Economic return of English language proficiency: Do English proficiency scores predict employee income in China?

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As English is the international language of the global economy, possessing sufficient English language skills or passing large-scale standardized proficiency tests is believed to have various economic returns. Situating this common belief about English proficiency test scores within the argument-based validity framework, economic returns of English proficiency can be considered a source of validity evidence at the extrapolation inference level. Using a survey design, this study investigated the relationship between English language proficiency and monthly income in China. We measured English proficiency using both self-assessment and the outcome of standardized proficiency tests in college (i.e., the College English Test), and included covariates related to educational and professional backgrounds, employment history, and city of residence. Results from ordinal regression analyses on 602 survey responses showed that several covariates can explain variance in monthly income. After controlling these covariates, standardized test outcomes can predict starting income but not current income. Coupled with survey items on English use in the workplace, the findings suggest that, although English might not be used as frequently as one

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would expect, English language proficiency still plays a role in the Chinese labor market. Implications for policy makers and individual job seekers are discussed.

Keywords: English language proficiency, income, English as a Foreign Language, self-assessment, College English Test

Introduction

As the most widely spoken language in an increasingly globalized society, English plays an important role in international business and trade. With the continued spread of English worldwide today, speakers of English as an additional language have already outnumbered speakers of English as a first language (Jenkins, 2006; McKay, 2003). Especially in international business, it is perhaps more likely to observe conversations in English between L2 speakers than between L1 speakers. Scholars have problematized the status of English, calling for reconceptualization of English with plurality and inclusivity (Kachru, 1985), referring to English as an international language (Matsuda & Friedrich, 2011), a lingua franca (Jenkins, 2006), or a global language (Erling, 2005). Although these different conceptual proposals have all challenged the notion of native speakers or native-like proficiency as an adequate or realistic goal for English teaching and learning, they differ as to whether achieving a high level of proficiency remains a useful pedagogical goal. In this study, we follow the conceptualization of English as an international language (EIL), which stresses the functions English plays in international, multilingual contexts but also recognizes the importance of developing proficiency in realizing the communicative functions of English (Matsuda, 2017). Specifically, we consider English language proficiency as the ability to use a globally comprehensible English to communicate with speakers from different local English varieties (McKay, 2003). Setting aside the conceptual and ideological evolution, the benefits of obtaining English language proficiency have seldom been questioned in educational and professional realms across the globe.

For many English-as-a-Foreign-Language (EFL) countries, English language skills are commonly demonstrated through passing large-scale English proficiency tests and viewed as human capital linked to higher potential in economic value (Chiswick & Miller,

2014). As such, the economic return of English language proficiency is an important instrumental motivation for learning English, and it is natural to relate greater English proficiency to higher employability and earnings. Although there have been studies in labor economics that research the economic return of English proficiency (e.g., Casale & Posel, 2011; Guo & Sun, 2014; Stohr, 2015), few studies in language testing have explored the relationships between English proficiency test scores and job placement and earnings. When situated within the argument-based validity framework (Chapelle et al., 2010; Kane, 1992), economic returns of English proficiency can be considered a source of validity evidence at the extrapolation inference level. The present study focuses on the context of China and explores the relationship between scores on standardized English language proficiency tests and job placement and earnings at different career stages, to examine the importance of English language proficiency in professional contexts over time.

Literature review

The status of English and importance of developing English language proficiency

Kachru (1985) classified countries and regions in terms of the spread of English worldwide under three concentric circles, namely, Inner Circle, Outer Circle, and Expanding Circle. The Inner Circle includes countries such as the UK, the US, Canada, Australia, and New Zealand, where English is used as a native language; the Outer Circle includes ex-colonial countries such as Singapore and the Philippines, where English is used as a second language; and the Expanding Circle includes countries such as China and Thailand where English is mainly learned as a foreign language in schools and is only used in limited professional domains. Although the world today is becoming increasingly globalized and the exposure to English is more and more diverse, this classification remains useful in understanding the landscape of English language education, the investment in English language learning, and the economic return of English language proficiency.

The role of English language proficiency in academic study and career advancement is undeniable in this era of globalization, especially among Expanding Circle countries. This

situation largely applies across Asian societies, where it is common practice for employers to require proof of English proficiency and conduct part of the job interview, if not the entirety, in English, especially in commercial sectors. Achieving high scores on national English proficiency tests (e.g., the College English Test [CET] in China) or international English proficiency tests (e.g., the TOEFL [Test of English as a Foreign Language], IELTS [International English Language Testing System], or TOEIC [Test of English for International Communication]) has been included in the top priorities for many college students (e.g., Hua, 2006), as having good English skills can help university graduates to procure well-paid jobs (Adamson, 2004).

Economic returns of English language proficiency within the argument-based validity framework

In this study, we consider the economic returns (i.e., employment and earnings) of English language proficiency as related to the consequences of test use. In doing so, we are attempting to examine the validity of using scores on general academic English proficiency tests in university settings for job application and career enhancement purposes. When placed within the argument-based validity framework (Kane, 1992; 2013), it falls under the extrapolation inference, which extends the score inferences regarding test-takers' abilities from the immediate assessment context to real-world contexts in the target language use domain, with the warrant that if the test truly measures the target construct, the inferences about test-takers' abilities based on test scores would be extendable to external contexts in the target domain. In the traditional view of validity, it can also be argued as evidence of predictive validity. Chapelle and Lee (2021) defined consequences, washback, or impacts of test use as:

> the effects of a test on how students learn, what teachers teach, and *more broadly on the lives of test takers and score users*. The need to take the consequences of test use into account in considering validity is widely recognized in language assessment. (p. 22; emphasis added)

In addition, they considered test use to be "the use of the test scores for making decisions about teaching, placement, university admissions, or *job certification*." (p. 22; emphasis added) Although the majority of (academic) English proficiency tests are not designed for

employment purposes, a complete dissociation between language testing in educational contexts and test impact and consequences in economic terms would be missing the elephant in the room.

On the one hand, the booming of English language education and the high stakes associated with large-scale English proficiency tests are, to a great extent, results of collective economic considerations from different stakeholders in the society. From this perspective, admissions into selective universities and obtaining certificates or competitive awards throughout elementary, secondary, and tertiary education can all be considered smaller steps in the long-term process of career development (i.e., securing well-paid jobs and climbing socioeconomic ladders). Although academic English proficiency tests might not be created for employment decisions, the reality is that this type of test is much more available, standardized, and perhaps affordable than those for employment purposes, which can be used to gauge the ability of test-takers in adequately performing relevant tasks in real-life situations in near or far futures. This might be the reason why many high-stakes general language proficiency tests or university exit tests have been used for selection (or deselection) in employment decisions. Furthermore, although there are several English proficiency tests for special purposes (e.g., the Occupational English Test), it remains more common to see this type of test in health, law, and more specialized business professions.

On the other hand, in most employment contexts the nature of English language use is closer to general academic English than to specialized English. In this connection, proof of English language proficiency in general academic English proficiency tests can be, though not a perfect one, an indicator of the likelihood that the prospective employee would succeed in the job responsibilities in the position. If this assumption holds, it is likely that employees with higher English proficiency scores might have a higher chance of securing a job offer and receive higher income or raises after employment. This assumption is reasonable, especially for university-level English proficiency tests that are created as an exit requirement, which aims to ensure that college graduates possess marketable competences (e.g., the CET in China). In this regard, any association between outcomes on English language proficiency scores and future income can be viewed as

validity evidence at the extrapolation inference level within the argument-based validity framework (Chapelle et al., 2010; Kane, 1992).

College English Test in China

The CET is a standardized examination designed to assess the English language proficiency of non-English major college students in China. Administered by the Chinese Ministry of Education, the CET plays a crucial role in evaluating students' English language skills, including listening, reading, writing, and speaking. The test aims to ensure that students acquire the necessary language abilities to meet the demands of their academic studies and future professional endeavors. The CET is divided into different levels, with the CET-4 and CET-6 being the most commonly taken. Over the years, research on the CET has revealed strong validity evidence at all inference stages, in particular with respect to domain definition, evaluation, generalization, and explanation (see Zheng & Cheng, 2008, for a test review). However, relatively few studies have explored the validity evidence at the extrapolation inference level.

Although there are criticisms regarding the construct representation of the CET, it is important to note that the CET gives colleges nationwide in China a uniform standard of comparison on the efficacy of English language teaching and learning (Gu & Liu, 2005; Zheng & Cheng, 2008). Before 2005, successful performance on the CET-4 was often a requirement for graduation, and many employers in China prefer applicants with the CET-4 or even CET-6 certifications (Gu & Liu, 2005). After the CET reform in 2005, the pass-fail distinction was eliminated in its official score interpretation guide. Although the use of English language proficiency tests as graduation requirements is no longer widely practiced (or at least this purpose is not made explicit), an argument can be made to justify the use of the CET as a measure to gauge prospective employees' English language proficiency during employment decisions, since it is the most widely taken English proficiency test As such, the requirement to take the CET has been retained in the majority of Chinese universities, and the distinction of pass vs. fail on the CET remains in use by stakeholders for professional purposes. In the labor market, achieving high scores (or obtaining the so-called CET certificates) can enhance students' competitiveness in the job market, where English proficiency is highly valued. The fact that the CET is taken by

all university undergraduate students provides a common metric for employers to compare their English proficiency on a level playing field.

Economic returns of English language proficiency in labor economics

In labor economics, language skills are viewed as an important form of human capital because they are obtained at the cost of time, effort, and out-of-pocket expenses (Zhou et al., 2020). Research in labor economics has employed large-scale survey techniques to uncover the relationship between English language proficiency and earnings in the workplace. These studies have found positive returns to language skills in international trade (Melitz, 2008), the labor market (Paolo & Tansel, 2015), consumption (Wang et al., 2016), and saving behavior (Chen et al., 2019). The relationship between English language ability and income has been examined in both English-dominant and non-English-dominant countries and regions. In English-dominant contexts, from an immigration perspective, the ability to speak the language of the host society influences the immigrants' social interaction as well as their success in the labor market (Hwang et al., 2010). Even though the relationship between the two factors is not direct and can be conditional (e.g., varying across immigrant populations or community characteristics), language ability still plays a vital role for immigrants when considering economic returns. In non-English-dominant contexts, a number of studies in countries around the world have also observed economic returns to speaking English (e.g., Guo & Sun, 2014; Stohr, 2015; Ufier, 2016; Wang et al., 2015). For example, by employing TOEFL test scores, Ufier (2016) found that greater English language proficiency leads to higher national incomes and exports. This makes sense because having a high English proficiency level allows employees to work in multilingual corporate settings and perform multiple roles where international communication is needed. Furthermore, for many employers in EFL countries, the ability to speak English can imply productivity and other unobserved skills such as better cognitive and analytic capacities (Stohr, 2015).

Among the abovementioned studies, only a few have focused on China. After experiencing a "roller-coaster ride of changing policy directives in foreign language education" (Bolton & Graddol, 2012, p. 4), English became recognized as an important skill and subject of learning for the purpose of modernization and 'international stature' (Lam, 2002, p. 247).

Since the 2000s, the popularity of English in China has been unprecedented. According to *China Daily*, the number of English learners in China had already reached 400 million by 2010, which was approximately one-third of China's population (Wei & Su, 2012). Although the status of English has been controversially influenced by the government's recent policies to regulate K-12 English language education (especially in the private sectors; Wu & Koh, 2022), English remains an important 21st-century skill desired by Chinese students, especially in higher education contexts.

Among the few studies, Guo and Sun (2014) investigated the return to English proficiency of Chinese university graduates and found significant effects of English proficiency on college graduates' starting salaries and their future earning potential. Specifically, for every one standard deviation increase in English scores, there was a 3.3% difference in the starting salary of university graduates. Wang et al. (2015) used the China Labor-force Dynamics Survey data to examine the economic returns of English proficiency in China and found that the returns are substantial: for every 1% increase in English proficiency, there was a 5.7% increase in income. They further suggested that the returns were especially strong for urban residents in the coastal areas, as well as people with better education and of higher occupational positions. Zhou et al. (2020) analyzed the effects of second language skills on labor market outcomes in Hong Kong. They found that English language skills were associated with improved labor market performance and the premium for English was much larger than that for Mandarin.

Potential influential factors missing from applied linguistics research

Aside from the limited evidence on economic returns, there seem to be mixed voices as to the extent to which English is needed in the workplace in China. In a survey study, Wei and Su (2012) found that, although the overall popularity of English was evident in their data, the number of people who attributed an important role to English in their daily lives was a small percentage of the participants. This forms a clear contrast with the use of English in Outer Circle countries such as India, Malaysia, Singapore and the Philippines. In an Expanding Circle country like China, the use of English in China is restricted to a small number of domains. While it is undeniable that sectors related to international commerce, international relations, tourism, and media have a greater need of English,

other sections might not have such a strong need. Similarly, it is possible that English is more commonly used in more internationalized cities. Thus, the economic return of English proficiency might differ across regions, industry sectors, and job positions. This requires a better understanding of the differences across sectors and whether English language proficiency is a strong requirement for job application or career advancement. Similarly, when using English language proficiency to predict earnings, these influential factors should be taken into account.

Additionally, although the economic return of English language proficiency has been examined in the field of labor economics, little relevant research has been conducted in language testing. Due to the researchers' lack of expertise in language education, previous research tends to operationalize English proficiency only through one or two items in the survey (e.g., *how do you rate your English language skills?*). Although it is difficult to include a variety of language proficiency measures in a survey, the limitations of using self-assessment to measure proficiency should be acknowledged (Li & Zhang, 2021; Park et al., 2021). A smaller number of studies used English proficiency test scores, but these studies tend not to consider the participants' profession, the city they live in, their daily use of English in the workplace, as well as the role of English in job application and career advancement. These factors can modulate the relationship between English language proficiency and earnings.

Therefore, building on previous studies, this survey study attempts to improve the instrument and examines how English ability affects income in China. In addition to quantitative measurement of language proficiency (i.e., self-reported measures and test scores), more survey items were created to obtain more fine-grained information about participants' career advancement, demographics, their academic and professional background, as well as the role of English in their professional contexts. The following three research questions were raised:

(1) Do participants' self-assessed English proficiency levels predict income, after controlling for other influential factors?
(2) Are participants who pass standardized English proficiency tests more likely to have higher income, after controlling for other influential factors?

(3) What is the role of English in the participants' daily work contexts?

Methodology

This study employs a quantitative survey research design to examine the relationship between English language proficiency and income. Specifically, we used a questionnaire to collect information about individuals' educational and professional backgrounds, employment history, income, English language proficiency, and the role of English in their work contexts. Responses to the survey were coded and subjected to statistical analyses to unpack the relationship between English language proficiency and income.

The Economic Returns of English Proficiency (EREP) survey

The EREP survey was aimed at collecting information in China. The questionnaire consisted of mainly selected-response questions, with a total of three sections. Thirty-seven items were created, targeting areas such as employment status, English ability and skills, as well as the relationship between job and English proficiency. The first section of the survey consisted of questions about demographic information, including participants' gender, age, level of education, and city of residence. The second section inquired about English proficiency (e.g., standardized testing measurement and self-evaluation) and current employment (e.g., income and type of position). It also tapped into the relationship between the two factors (e.g., *How much impact does a high level of English proficiency have on your pay raises?*). The last section of the questionnaire included one constructed-response item asking the participants to comment on the importance of English in the workplace. The questionnaire was written in Mandarin Chinese and administered online via WenJuanXing, a Chinese web-based survey tool (https://www.wjx.cn).

Participants

We adopted a snowball sampling strategy to distribute the survey through WeChat, the most popular social media platform in China. This sampling strategy is advantageous as it is cost-efficient and can reach populations that are otherwise hard to access (Chan, 2020; Gill, 2020). We first recruited five participants in each of the three major regions

in China, namely, the north, east, and the south. These participants also represented a diversity in their profession and highest degree earned (i.e., from high school diploma to doctoral degrees). Next, we asked them to distribute the survey widely in their social networks. This snowball recruitment strategy resulted in a total of 637 participants in this study. The participant pool had an equal representation from both genders (51.2% for male and 48.8% for female). In terms of age, most respondents (74.3%) were above the age of 30; most of the participants had a bachelor's degree from a four-year college. These participants also represented a wide range in years of graduation for their highest degree, namely, within 10 years (n = 280), between 10 and 20 years (n = 265), more than 20 years (n = 92). No currently-enrolled college students were included as participants in this study.

Independent and dependent variables

Demographic variables

We included a set of demographic questions in the survey to inquire about the participants' sex, age, city of residence, highest degree, type of institution, graduation year, and major. These variables were treated as controlled independent variables (i.e., covariates) in our statistical analyses.

Measures of English language proficiency

We used both self-assessments and results from standardized English proficiency tests to measure English language proficiency of the participants.

Self-assessment

We included items to ask participants to evaluate their English language proficiency on a Likert scale and identify their strongest English subskill. We included five subskills, namely, listening, reading, speaking, writing, and translating. Translating ability was added because it is an important skill taught in English courses in China and usually viewed as a separate skill in English language education.

Standardized English proficiency test scores

As mentioned in the literature review section, the CET is developed to measure the English proficiency of college students in China and is often taken to fulfill part of students' graduation requirement. While the concept of passing/failing for the CET-4 was officially eliminated in 2005, this perception is still maintained by employers and other stakeholders in the society; that is, a passing score of 60 out of 100 before the 2005 test reform and 426 out of 710 for the new test (Jin, 2008; Guo & Sun, 2014). In addition, a passing score (426) on the CET-4 is required in order to be eligible to take the CET-6. Thus, for the purpose of this study, as we collected data from people who had taken the CET over time, we operationalized their test scores into three categories: those who passed the CET-4, those who passed the CET-6, and those with no CET certificate. These test outcomes were treated as main independent variables of this study.

Measures of job and income

We included a series of questions to survey the participants about their first jobs after graduation and current jobs. Specifically, we asked them to indicate the industry they work in, type of employer, type of job position, and monthly income at both jobs[2]. Whereas starting and current monthly income were treated as dependent variables in the statistical analyses, industry, type of employer, and type of job position were treated as covariates because they might influence the relationship between English proficiency and income.

Measures of English use in daily work context

In addition to measures of English proficiency and job income, we also included a list of questions asking the participants whether, and the extent to which, English is used or valued in their daily work context. Responses to these questions were analyzed to provide

[2] It is possible that some respondents had been working for the same employer since graduation from their highest degree. In those cases, we asked the respondents to enter the same employer information for both starting and current jobs but also made sure to remind the respondents to indicate the starting and current monthly income separately.

explanations for the findings regarding the relationship between English language proficiency and income. Table 1 presents a list of variables examined in this study.

Table 1. Covariate, independent and dependent variables

Category	Variable	Type	Levels	Level labels
Covariate	**Gender**	Nominal	2	*Male, Female*
	City of residence	Ordinal	3	*Tier 1, Tier 2, Tier 3 & 4*
	Discipline	Nominal	5	*Business, Science and engineering, Humanities and fine arts, Social science, Other*
	Starting position **Current position**	Nominal	5	*Human resources, Management, Marketing, Technical, Others*
	Employer type	Nominal	5	*Government and non-profit organizations, International companies, Domestic private companies, State-owned companies, Other*
	Highest degree	Ordinal	4	*No college degree, Bachelor, Master, Doctorate*
	Graduation time	Ordinal	3	*Before 2000, 2001-2010, after 2010*
Independent	**Self-assessed English proficiency**	Ordinal	4	*Do not speak English, Have difficulty with daily conversation, Can handle daily conversation, Can use English effectively across contexts*
	CET	Ordinal	3	*Passing CET-6, Passing CET-4, No CET certificate*
Dependent	**Starting monthly income** **Current monthly income**	Ordinal	8	*< ¥1000, ¥1001 - ¥2000, ¥2001 - ¥3000, ¥3001 - ¥5000, ¥5001 - ¥10000, ¥10001 - ¥20000, ¥20001 - ¥30000, > ¥300000*

Note. ¥ = Renminbi (RMB)

Data analyses

First, we scrutinized all the completed questionnaires (n = 637) for missing values or outliers. We also removed invalid responses where the respondents either did not reveal their income or responded with contrasting information on trap items, which are questions used for attention checks (Oppenheimer et al., 2009). Ultimately, a total of 602 questionnaires were kept for data analysis. Next, we performed descriptive statistics on both the independent and dependent variables. In this study, our dependent variables were the starting and current monthly income, and the main independent variables of

interest were self-assessed English proficiency and CET test outcome. In addition, other influential factors, including demographic and job placement variables, were treated as covariates. Because the data were categorical variables, we summarized them in frequencies and proportions. To answer both RQ1 and RQ2, we used ordinal regression models to examine the relationship between measures of English language proficiency and income because the dependent variables were ordered categorical variables. For RQ1, we entered self-assessed English proficiency level as the independent variable, demographic and job placement variables as covariates, and the monthly income variables as the dependent variables. For RQ2, we maintained the same regression model but changed the independent variable from self-assessed English proficiency level to CET test outcome. For both research questions, the dependent variables were treated as a factor with eight levels. Odds ratios were calculated based on the regression. Independent observations were assumed (i.e., each participant completed the survey only once). The assumption of no multicollinearity was also checked through VIF values (VIF < 5) while linearity between logits and predictor variables was tested via the Brant test (Brant, 1990); the results suggested that these assumptions were not violated. All analyses were conducted using R version 4.1.2 via RStudio and the significance level was set at $p < .05$. To answer RQ3, we examined the frequency distributions of the survey items on the role of English at work and the perceived relationship between English language proficiency and income.

Results

Descriptive statistics

The descriptive statistics of starting and current monthly income are presented in Table 2. In terms of monthly income, while 75.08% of the respondents started under ¥5,000, 78.24% of them reported current monthly earnings above ¥5000. In terms of self-assessed English proficiency, more than half of them (52.49%) considered themselves to have difficulty with daily conversation in English (i.e., basic-level users), followed by presumably intermediate learners that had no difficulty engaging in daily conversation (32.06%), then fluent speakers (9.8%) and people who did not speak English (5.65%). In

terms of language skills, 49% of the respondents believed the strongest English skill they possessed was reading. This was followed by listening (20.6%), writing (13.29%), speaking (11.3%), and translating (5.81%). This observation is consistent with previous studies demonstrating that Chinese EFL learners are more confident with receptive skills such as reading or listening (Wen, 2018; Zhang & Yan, 2018). In terms of CET test outcome, 27.74% of the respondents had passed the CET-6 before graduation, with 32.39% passing the CET-4 and 39.87% not passing the CET-4. Since we performed ordinal regression analyses with self-assessed English proficiency level and the CET test outcome as independent variables separately, we also examined the Spearman rho correlation between the two variables to ensure that they were not strongly correlated ($\rho = .134$). The weak correlation suggests that separate ordinal regression analyses with the two variables are unlikely to yield redundant information.

RQ1: Do participants' self-assessed English proficiency levels predict income, after controlling for other influential factors?

The ordinal regression results are presented in Table 3. We performed separate regression analyses to predict starting and current monthly income. In both models, self-assessed overall English proficiency was entered as the main independent variable. However, as one can reasonably expect, monthly income can be influenced by factors related to city of work and residence, type of employer, and type of job position as well as the employee's credentials such as highest degree, major, educational institution, and graduation time. Thus, we entered these variables and respondent's gender as covariates in the regression models. The result showed some contrasting results regarding factors influencing starting monthly income and current monthly income. Because of the inclusion of covariate variables, it is more meaningful to first consider these variables before moving on to the results of the main variables of interest.

Table 2. Descriptive statistics for the independent and dependent variables

Monthly income				
	Starting		**Current**	
	n	**%**	**n**	**%**
< ¥1000	96	15.95%	11	1.82%
¥1001 - ¥2000	112	18.60%	11	1.82%
¥2001 - ¥3000	100	16.61%	17	2.82%
¥3001 - ¥5000	144	23.92%	92	15.28%
¥5001 - ¥10000	99	16.45%	217	36.05%
¥10001 - ¥20000	26	4.31%	147	24.42%
¥20001 - ¥30000	9	1.49%	51	8.47%
> ¥300000	16	2.65%	56	9.30%

Note. ¥ = RMB

Self-assessed overall English language proficiency		
	n	**%**
Do not speak English	34	5.65%
Have difficulty with daily conversations	316	52.49%
Can handle daily conversations	193	32.06%
Can use English freely across contexts	59	9.80%

Self-assessed strongest English subskill		
	n	**%**
Reading	295	49.00%
Listening	124	20.60%
Writing	80	13.29%
Speaking	68	11.30%
Translation and interpretation	35	5.81%

CET test outcome		
	n	**%**
Passing CET-6	167	27.74%
Passing CET-4	195	32.39%
No CET certificate	240	39.87%

Among the covariates, we noticed four trends. First, gender did not show statistical significance in predicting either starting or current starting monthly income (OR_{gender_start} = 1.098, p = .538; $OR_{gender\_current}$ = 0.883, p = .431). Second, job position, type of institution, and major and discipline had a significant impact on current monthly income but not starting monthly income. To unpack these impacts, in terms of job positions, working in a marketing (155%), management (326%), or technical (93%) position suggested higher odds of earning higher income than working in a Human Resources (HR) position in the current workplace ($OR_{marketing\ vs.\ HR}$ = 2.546, p = .012; $OR_{management\ vs.\ HR}$ = 4.261, p <.001; $OR_{technical\ vs.\ HR}$ = 1.929, p = .007). In terms of institution type, graduates from non-key domestic universities and those without a college degree were associated with a 59% and 63% decrease respectively in the odds of earning a higher income than graduates from key domestic universities ($OR_{non\text{-}key\ vs.\ key}$ = 0.409, p < .001; $OR_{no\ degree\ vs.\ key}$ = 0.367, p = .010). Across majors and disciplines, individuals with degrees in humanities and fine arts were associated with a 42% decrease in the odds of earning a higher salary in the current workplace than individuals with degrees in business ($OR_{humanities\ and\ arts\ vs.\ business}$ = 0.584, p = .027).

Third, type of employer and place of residence influenced both kinds of income, but the impact seemed stronger on current monthly income. Specifically, with regard to starting salary, for those working in a private domestic company, the odds of earning a higher income were 63% higher than those working for government and non-profit organizations ($OR_{private\ vs.\ government}$ = 1.625, p = .018); as for current salary, for those working in a private domestic or an international company, the odds of earning a higher income were 155% and 492% higher respectively than for those working for government and non-profit organizations ($OR_{private\ vs.\ government}$ = 2.546, p = .001; $OR_{international\ vs.\ government}$ = 5.919, p < .001). In terms of city of residence, residing in a Tier 2 city (as compared to a Tier 1 one) suggested lower odds (44% lower) of earning higher income. This was also the case for Tier 3 & 4 cities (47% lower) in comparison with Tier 1 cities ($OR_{2\ vs.\ 1\_start}$ = 0.565, p = .002; $OR_{34\ vs.\ 1\_start}$ = 0.533, p = .002). This gap further widened (51% and 70 % lower) when we looked at current monthly income ($OR_{2\ vs.\ 1\_current}$ = 0.486, p < .001; $OR_{34\ vs.\ 1\_current}$ = 0.3, p < .001).

Fourth, although the highest degree and graduation time had a significant impact on both starting and current monthly income, the impact of graduation time was in different directions. Specifically, more recent graduates had 79% higher odds of earning a higher starting monthly salary ($OR_{graduation\_time\_start}$ = 1.785, $p < .001$); however, because a later graduation time tends to mean a shorter employment history, when looking at current income, individuals who graduated later had 51% lower odds of earning a higher income ($OR_{graduation\_time\_current}$ = 0.494, $p < .001$).

Turning to the main independent variable, after controlling for all the covariates, self-assessed English proficiency did not appear to significantly predict starting monthly income ($OR_{proficiency\_start}$ = 1.098, p = .420). However, this variable remained as a significant predictor for current monthly income ($OR_{proficiency\_final}$ = 1.453, p = .002), suggesting that English proficiency might not make a difference in income for fresh graduates, but in the long run, having a higher English proficiency tends to be associated with higher odds of earning a higher monthly income.

RQ2: Are participants who pass standardized English proficiency tests more likely to earn higher income, after controlling for other influential factors?

We followed the same model structure to answer RQ2, but instead of self-assessment of English proficiency, we used test outcome on the CET as the main independent variable to predict both starting and current monthly income. The summary statistics are presented in Table 4. Following the same reporting structure, we first summarize the findings regarding covariate variables and then move on to the results of the main variables of interest.

Table 3. Summary of ordered logistic regression of self-assessed proficiency on monthly income

	Starting			Current		
Variables	**OR**	**95% CI**	***p***	**OR**	**95% CI**	***p***
Gender (reference group: *Female*)						
Male	1.098	(0.815, 1.481)	.538	0.883	(0.648, 1.203)	.431
Job position (reference group: *Human resources*)						
Marketing	1.245	(0.647, 2.401)	.512	2.546	(1.231, 5.28)	.012
Management	0.911	(0.571, 1.455)	.697	4.261	(2.627, 6.945)	<.001
Technician	0.903	(0.569, 1.432)	.664	1.929	(1.194, 3.126)	.007
Other	0.653	(0.345, 1.234)	.190	0.878	(0.462, 1.668)	.691
Employer type (reference group: *Government and non-profit organizations*)						
Private company	1.625	(1.089, 2.432)	.018	2.001	(1.318, 3.043)	.001
International company	1.281	(0.593, 2.776)	.529	5.919	(2.631, 13.557)	<.001
State company	1.711	(1.015, 2.886)	.044	1.286	(0.765, 2.164)	.343
Other	1.274	(0.732, 2.22)	.391	1.277	(0.725, 2.248)	.397
Discipline (reference group: *Business*)						
Science engineering	1.527	(0.946, 2.468)	.083	1.038	(0.64, 1.684)	.879
Humanities and arts	1.460	(0.916, 2.331)	.112	0.584	(0.362, 0.938)	.027
Social science	1.100	(0.638, 1.9)	.731	1.335	(0.766, 2.329)	.308
Other	1.665	(0.898, 3.09)	.106	0.938	(0.505, 1.74)	.840
Highest degree	1.760	(1.268, 2.445)	.001	1.677	(1.197, 2.35)	.003
Graduation time	1.785	(1.393, 2.291)	<.001	0.494	(0.383, 0.636)	<.001
Educational institution (reference group: *Key university*)						
No college degree	1.306	(0.615, 2.776)	.488	0.367	(0.171, 0.783)	.010
Non-key university	0.858	(0.562, 1.309)	.476	0.409	(0.265, 0.629)	<.001
Overseas university	1.612	(0.799, 3.233)	.180	0.702	(0.329, 1.488)	.356
City of residence (reference group: *Tier 1 cities*)						
Tier 2 cities	0.565	(0.392, 0.813)	.002	0.486	(0.331, 0.711)	<.001
Tier 3 & 4 cities	0.533	(0.357, 0.793)	.002	0.300	(0.196, 0.457)	<.001
Self-assessed English proficiency	1.098	(0.875, 1.379)	.420	1.453	(1.148, 1.841)	.002

Note. OR = odds ratio; CI = confidence interval

Among the covariates, we notice nearly identical trends as in the ordinal regression analysis on RQ1 (see Table 4 for the effects of all covariates). Since our main focus is on the independent variable (i.e., the CET test outcome) rather than covariates, we will concentrate on interpreting whether passing the CET has an impact on starting and current monthly income. After controlling for all the covariates, while passing the CET-4 did not appear to lead to a significant difference in starting monthly income ($OR_{CET\text{-}4\_start}$ = 1.318, p = .152), individuals passing the CET-6 had 64% higher odds of earning a higher starting monthly income than individuals who did not pass any CET test ($OR_{CET\text{-}6\_start}$ = 1.635, p = .014). This suggests that obtaining a CET-6 certificate tends to have a positive impact on income for fresh graduates. However, when looking at current monthly income, passing either the CET-4 or CET-6 did not appear to make a difference in monthly income ($OR_{CET\text{-}4\_current}$ = 0.739, p = .130; $OR_{CET\text{-}6\_current}$ = 1.067, p = .754). Taken together, these findings suggest that although obtaining a CET-6 certificate appears to significantly predict starting income, this impact gradually fades away in the long run.

RQ3: What is the role of English in the participants' daily work contexts?

To explore plausible explanations for the impact of English proficiency (or the lack thereof), we included a list of survey items asking respondents about the role of English in their work contexts and their perceptions on the relationship between English language proficiency and earnings. Table 5 presents the distribution of responses on these items.

We make the following observations from the survey responses. First, the use of English at work in China did not seem to be as frequent as one might expect. When asked about whether English was a pertinent skill to job responsibilities, 78.90% of participants reported either a weak or no relationship. When asked about the frequency of English use at work, 74.08% of the participants reported either almost never or sometimes. Moreover, although the majority of the participants self-assessed into the basic or intermediate proficiency levels, 67.11 % of them considered their English proficiency to be either sufficient or mostly sufficient. In contexts where they needed to use English, the participants reported listening to be the most important subskill. Given that listening is the second strongest English subskill reported by the participants, it seems to explain in part why they considered their English proficiency level to be sufficient.

Table 4. Summary of ordered logistic regression of CET test outcome on monthly income

	Starting			Current		
Variables	**OR**	**95% CI**	***p***	**OR**	**95% CI**	***p***
Gender (reference group: *Female*)						
Male	1.063	(0.788, 1.434)	.690	0.892	(0.654, 1.215)	.468
Job position (reference group: *Human resources*)						
Marketing	1.191	(0.614, 2.316)	.605	2.448	(1.168, 5.141)	.018
Management	0.938	(0.586, 1.501)	.789	4.362	(2.686, 7.12)	<.001
Technician	0.921	(0.579, 1.465)	.729	1.944	(1.202, 3.154)	.007
Other	0.699	(0.366, 1.331)	.276	0.897	(0.471, 1.709)	.741
Employer type (reference group: *Government and non-profit organizations*)						
Private company	1.297	(0.869, 1.938)	.204	1.961	(1.292, 2.98)	.002
International company	1.260	(0.586, 2.72)	.554	6.709	(2.985, 15.36)	<.001
State company	1.464	(0.87, 2.466)	.151	1.284	(0.765, 2.158)	.344
Other	1.105	(0.634, 1.927)	.725	1.288	(0.73, 2.271)	.382
Discipline (reference group: *Business*)						
Science engineering	1.598	(0.984, 2.599)	.059	1.066	(0.656, 1.73)	.797
Humanities and arts	1.590	(0.998, 2.539)	.051	0.654	(0.408, 1.046)	.047
Social science	1.018	(0.587, 1.766)	.950	1.307	(0.751, 2.279)	.344
Other	1.789	(0.948, 3.378)	.072	0.944	(0.51, 1.746)	.854
Highest degree	1.708	(1.229, 2.379)	.001	1.630	(1.15, 2.311)	.006
Graduation time	1.677	(1.31, 2.149)	<.001	0.513	(0.397, 0.661)	<.001
Educational institution (reference group: *Key university*)						
No college degree	1.526	(0.713, 3.27)	.276	0.266	(0.122, 0.578)	.001
Non-key university	0.958	(0.633, 1.451)	.840	0.368	(0.239, 0.563)	<.001
Overseas university	1.776	(0.88, 3.574)	.108	0.817	(0.382, 1.741)	.601
City of residence (reference group: *Tier 1 cities*)						
Tier 2 cities	0.350	(0.241, 0.506)	<.001	0.482	(0.329, 0.706)	<.001
Tier 3 & 4 cities	0.300	(0.2, 0.449)	<.001	0.282	(0.184, 0.429)	<.001
CET test outcome (reference group: *no CET certificate*)						
Passing CET-4	1.318	(0.904, 1.925)	.152	0.739	(0.499, 1.093)	.130
Passing CET-6	1.635	(1.105, 2.421)	.014	1.067	(0.71, 1.605)	.754

Note. OR = odds ratio; CI = confidence interval

Second, although passing the CET seemed to be an important goal for job seekers, English was not necessarily a requirement for a job application. 69.10% of participants reported that English proficiency was not a requirement when applying for jobs; among the remaining 186 participants, most of them (96.77%) reported that the employer would either require a CET certificate (passing the test) or a job interview in English. After being employed, 93.85 % of the participants reported that they were not required to take an English test.

Third, employers in China also tended not to provide English training or assessment for their employees, and having an improved English proficiency did not seem to bring big raises once employees were hired. When asked if a higher English proficiency would lead to a raise, among the small percentage (13.46%) of participants who actually received English training, around half of them (50.62%) did not receive a raise because of the training or improved English proficiency. We further asked those who had never received English training at work whether they thought having a higher English proficiency level would lead to a raise. The responses showed that 27.64 % of the respondents were not sure, 25.72 % reported no, and 15.74 % indicated a possible raise of less than 10%. When we asked participants about their general perception on the relationship between English proficiency level and salary, 86.22 % of the respondents reported either a weak or no relationship.

Discussion

This study investigated the economic returns of English proficiency in China. Controlling for a range of covariates, we used ordinal regression to show a positive but complex relationship between English proficiency test outcome and income. Below we further discuss the findings in light of the research questions we raised.

Table 5. Survey responses related to English use, assessment, and training at work

Is English a pertinent skill to your job responsibilities?					
Not relevant		*Relevant to some extent*		*Directly relevant*	
232 (38.54%)		243 (40.37%)		127 (21.10%)	
Which is the most needed English subskill to your job responsibilities?					
Reading	*Listening*	*Speaking*	*Writing*	*Translation and interpretation*	
110 (18.27%)	234 (38.87%)	148 (24.58%)	46 (7.64%)	64 (10.63%)	
How often do you use English at work?					
Almost never		*Sometimes*	*Often*	*Every day*	
251 (41.69%)		195 (32.39%)	79 (13.12%)	77 (12.79%)	
How do you evaluate your English language proficiency in relation to your job responsibilities?					
Insufficient		*Sometimes sufficient*	*Mostly sufficient*	*Sufficient*	
69 (11.46%)		129 (21.43%)	234 (38.87%)	170 (28.24%)	
Was English proficiency a required qualification during your job application?					
Yes			*No*		
186 (30.90%)			416 (69.10%)		
☐ If YES, what was the English proficiency requirement?					
Passing English tests		*Passing English job interviews*		*Other*	
146 (78.49%)		34 (18.28%)		6 (3.23%)	
Have you been required to take English proficiency tests after you started working?					
Yes			*No*		
37 (6.15%)			565 (93.85%)		
Did any of your employers provide English training for their employees?					
Yes			*No*		
81 (13.46%)			521 (86.54%)		
☐ If YES, did this kind of training result in a raise?					
No	*<10%*	*10-30%*	*31-50%*	*>50%*	*Not sure*
41 (50.62%)	13 (16.05%)	6 (7.41%)	6 (7.41%)	6 (7.41%)	9 (11.11%)
☐ If NO, do you think a higher English proficiency level will get you a raise?					
No	*<10%*	*10-30%*	*31-50%*	*>50%*	*Not sure*
134 (25.72%)	82 (15.74%)	136 (26.10%)	64 (12.28%)	42 (8.06%)	144 (27.64%)
In general, how would you evaluate the relationship between English proficiency and income?					
No relationship		*Maybe, but a weak relationship*		*Yes, a strong relationship*	
271 (45.02%)		248 (41.20%)		83 (13.79%)	

Covariates relevant to English proficiency and income

Since income is influenced by a wide range of factors, we included several covariates to account for potential unexplained variance by English proficiency, including gender, discipline, highest degree, graduation time, educational institution, type of position, type of employer, and city of residence. Although these variables were entered as covariates, they represent important factors influencing income in the Chinese labor market. Neglecting the impact of these factors might misrepresent the relationship between English language proficiency and income. In this study, we found several meaningful covariates. First, city of residence significantly predicted both starting and current monthly income, with higher earnings reported in Tier 1 cities than in cities from Tier 2, 3, and 4. Second, recent graduates were more likely to make a higher starting income. The impact of graduation time might be an artifact of inflation over time, but this impact fades away as the employment history increases. Third, highest degree was a significant predictor of both starting and current monthly income, which aligns with the salary expectations in most countries. Fourth, while discipline and type of job position did not appear to predict starting income, they became significant predictors for current monthly salary. One possible explanation of this finding is that type of position might make a difference in salary, but since fresh graduates tend to start with entry-level jobs, type of position might not show a clear impact yet; as they move up levels, the difference across positions becomes more and more distinct. Fifth, employees working at international and domestic private companies tended to earn higher income than employees working in government and non-profit organizations. Finally, discipline seemed to show similar trends as job positions in that fresh graduates tend to make similar earnings across disciplines, but when examining current income, respondents with degrees in humanities and arts tend to make less than those with degrees in business.

The findings regarding covariates make a meaningful contribution to the current literature on the economic returns of English language proficiency. As argued in the literature review section, previous research in labor economics tends to include none or a small set of covariates when examining the relationship between English language proficiency and income. Although those studies tend to feature large sample sizes (e.g.,

Guo & Sun, 2014; Wang et al., 2015), the lack of attention to other influential factors identified in applied linguistics literature can limit the interpretation of their findings. In this study, examining the different impact of covariates (especially those related to educational background and job positions) on initial and current income creates a fuller picture of how English language proficiency can influence job prospects over time. This finer-grained information also provides concrete evidence for the importance of English language education, possibly making the economic returns of English proficiency a type of validity evidence for general academic English proficiency tests at the extrapolation inference.

The relationship between English proficiency test outcome and income in China

The findings of this study indeed suggest a meaningful relationship between English proficiency and income; however, the two measures of English proficiency showed different relationships with starting and current monthly income. Specifically, the ordinal regression results showed that, whereas self-assessed English proficiency tended not to predict starting monthly income, it was a significant predictor of current monthly income. That is, people with higher English proficiency were more likely to have higher income in the current workplace. This finding concurs with previous studies (Guo & Sun, 2014; Wang et al., 2015), indicating the importance of English ability in the Chinese job market. For individuals, enhancing English ability could perhaps increase one's competitiveness in the job market, and the lack of English language proficiency puts job seekers into a relative disadvantage in terms of earning in the long run.

That said, interestingly, the CET test outcome showed an opposite trend as compared to self-assessed English proficiency. When we examined starting monthly income, passing the CET-6 was associated with higher earnings, after controlling for all covariates. However, the CET test outcome no longer predicted earnings in the current workplace. At a first glance, this finding seems to contradict or undermine the widely-perceived importance of the CET for employment purposes. However, the different impact on starting and current income suggests that passing the CET does make a difference in starting income, but this impact weakens as employees' English proficiency levels change

over time. Instead, despite being questioned as a valid measure of language proficiency (e.g., Li & Zhang, 2021; Ross, 1998), self-assessed English proficiency is more current compared with the CET test outcome and thus can better predict current monthly income.

This finding does not necessarily weaken the validity argument of the CET at the extrapolation inference stage. It should be noted that in this study self-assessment was performed on the participants' current proficiency level. Therefore, it is possible that this inflated the predictive power of self-assessment on income. Nevertheless, we do not find the lack of long-term impact of CET outcome to be unexpected or unreasonable. As many participants had taken the CET at the university a while ago, a variety of influential factors can play a role in reshaping their English language proficiency levels. The fact that the CET outcome (a measure of the participants' past English language proficiency) predicted the starting income and the self-assessment (a measure of the participants' current English language proficiency) predicts the current income provides supportive evidence for the economic returns of English language proficiency.

The role of English in daily work contexts in China

Although this study largely conforms with previous findings on the positive association between English language proficiency and income, the survey responses on the role of English in daily workplace revealed a more complex picture. The majority of the respondents did not use English much to perform their job responsibilities. Moreover, despite their generally low self-assessed proficiency, most respondents considered their English skills to be sufficient at work. One possible explanation for this finding is that, although English might be needed at work, the frequency of English use might be much lower than expected, especially when compared to the time and effort dedicated to studying English in college. This disproportion might lead to a perception that English skills are no longer important after they start working. For another explanation, the fact that CET outcome is a significant predictor of starting income suggests that English skills might be used as a screening criterion when employers select their candidates. When employees enter into the workplace, by virtue of direct selection (Ginther & Yan, 2018), they might have possessed more or less sufficient English skills for employment purposes. Thus, at that stage, whether or not one passes the CET test might no longer become a

significant predictor for raises and promotion. Finally, it is also possible that English proficiency indeed has an impact on income, but the impact might be much smaller than other factors such as type of position and employer (as reflected in the odds ratios reported in Tables 3 and 4).

Limitations and conclusions

This study has several limitations. First, it should be noted that the current data only included (1) participants who work in China and (2) those who successfully obtained work after graduation and who continue to work. The results might be different if the following participants were included: (1) those working internationally or (2) those who graduated but did not obtain work or who left the workforce. Second, the participants did not include English majors who are required to take the Test for English Majors (TEM); thus, the findings of the study might not be generalizable to this group of test-takers. Third, as a survey study, this study has a small sample size, especially compared with previous research which used existing data collected by government agencies. Adopting a snowball sampling strategy with a small sample size could result in sample selection bias where some members of a population were not adequately represented (e.g., currently low-income individuals). Fourth, although, as an improvement over previous studies, we used two measures of English proficiency (i.e., self-assessment of English language proficiency and self-reported CET outcome), the limitations of using self-assessment to measure proficiency should be acknowledged (Park et al., 2022). Although it is difficult to include a variety of language proficiency measures in a survey, more survey items with clearer instructions can be included to obtain more fine-grained information about participants' English language proficiency. We acknowledge that by developing new survey items to better measure English language proficiency and work contexts, this study might suffer a trade-off between improved construct representation and the lack of access to large-scale existing data. We hope that future research can utilize or improve the current survey to collect more data to test the validity of the findings observed in this study.

For another limitation, we based this study in China; thus, the generalizability of the study might be limited. Although China might be similar to other EFL countries in terms of the

status of English, it has a highly examination-driven educational system, where the stakes and status of large-scale tests are deeply rooted in selection—or deselection, to be more precise—for higher education and employment purposes. In contexts where high-stakes tests are less common and the labor market is less competitive, the relationship between English proficiency test scores and income might be different. Future research can conceptually replicate this study in another context to examine the generalizability of our findings. Finally, because the CET experienced significant changes in 2005, future research can examine whether the relationships between test scores and earning might have changed along with changes in the test.

The limitations notwithstanding, this study conforms with previous findings on the positive economic returns of English proficiency in China's labor market. The findings of this study showed a positive but complex relationship between English proficiency test outcome and income. These findings have meaningful implications for policy makers, employers, and individual job seekers in that English proficiency indeed plays an important role in the Chinese job market. However, passing standardized English tests such as the CET in college might only have a short-term impact at the start of individuals' employment. More importantly, this study suggests economic returns as a possible source of validity evidence for large-scale English proficiency tests.

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