understanding between Korea and China. For comparison of the result, we conducted MK-TEST for two universities in China.

Result – This study finds that the average correct answer rate of Korea is higher than one of China according to the overall results. The average difference rate is about 15% between Korea and China. More concretely, the correct answer rate of business area is higher than one of economy area, identifying them by subject area.

Conclusion – According to the results, this study can infer that there are no or little differences in the ability of examinee to solve applied questions between Korea and China and the differences of the scope and emphasis point in an academic curriculum between both countries might bring these kinds of results. Finally, Chinese students shows higher correct answer rate to the questions about the economy issues and policies related to China than one of Korea examinee.

Keywords: Comparison of Korean and Chinese Economics and Business Literacy, University Students' Economics, Business Literacy

JEL Classification Code: M10, M31.

1. Introduction

For a long time, Organization for Economic Cooperation and Development (OECD) member countries and developed countries have sought to strengthen economic education for their citizens through various measures, such as early education programs for elementary schools or earlier. These measures underscore the idea that citizens' knowledge of economics is a driving force that determines each country's competitiveness. For the continued growth of a country's economy, its citizens must have an accurate understanding of how the economy works and carry out their economic activities based on the knowledge. Deficiency in citizens' economic literacy is a problem that can incur enormous social costs for the country as well as for individuals, by leading to an increase of bad credit, moral hazard, and problems with public funds (Kim, 2008) among others. For example, many have pointed to economic agents' lack of knowledge in economics as the fundamental cause of the global financial crisis initiated by subprime mortgage loans in the U.S. That is, the financial crisis was brought on by consumers' unrestrained borrowing and reckless investing based solely on financial companies' marketing with no proper knowledge of economics. As such, developing the economic reasoning ability to accurately assess economic problems and arrive at rational decisions is becoming an important task, also from the perspective of the national economy.

Based on these demands of our times, Maeil Business Newspaper first implemented the Economy & Business Aptitude Test (Maekyung TEST) from mid-August of 2009, and has been conducting it eight times a year since 2015 with the cumulative number of test takers exceeding 120,000 by 2016. In June of 2014, they also conducted the first-ever Chinese version of the test for local test takers in China. This study attempts a multifaceted analysis utilizing the Chinese test takers' results of the Economy & Business Aptitude Test. Since Chinese students study socialist theories of economics along with market-based ones, comparing Chinese university students' basic knowledge of economics and business and its application to those of Korean test takers is also very meaningful from the perspective of economics education research.

China is an economic powerhouse that had, as of 2016, a gross domestic product (GDP) of approximately \$11.4 trillion, the second largest in the world after the United States, and the largest economy in the world in terms of purchasing power parity (PPP). China is also Korea's largest exporting country, with exports totaling \$124.4 billion. As these figures show, China's influence on Korea's economy has been growing over time. More recently, the number of Chinese students heading to Korea to study economics or business has also jumped significantly. As economic and social exchanges between the two countries increase, evaluating Chinese university students' current level of understanding in economics and business management can provide helpful reference points in setting standards necessary for future employment and academic exchange with Chinese people.

2. Literature Review

With the recent rise in the importance of economic literacy across society, an increasing number of studies have compared the level of economic literacy across countries to aid the development of citizens' economic literacy (Hahn and Jang, 2012). International comparisons of economic education curriculum and economic literacy are based on Walstad's 'An International Perspective on Economic Education' (1994). In his study, Walstad compares the education systems of six countries including the United States (United Kingdom, Canada, Japan, Germany, Austria, and Australia). However, these comparisons of economic literacy have Anglophone and Western European countries as their focus, and direct comparisons with Korea and other Northeast Asian countries' distinctly different economic curricula and education systems inevitably encounter problems owing to cultural differences and difficulties in translation (Hahn and Jang, 2012). This difficulty of comparison may furthermore intensify for samples of test takers in lower school grades (for example, elementary school students).

In previous studies, subjects of international comparison for economic literacy were mainly students below the university level, such as high school and middle school students. Economic literacy was mainly evaluated through the Test of Economic Literacy (TEL) developed by the American Council on Economic Education (CEE) to assess students' understanding of basic economic concepts in middle and high school economic curriculum. CEE's Voluntary National Content Standards in Economics has gone through three revisions, following which TEL1 was revised into TEL2 and then TEL3. CEE's TEL was also used to assess Korean high school students' economic literacy. Chun (1993) and Park (2002) used TEL2 and TEL3 to evaluate Korean high school students' economic literacy and Yu (2003) conducted a comparative analysis of the results from Korea and the U.S. Likewise, Kim and Jang (2013) used evaluation prompts developed in the U.S. (TEL2) to compare high school students' levels of economic literacy across Korea, U.S. and Japan.

Other than elementary, middle and high school students, some studies have also conducted international comparisons of economic literacy using university students (adults) as their samples. Most notably, Jang, Hahn and Kim (2010) translated the 4th edition of the Test of Understanding of College Economics (TUCE-4) revised in 2005 by Walstad, Watts and Rebeck (2007) to test university students in Korea. The results showed that the scores of university students in Korea were significantly better than those in the U.S. and Japan. While the difference may be attributed to the composition of the Korean sample where two thirds were students of upper-tier universities, the study is still meaningful in that its subjects were adults (university students) in Korea, U.S. and Japan. Comparing the scores by grade and question type within the same samples, Kim (2008) found that for Japanese students the percentages of correct answers tended to increase as the grade level increases, and Korean students in their first and second years of university had relatively high percentages of correct answers in microeconomics and macroeconomics, respectively. Overall, Korea and Japan performed well in questions that deal with basic concepts, but had low levels of performance in corporate and applied areas and their scores were also unevenly distributed. On the other hand, university students in the U.S. had an overall even distribution in scores with no significant deviations, but in terms of the overall average performed worse than Korean and Japanese students.

Yin et al. (2013) evaluated the economic literacy levels of Chinese and Japanese university students. The test used for evaluation for this study was TUCE4, the main test used in previous studies for international comparison. Specifically, 30 questions from the macroeconomics section of TUCE4 were used. The results showed that Chinese university students scored higher than Japanese university students in terms of the overall score as well as across individual questions. In addition, prestige of universities and length of study were main factors that significantly influenced the percentages of accurate answers for both countries. However, differences between the genders (men and women) and majors were not the same for Chinese and Japanese students. In China, students' gender and major influenced the level of economic literacy, but a similar trend was not observed in Japan.

As illustrated above, the literature on international comparison of economic literacy mainly includes studies that compare the U.S. with Western countries, Korea, and Japan. Due to difficulties in obtaining samples, Northeast Asia, especially China, has rarely been the subject of such comparative studies, despite the region's increasing importance in recent decades. Furthermore, international comparisons of economic literacy that were conducted from the perspective of Korean economic education are practically non-existent. Hence, to address these limitations of existing studies, this study undertakes a comparative analysis of Chinese students' economic and business literacy using the Economy & Business Aptitude Test usually administered in Korea. Recently, Tovazzi (2020) examines that literacy in terms of subjective beliefs that a person has a possible response to multiple questions, and the distribution of subjective beliefs. Franziska and Roland (2021) examine whether there are systematic country-specific effects on the economic literacy of beginning students of business and economics.

3. Methodology

3.1. Assessment Tool Used in the Study

The Economy & Business Aptitude Test was launched when Maeil Business Newspaper, a Korean newspaper specializing in economic news, administered the first test on August 15th of 2009. Named <Maekyung TEST>, Maeil Business Newspaper's Economy & Business Aptitude Test is a comprehensive evaluation tool that holistically assesses test takers' understanding of basic concepts, reasoning skills, and current issues in economics and business. Maeil Business Newspaper's Economy & Business Aptitude Test obtained national accreditation in December, 2010, and is currently being used as a requirement across various areas including recruitment, HR, school courses, and graduation by public corporations including the Bank of Korea, financial institutions, corporations, and universities.

To compare the levels of economic and business literacy between Korea and China, questions that can be found in the basic school curriculum were first extracted from the tests that were administered in Korea, and then translated into Chinese to form the Chinese version of the test. The process of creating the Chinese version of the test will be introduced in the next section. In comparing the economic and business literacy levels between Korea and China, the main focus was comparing the percentage of correct answers for each question in the Chinese version with that for each corresponding question answered by Korean test takers. For an accurate comparison, the comparison groups must answer the same set of questions; however, one limitation of the Korean sample is that the questions were not solved by the same group of test takers.

The Chinese version of the Economy & Business Aptitude Test was created through the following process. Becau

se the corporate environment and industry-specific issues in Korea differ from those in China, a process of localization into the Chinese context is essential in conducting the Economy & Business Aptitude Test in China. Hence, Chinese professors were first contacted to verify which materials can be tested. Through this process, they confirmed that the areas covered in the Economy & Business Aptitude Test (e.g. micro and macroeconomics, international economics, strategy, marketing, finance, and accounting) will not feel particularly alien to Chinese test takers. To pick out the questions to be translated into Chinese, questions from previous tests were examined to select the ones that either cover basic concepts in each subject, or concern global economics or basic workings in business that do not require a country-specific considerations. As a measure of caution, translators were limited to those whose native language is Chinese and have an excellent comprehension of Korean, in addition to having a doctorate degree or above in economics or business. Throughout the process of translation, questions were continually discussed with the translators from the beginning to ensure that the intention behind each question is clear and its contents and nuance are communicated accurately in Chinese. Depending on the situation, parts of sentences in some of the questions were also modified to fit the Chinese context without harming the intention behind each question. On one occasion, a modification was made to reflect the Chinese commercial laws after consulting a local expert for advice. After the translation was complete, a team of reviewers consisting of Chinese professors and Korean experts of China carried out a comprehensive assessment of the contents and sentences in the test and finalized the Chinese version of the test by correcting any parts that were omitted or changed during translation.

The Economy & Business Aptitude Test used in this study consists of a total of 50 questions spanning across the subject areas of economics, business, and current issues. The parts are further subdivided into macroeconomics, microeconomics, and international economics for economics, summing up to 20 questions, and general corporate management (including organizational theory), strategy and marketing, accounting and finance for business, summing up to 20 questions. The current issues part has a total of 10 questions (Table 1). As can be seen in (Table 1), the questions for economics and business parts consist of ten concept (knowledge) questions that test one's knowledge of basic concepts and ten application questions that test one's ability to apply basic theories in economics and business or interpret the information given (Table 2).

Table 1: Tested Concepts and Number of Questions per Subfield in Economics & Business

	Subfield	No. of Qs	Tested Concepts
Economics	Microeconomics	10	Opportunity cost, sunk cost, economy of scope, taxes, characteristics of goods, externalities, tragedy of the commons, price discrimination etc.
	Macroeconomics	8	National income model, macro indicators, leading economic indicators, GDP, monetary policies, inflation and interest rates, consumer prices, and economic growth
	International Economics	2	Effects of exchange rate fluctuations, purchasing power parity (Big Mac Index)
Business	General Corporate Management	4	Types of organizations, decentralization, internal hiring, initial public offering (IPO)
	Strategy & Marketing	12	Industry analysis, leading companies, core competencies, service products, M&A strategy, internalization, globalization, overseas expansion, marketing mix, marketing research, promotion strategy, brand
	Accounting & Finance	4	Corporate financial ratios, stocks and bonds, expected rate of return, portfolio and risk
Current Issues	Latest Issues	10	Abenomics, bitcoin, CDS, Nobel Prize in Economics, currency swap, Lewis turning point, FTA, SNS, etc.

Among these questions, only those used in both China and Korea were used in the analysis. Specifically, questions that were altered to a greater degree due to institutional differences between China and Korea or questions where the answer choices were altered to fit the Chinese context were excluded from the analysis performed in this study, d

Due to the difficulty in direct comparison of test results. The excluded questions comprise three questions in business (one question in general business management and two marketing questions) and one question in current issues (bit coin-related question), totaling up to four questions. Therefore, the final number of questions used in the analysis is 46, four less from the total of 50 questions.

Table 2: Composition of Economy & Business Aptitude Test Per Subject Area

	Economics	Business	Current Issues	Subtotal
Conceptual	10	8	9	27
Application	9	10	0	19
Total No. of Questions	19	18	9	46

The 46 questions used in the Chinese version of the test are from the 1st to 19th rounds of previously administered Maekyung TESTs, and the characteristics of test takers for each round of test are shown in (Table 3). The primary test takers of the Maekyung TEST are university students and they make up about 50-68% of all test takers for each round. In terms of the gender proportion, men were more numerous than women with men accounting for about 59-73% of the total test takers.

Table 3: Characteristics of Korean Test Takers

Round	No. of Questions	% of University Students	% of Men	% of Women
1	2	52.7%	73.3%	26.7%
4	4	50.6%	68.0%	32.0%
6	3	58.4%	68.5%	31.5%
7	3	60.9%	61.4%	38.6%
11	3	59.2%	60.7%	39.3%
12	2	57.6%	62.3%	37.7%
13	2	60.4%	59.5%	40.5%
14	3	60.7%	59.9%	40.1%
16	3	65.0%	61.8%	38.2%
17	7	67.6%	63.9%	36.1%
18	5	66.6%	60.4%	39.6%
19	6	65.0%	60.4%	39.6%
Other	3	-	-	-
Total	46	60.39%	63.34%	36.66%

3.2. Subjects of the Study

For this study, 202 students from two universities were recruited on the 17th (University A) and 19th (University B) of June, 2014 for an evaluation of their economic and business literacy. 75 students participated from University A, and 127 students participated from University B. The sample of Chinese test takers included in this study comprised 202 students from University A and University B, as can be seen on (Table 4) below. More specifically, the highest proportion (78.4%) of Chinese test takers from University A were students in their first to fourth years of study majoring in economics and business. For University B, the test takers were students in their first to third years of study taking courses in international economics at the college of international economics and trade. Most of these

students' majors were economics or business, with 2% of the total students indicating some other major ('Other') as their area of study. Hence, with most of their majors in business and economics, the sample of Chinese test takers can be viewed as a group that has a basic knowledge of economics and business.

Table 4: Breakdown of Chinese Test Takers Per University

Grade	University A			University B			Total
	Male	Female	Subtotal	Male	Female	Subtotal	
1	12 (5.9%)	21 (10.4%)	33 (16.3%)	1 (0.5%)	1 (0.5%)	2 (1.0%)	35 (17.3%)
2	17 (8.4%)	11 (5.4%)	28 (13.9)	14 (6.9%)	17 (8.4%)	31 (15.3%)	59 (29.2%)
3	6 (3.0%)	2 (1.0%)	8 (4.0%)	25 (12.4%)	57 (28.2%)	82 (40.6%)	90 (44.6%)
4	1 (0.5%)	-	1 (0.5%)	-	-	-	1 (0.5%)
Total	36 (17.8%)	34 (16.8%)	70 (34.7%)	40 (19.8%)	75 (37.1%)	115 (56.9%)	185 (91.6%)

Note: 20 people not listed

As can be seen in (Table 4) above, the sample of test takers used in this study comprises 127 students from University B (including those with no grade and gender information), 62.9% of the total, and 75 students from University A (including those with no grade and gender information), 37.1% of the total. Looking at their gender, there were 76 male students, 37.7% of the total, and a higher percentage of female students, with 109 of them taking up 53.9% of the total. In terms of their grades, there were 90 third year students, taking up the highest proportion out of all students with 44.6%, and 59 second year students (29.2%) and first year students (17.3%).

4. Results

4.1. Results of Economic and Business Literacy Evaluation for China

Below, (Figure 1) displays the distribution of scores for the 202 Chinese test takers described above. As can be seen in the distribution of scores, the average score of all Chinese test takers is skewed towards the left of the 50 point mark located in the middle, and more than 56% of the test takers fall into the region between 35 and 45 points which includes the average score in the middle. This differs from the Korean case where most scores are distributed between the 50 to 60 regions. This difference can be attributed to the fact that university students, the main test takers for Korea, are in many cases already aware of the Economy & Business Aptitude Test and have taken the test a few times already in some cases, which can lead some to 'learn' the test in certain ways. In addition, many take the test for the purpose of using the results for job seeking, and hence it is natural that a higher concentration of average scores was observed for Koreans than Chinese test takers.

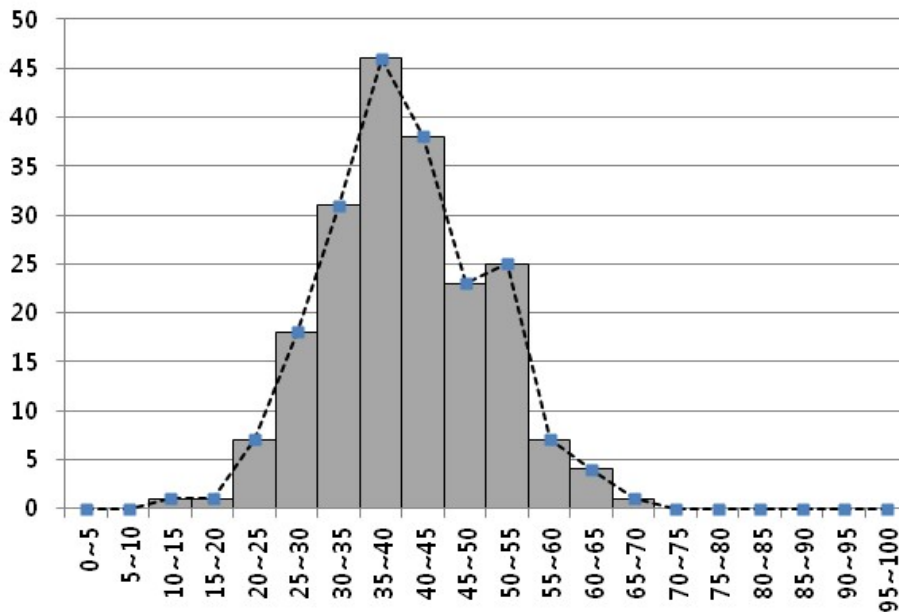


Figure 1: Distribution of Scores for Chinese Test Takers

Table 5: Average Scores Per Subject & Section

Subject & Section	Section	No. of Questions	Scores Per Question	Average
Economics	Concepts	10	15(1.5)	6.0
	Application	10	30(3.0)	12.3
	Subtotal	20	45	18.3
Business	Concepts	8	12(1.5)	7.5
	Application	9	27(3.0)	9.1
	Subtotal	17	39	16.6
Current Issues		9	9(1.0)	3.1
Total		46	93	38.0

For Chinese test takers, their average scores for each of the areas in the concepts section were 7.5 for business and 6.0 for economics, but in the application section the average was higher for economics, with 12.3 for economics and 9.1 for business. This is because Chinese students were used to basic concepts in business management, but were not well-acquainted with questions that require reasoning skills related to business administration. In terms of each subject, the average scores were 18.3 for economics and 16.6 for business. Comparing the answers for the two subjects, in economics the percentages of correct answers were similar for both sections, with 40.4% and 40.6% in the concepts and application sections, respectively, but in business the percentage of correct answers was high (62.5%) in the concepts section and low (33.7%) for the application section.

Table 6: Scores Per Chinese University

Test Takers & Subject University	No. of Test Takers	Total Score (93)	Economics (45)	Business (39)	Current Issues (9)
University A	75	39.4	19.2	16.9	3.3

University B	127	37.7	17.8	16.7	3.2
Total	202	38.0	18.3	16.8	3.3

(Table 6) above displays the test results by university, where it can be seen that the average score for University A is slightly higher at 39.4 as compared to 37.7 for University B. Echoing findings of existing studies, this difference can be explained by the difference between the two universities, where University A is typically thought of in China as having more higher performing students than University B. While the average scores of the two universities did not differ much in business and current issues, in economics the scores were 19.2 for University A and 17.8 for University B, showing how their main difference lies in economics.

Table 7: Chinese Test Takers' Scores by University Grade

Test Takers & Subject Grade	No. of Test Takers	Total Score (93)	Economics (45)	Business (39)	Current Issues (9)
1	35	40.9	20.3	16.5	4.1
2	60	37.8	18.0	16.9	2.9
3	91	37.5	17.9	16.4	3.2
4	1	22.4	4.5	17.9	0
(empty)	15	37.1	18.2	15.9	3
Total	202	38.1	18.3	16.6	3.2

Looking at the scores by grade, with the exception of fourth year where the sample size is too small, the average score of first year students was the highest with an average of 40.9 points, while the average scores were 37.8 points for second years and 37.5 points for third years, the lowest out of all. From this, we can infer that the results of this test are not directly correlated with the education offered in Chinese universities.

Table 8: Chinese Test Takers' Scores by Gender

Test Takers & Subject Gender	No. of Test Takers	Total Score (93)	Economics (45)	Business (39)	Current Issues (9)
Male	79	36.7	17.7	16.1	2.9
Female	113	39.0	18.8	16.9	3.3
(empty)	10	40.4	17.9	18.5	4.0
Total	202	38.1	18.2	16.7	3.2

(Table 8) above displays a comparison of Chinese test takers' scores, where the average scores were 36.7 for men and 39.0 for women. This result stands in contrast to the case in Korea, where across all previously administered rounds of the Economy & Business Aptitude Test, male test takers had higher average scores than female test takers.

4.2. Comparison of Economic and Business Literacy Between Korea and China

To compare the test results between Korea and China, this study compared the Chinese test takers' percentages of correct answers with those of Korean test takers. This was because the test scores cannot be used for comparison due to the fact that the Chinese version of the test has a total of 50 questions for a total possible score of 100, unlike the Korean test's total of 80 questions amounting to a total possible score of 1000, differing in the number of questions as well as their worth in points. Furthermore, the two countries' test results cannot be compared with scores because as (Table 3) has shown, Korean test takers are not the same group of people across all questions. Consequently,

questions in the Maekyung TEST that are counterparts of those in the Chinese test were used as the Korean sample to compare the percentages.

4.2.1. Comparison of the Percentages of Correct Answers by Question

Below, (Table 9) displays the percentages of correct answers for each question for Korea and China. The questions with the biggest difference between Korean and Chinese percentages were questions 1 and 12, with differences of 47.0%p and 44.3%p, respectively. These were questions testing the understanding of IPO and M&A strategy, which shows that Korean test takers have a higher understanding of these concepts than do Chinese test takers. This may be due to the fact that stock markets and corporate M&As are not very active in China, leading to a lack of opportunity for students to come across related concepts.

In contrast, out of 17 questions, questions 9, 11 and 15 showed a higher percentage of correct answers for China compared to Korea. Question 9 asks about the difference between goods and services and had percentages of correct answers that were higher than 90% for both Korea and China. For Question 15, the percentages of correct answers were 43.1% for China and 40.3% for Korea, with China’s being 2.8%p higher. The question tests one’s understanding of companies’ overseas expansion. Question 11 asks about companies’ core capabilities and had 60.6% and 42.8% of correct answers for China and Korea, respectively. Unlike other questions in business, the difference was significant, with Chinese test takers performing better with over 10%p of difference.

Table 9: Comparison of China and Korea’s Percentages of Correct Answers Per Question in Business

Question No.	Avg % of Correct Answers			Question No.	Avg % of Correct Answers		
	China (%)	Korea (%)	Difference: Korea – China (%p)		China (%)	Korea (%)	Difference: Korea – China (%p)
1	8.7	55.7	47.0	12	16.5	60.8	44.3
2	65.6	76.6	11.0	13	23.9	54.2	30.3
3	26.6	66.4	39.8	14	29.8	47.5	17.7
4	75.2	93.0	17.8	15	43.1	40.3	-2.8
7	96.3	98.0	1.7	16	40.8	74.4	33.6
8	51.8	67.0	15.2	18	24.8	42.7	17.9
9	92.2	98.0	5.8	19	38.5	75.1	36.6
10	15.6	33.1	17.5	20	29.8	32.0	2.2
11	60.6	42.8	-17.8				

Note: Shaded area in the table denotes questions for which the percentage of correct answers was higher for China than for Korea.

In economics, question 29 asks to compare the characteristics of direct and indirect tax and has 12.4% and 29.0% of correct answers for China and Korea, respectively, indicating a higher level of difficulty than that of other questions. For questions 24 and 27, differences between the percentages of correct answers for China and Korea were relatively big compared to other questions. For question 24, 60.8% and 14.2% of answers were correct for Korea and China, respectively, with Korea’s being 46.6%p higher. Question 24 asks about economy of scope, and 60.8% of Korean test takers and 14.2% of Chinese test takers were able to tell the difference between the concepts of economies of scope and scale. This gap may be explained by the fact that, while cases of economy of scale are common in China, not many companies or industries pursue economy of scope in China and hence related concepts are not as known. Question 27 concerns the impact of falling exchange rate on the real economy and had a high percentage of correct answers for Korean test takers, at 85.4%. However, the percentage of correct answers for Chinese test takers was 45.4%, indicating Chinese test takers’ relatively lower level of understanding of exchange rates. As will be elaborated further later during the comparison of correct answers by question type, we can reason that the current exchange rate system in China is largely responsible for this lack.

In contrast, for questions 32, 36, and 37, the percentages of correct answers were higher for China compared to Korea. Question 32 asks about concepts relating to macro indicators, and the percentages of correct answers were 53.7% for China and 40.0% for Korea, with China's being 16.3%p higher. This can be explained by China's continuing high level of interest in economic growth and macroeconomics, as well as their frequent emphasis in the media. Question 36 asks about elasticity and has 51.8% and 42.0% of correct answers for Chinese and Korean test takers, respectively.

Table 10: Comparison of China and Korea's Percentages of Correct Answers in Economics

Question No.	Avg % of Correct Answers			Question No.	Avg % of Correct Answers		
	China (%)	Korea (%)	Difference: Korea – China (%p)		China (%)	Korea (%)	Difference: Korea – China (%p)
21	43.6	65.0	21.4	31	23.4	46.1	22.7
22	68.8	83.4	14.6	32	53.7	37.4	-16.3
23	19.7	40.6	20.9	33	64.2	69.6	5.4
24	14.2	60.8	46.6	34	33.0	50.2	17.2
25	39.4	49.4	10	35	34.4	50.1	15.7
26	30.3	43.4	13.1	36	51.8	42.0	-9.8
27	45.4	85.4	40	37	35.8	33.7	-2.1
28	73.9	84.1	10.2	38	51.4	61.7	10.3
29	12.4	29.0	16.6	39	26.6	37.8	11.2
30	56.4	74.1	17.7	40	31.2	40.9	9.7

(Table 11) shows the varying differences between the two countries' percentages of correct answers in the current issues part, from 53.7%p to -19.2%p. First, for questions 48 and 44, the percentages of correct answers were 53.7%p and 49.7%p higher, respectively, for Korea compared to China. Specifically, question 48 asks about currency swaps and question 44 asks about financial derivatives. These show that Chinese test takers have less knowledge about finance. In contrast, the percentages of correct answers for questions 50, 45, and 49 were higher for China than those for Korea. In particular, question 50 had the highest relative performance of Chinese test takers across all 46 questions for which Korean and Chinese scores were compared. Question 50 asks about the Lewis turning point and shows us that the concept's importance is emphasized in China, as it is a model that can explain China's economic growth.

Table 11: Comparison of China and Korea's Percentages of Correct Answers in Current Issues

No.	Avg % of Correct Answers			No.	Avg % of Correct Answers		
	China (%)	Korea (%)	Difference (%p)		China (%)	Korea (%)	Difference (%p)
41	53.7	57.6	3.9	47	43.6	74.4	30.8
42	27.1	52.9	25.8	48	21.1	74.8	53.7

44	41.3	91.0	49.7	49	25.2	6.0	-19.2
45	30.7	26.9	-3.8	50	56.0	32.0	-24
46	12.8	56.7	43.9				

4.2.2 Comparing Percentages of Correct Answers by Topic and Question Type

1) Comparing Percentages of Correct Answers by Subject and Section

First, (Table 12) shows the differences between the two countries' percentages of correct answers for economics and business by question type. Overall, the percentages were higher for Korea compared to China by about 16%p-25%p. The differences were bigger for economics than for business. Notably, however, while all other areas showed large differences between the percentages of correct answers, a big difference was not observed in the applied economic section.

Table 12: Comparison of Literacy by Subject and Section

Subject & Section		Korea	China	Difference of % (Korea - China)
Economics	Concepts	61.5%	40.4%	21.1%p
	Application	48.4%	40.6%	7.8%p
	Total	56.9%	40.5%	16.4%p
Business	Concepts	79.2%	54.0%	25.2%p
	Application	53.4%	34.2%	19.2%p
	Total	65.4%	44.1%	21.3%p
Current Issues		52.5%	34.6%	17.9%p

More specifically, the average differences in percentages of correct answers between Korea and China were 16.4%p and 21.3%p for economics and business, respectively. Interestingly, economics and business diverged significantly in terms of the differences between the percentages of correct answers for the concepts and applied sections. For business, the differences between the two countries' percentages of correct answers did not diverge much for the concepts and applied sections, at 6%p. Considering the fact that Korean university students are more interested in business education for job seeking, MBA, etc., and are exposed to an environment of market economy where corporations, rather than the government, are more active and influential, we can infer that their understanding and awareness are better for questions in business relating to corporate activities, compared to those of Chinese students. This may therefore explain the negligible difference between the percentages of correct answers for the concepts and applied sections for the business part.

In contrast, for economics, no big differences were observed (i.e. 7.8%p) between the two countries for application questions that require application of concepts or interpretation of data, but a big difference in scores (21.1%p) was observed between the two sections for conceptual questions that test whether the test taker knows the given concept or not. This may be due either to differences in the amount of knowledge test takers have about economic concepts, i.e. differences in the scope of materials studied during economic education, or to the fact that some questions may have included materials that are not covered in school curriculum. In addition, since most Chinese test takers are university students who have chosen to major in business or economics, how much they studied economics in the past during middle school and high school could have also made a substantial difference.

2) Comparing Percentages of Correct Answers by Subfield

Next, percentages of correct answers for the two countries were compared for each subfield within economics and business. In economics, the difference in the percentages of correct answers was smaller for macroeconomics than for microeconomics; in business, the difference was smaller for strategy and marketing than for accounting/finance. For economics, the subfield with the biggest difference in percentages of correct answers was international economics, while for business it was general corporate management.

Table 13: Comparison of Percentages of Correct Answers by Subject and Subfield

Subject & Subfield		No. of Questions	Korea	China	Difference in % of Correct Answers (Korea - China)
Economics	Macroecon	8	54.3%	44.2%	10.1%p
	Microecon	10	53.5%	41.8%	11.7%p
	Intl. Econ	2	67.7%	39.9%	27.8%p
Business	General Corporate Mgmt	3	54.2%	25.7%	28.5%p
	Strategy /Marketing	10	72.8%	56.9%	15.9%p
	Accounting/Finance	4	54.4%	22.7%	31.7%p
Current Issues		9	55.2%	34.6%	20.6%p
Total		46	58.9%	40.5%	18.4%p

Given the fact that all questions for international economics require an understanding of exchange rates, the results indicate that Chinese test takers have less knowledge about exchange rates than do Korean test takers. The difference in the two countries' economic environments caused by China's implementation of a currency basket-based exchange rate system, rather than the floating exchange rate Korea uses, is likely to be mainly responsible for this difference. This is because residents of countries with floating exchange rates are more likely to be more interested and educated on exchange rates in comparison to those in countries with basket-based exchange rates. In contrast, the average score difference between Korean and Chinese test takers in macroeconomics was the smallest among all areas including business, at 10.1%p. Unlike exchange rates, macroeconomics covers economic policies that deal with market interventions by the government; hence, we can deduce that it is an area that Chinese test takers have relatively good understanding and education of, compared to Koreans.

3) Comparing Percentages of Correct Answers in Application Section by Question Type

Looking at the differences between the percentages of correct answers for Korean and Chinese test takers by question type, the mathematical calculation type showed the biggest difference at 24.4%p. For the situation assessment type, the difference was relatively higher than other types at 19.3%p. For application of principles and data interpretation, the differences in average percentages of correct answers were 8.1%p and 8.4%p, relatively lower than other types. The smaller differences can be explained by the fact that, unlike questions that require knowledge of fundamental concepts or current issues, principle application and data interpretation type questions can be solved without a firm grasp of the concepts by inferring the answer from the prompts or data provided.

Table 14: Comparison of Literacy by Question Type

Question Type		No. of Questions	Korea	China	Difference in % of Correct Answers (Korea - China)
Application	Applying Principles	11	46.6%	38.5%	8.1%p
	Situation Assessment	2	53.5%	34.2%	19.3%p
	Mathematical Calculation	2	53.5%	29.1%	24.4%p
	Data Interpretation	4	56.3%	47.9%	8.4%p
Total		19	50.7%	40.5%	10.2%p

5. Conclusion

In this study, the levels of economics and business literacy between Korean and Chinese adults (university students) were compared. While an accurate comparative analysis requires that the testing environment be controlled by providing the same question sheets for both countries, due to limitations in administering the tests, this study instead matched the questions used for the tests administered in China with corresponding questions in Korean tests and conducted a comparative analysis of the results on a one-to-one basis. Therefore, rather than directly comparing the test scores, a more proper way to compare the two countries is by comparing the percentages of correct answers by question. Results of the analysis indicate that the levels of economic and business literacy were higher in Korea than China. However, it cannot be denied that the average of percentages may be higher overall for Korea due to the difference in Korean and Chinese test takers' reasons for taking the test. Still, even under these conditions, China's percentages of correct answers were higher than Korea's for questions in certain areas. Focusing on these observations, the following presents the main results of the analysis performed in this study.

Compared to Korean test takers, Chinese test takers had relatively higher percentages of correct answers for concepts related to China's economic environment, policies, and institutions. For example, questions about concepts like the 'Lewis turning point' that relate to developing countries' economic growth had percentages of correct answers that were much higher for Chinese test takers than for Koreans. Chinese test takers showed relative strengths in macro areas compared to micro areas. This result reflects Chinese university students' higher level of familiarity with macroeconomics, which deals with government policies and market intervention among others. In contrast, they displayed a much lower level of economics for questions relating to fluctuations in exchange rate. This shows that Chinese test takers are weaker at questions about the effects of exchange rate fluctuations than Korean test takers. While China currently has a basket-based system of exchange rates, it has maintained a fixed currency rate up to a recent point. Hence, it is reasonable to suspect that the current system may have influenced Chinese test takers' understanding of fluctuations in exchange rates.

For business, Korea's percentages of correct answers were higher in general than China's. As mentioned previously, this can be attributed to Korean university students' high level of interest in business education for job seeking, MBA, etc., as well as the fact that Chinese test takers have a weaker grasp of materials related to corporations or the capital market compared to their Korean counterparts. In particular, considering the fact that for Korean test takers the percentages of correct answers were evenly high in business with no difference observed between the percentages in the concepts and applied sections, the countries' difference in performance cannot be interpreted as resulting only from a difference in education. Overall, these results suggest that economic and business literacy reflects in part the extent to which one is exposed to the market economy, beyond what he or she studies. In addition, comparing the relative strengths of the two countries, we may evaluate that Korea has relative superiority in concepts and China in application. Arguably, this result may reflect the emphasis that Korea's economic education places on concepts and fundamental principles, relative to application or utilization.

However, caution is required in interpreting the study's results, since in Korea's case the test takers were motiv

ated and prepared in advance while their Chinese counterparts were not. Another limitation is that unlike the case of Korea, the testing environment in China was not precisely controlled. The question sheet for the Chinese version of the test was created with 50 questions that were selected and translated from multiple rounds of tests in Korea, rather than from one particular round, after questions that reflect Korea's specificities were excluded and those deemed proper for Chinese test takers were selected and reformulated.

Despite these limitations, administration of the Economy & Business Aptitude Test for Chinese university students is meaningful in that it provided an opportunity to examine the differences between Chinese and Korean university students' knowledge in economics and business. In particular, it produced various specific insights including the fact that, compared with their Korean counterparts, Chinese test takers are relatively stronger at application than dealing with concepts, have a weaker grasp of exchange rates, and that the extent to which one is exposed to an economic environment influences one's acquisition of knowledge. Moreover, since there is an absolute dearth of studies about China's economic and business education and international comparison studies also face numerous realistic restrictions, comparative studies like the one conducted here are also significant from the perspective of economic education research. Studies that improve on this study's limitations are needed in the future for a wider variety of comparisons of economic education with other major Asian countries beyond China. In this paper, the influencing factors such as age, gender, major are analyzed. However, there are other influencing factors like hobbies, incomes. These factors should be involved in the further researches to substantiate our findings. This paper has focused on the investigation of influencing factors on the percentage of correct answers economic and business questions. Future research needs to analyze the financial questions.

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