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English Listening, Speaking, and Earnings among Workers in Urban China

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Abstract: This paper explores the relationship between English language skills and earnings among workers in urban China using micro-data from the 2015 China General Social Survey. Using OLS and 2SLS regressions, we find that there are positive economic returns to English language skills (both listening and speaking) among workers in urban China. We also find that there is considerable heterogeneity in the returns to English skills. Compared to speaking, listening has a larger impact on labor earnings. Urban locals, elder workers, and those in professional/technical, skilled, and service-related occupations receive higher returns to English. Males receive higher returns to English speaking, while females receive higher returns to listening. There is a relationship of complementarity between language and other human capital such as working experience. But only limited evidence with respect to the complementarity between language and education has been found in our setting.

Keywords: English language skills; labor earnings; heterogeneity; China
JEL Classification: J24 J31 J16

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1. Introduction

Why do people learn a foreign language? Is it because they want to get to know the history and culture of those who speak that language, or just for fun? The economic literature considers language learning as an investment in human capital (Chiswick & Miller, 2015), and the objective of doing so is to obtain the expected benefits. Substantial studies have been done to estimate the returns to language and find that language skills attached to workers contribute to their earnings. A large part of the literature, however, concerns immigrants because the command of the host country's language is fundamental to their integration (Adserà & Pytliková, 2016). Although a growing number of papers have studied returns to foreign language skills among natives (e.g., Ginsburg & Prieto-Rodriguez, 2011; Stöhr, 2015), the evidence from developing countries is thin.

This paper examines the economic returns to English language skills (listening and speaking) in the labor market of urban China. China provides an interesting case for several reasons. First, the economic value of English (as a foreign language) skills in China has not been well investigated. Second, China has become one of the largest developing economies in the world, thanks to its rapid economic growth in the past decades, and there is a rising interest in learning English. By now, English has virtually become a basic requirement for college graduates to enter the labor market. Third, China is a country dominated by Putonghua (Mandarin), the language that has the largest number of native speakers in the world, and most internal communications take place in that language. One may wonder whether English really matter in China's labor market. In other words, is there any effect of English language skills on earnings in China's labor market? Investigating such questions is of significance not only for China but also for the other developing economies in the world as there is enormous demand and need for English in their public education systems to boost stability, employability, and prosperity (see British Council Report: *The English Effect*, 2013). We find that there are high economic returns to English listening and speaking in urban China's labor market. The economic returns not only differ from each other

between listening and speaking, but also vary across gender, age groups, levels of education, and occupations. In general, compared to speaking, English listening has a larger impact on labor earnings. Meanwhile, males receive higher returns to English speaking, and females receive higher returns to English listening. Urban locals, elder workers, and those in professional, skilled, and service-related occupations receive higher returns to English. There is evidence that English skills complement work experience. There is also language-skill complementarity in certain skilled occupations. But there is only limited evidence being found with respect to the complementarity between language and education. We come up with possible explanations and briefly consider the implications of these results for China's English language education policy.

2. Literature review

Studies on the relationship between language and earnings started from the so-called empirical Canadian tradition in the economics of language (Vaillancourt, 1980; Grin, 1996; Zhang & Grenier, 2013). By investigating the wage differentials among different language groups as well as their socio-economic status in Canada, researchers found that there is a positive association between language skills and labor earnings (e.g., Carliner, 1981; Shapiro & Stelcner, 1981; Grenier, 1987), which opens up the study on the returns to language.

Chiswick & Miller (see, for example, Chiswick, 1991; Chiswick & Miller, 1995, 1999, 2003, 2007, 2015) did many follow-up studies on this issue among others, especially for immigrants. They collected data from different countries (US, Canada, Australia, etc.) and estimated the returns to language skills for different types of workers. Their research suggests, as far as overall language proficiency is concerned, that host countries' language skills have a vital influence on immigrants' earnings.

The research that augmented language skills to the group of variables that determine the labor earnings has enriched the literature in labor economics, immigration economics, population economics, and economics of education. The mechanism of the impact of language on earnings lies in that language skills add more

human capital and bring benefits to workers when language learning turns into an investment.

Due to the availability of data, however, the studies on language and earnings used to be conducted in developed countries like the US, UK, Canada, and Australia, etc., focusing on immigrants mainly. There are a few exceptions that include studies that estimated the economic returns to the former colonial language in Africa. Angrist & Lavy (1997) used a change in the policy of language of instruction to estimate the effect of French language skills on test scores and earnings in Morocco, and Levinsohn (2007) estimated the returns to speaking English in South Africa.

Recently, there has been growing evidence from central Europe, the Middle East, and Asia, contributing to the study on returns to foreign language skills, which are similar to our study. In addition to Ginsburg & Prieto-Rodriguez, (2011) and Stöhr (2015) which we have mentioned earlier in the introduction, Lang & Siniver（2009） studied the impact of English proficiency on the earnings of Russian immigrants and natives in Israel. Azam et al. (2013) estimated the returns to English in India. Isphording (2013) examined the returns to foreign language skills in Spain. Adamchik et al. (2019) estimated the wage premium of English in Poland. Di Paolo & Tansel (2015, 2019) studied the case of Turkey. The findings of the above studies have been consistent with each other, that is, foreign language skills matter in contemporary labor markets, especially English.

In studies on China, Gao & Smyth (2011) and Chen et al. (2014) estimated respectively the returns to speaking Mandarin and to speaking Shanghai dialect among migrant workers. The former found that there are large returns to speaking standard Mandarin among those who speak a minority language, while the latter found host cities' dialect fluency is also positively associated with workers' income. They both found the returns to language in China are heterogeneous. Note that the present study is also about China but the starting point is different. We are concerned with the effect of English listening and speaking on earnings among workers in urban areas, which provides new evidence from China for the study on language and earnings.

3. Data

The data used for this study are drawn from the 2015 China General Social Survey (CGSS), which was released in 2018. CGSS began in 2003 and is the first nationwide longitudinal survey in China, sponsored by the National Social Science Foundation of China, and designed to track approximately 10,000 urban and rural households randomly chosen from 28 provinces and municipalities. The purpose is to understand the social and employment trends and the changing relationships between social structure and quality of life in China. The questionnaires cover a wide array of topics, including demographic characteristics, labor market activity, education, income, and proficiency in English.

In the questionnaires of the CGSS2015 survey, respondents were asked to report their proficiency in both English listening and speaking, which are measured on a five-point Likert scale (1 = *None*; 2 = Bad; 3 = Moderate; 4 = Well; 5 = Very well). For the sake of analysis, we convert the 5 levels of English listening and speaking into single dummy variable, which equals one for moderate, well and very well; and equals zero otherwise. One limitation of the survey is that the English language proficiency is based on self-assessment. The answer may depend on respondents' characteristics and educational level, which causes measurement errors. However, as Dustmann (1994) noted, test-based assessments of language ability are very costly and have their own shortcomings, and most studies in this area suffer from this deficiency.

The use of English in China is more common in urban than in rural areas because of the distribution of sectors of industry and trade. Actually, the demand for English in rural China is probably very low, or even nonexistent, given the types of work that people do in the rural area. Therefore, we drop the rural samples from the CGSS2015 in this study and focus on the returns to English skills among urban workers. Also, considering the policy that males retire at age 60 and females at age 55, we use an extract of the sample with males aged 18 to 60 and with females aged 18 to 55[1].

[1] Note that for labor workers, males retire at 55 and females retire at 50 in China. But our sample includes non-labor workers who retire at 60 and 55 for male and female respectively, such as managers, professionals, etc.

Observations with missing values on English skills as well as earnings are also deleted. The number of observations remaining for the analysis is 2,521 out of a total of 10,968 in CGSS2015.

[Insert Table 1 Here]

Table 1 presents the descriptive statistics for the entire sample as well as for males and females. For the entire sample, the mean log monthly labor earning was 7.91 RMB, and mean English listening and speaking dummies were 0.26 and 0.23 respectively. For male and female samples, females have both higher English listening and speaking proficiency than males. The mean log monthly labor earning was higher for males than for females. For the level of education, there were more males than females in secondary education group and more females than males in post-secondary education group. There were also gender differences in respondents' occupations. Females were more likely to work as clerks, social service and sales workers and males were more likely to work in jobs requiring physical skills such as electrician, plumber, welder, mechanics, and plant and machine operators/assemblers.

4. Empirical approach

Following the existing literature, we use a modified Mincer (1974) human capital earning equation augmented with a variable for English language skill:

$$\ln Y_i = \alpha + \beta English_i + \gamma EDU_i + \phi EXP_i + \lambda X_i + \varepsilon_i \qquad (1)$$

The log of monthly labor earnings ($\ln Y_i$) is regressed on respondents' English language skills ($English_i$: both listening and speaking), level of education (EDU_i), working experience (EXP_i), and a series of control variables (X_i) which include age and dummy variables for gender, marriage, health status, occupations, provinces/ municipalities, and *hukou*, a system of household registration by which rural-urban migrants (*hukou* set to 0) and urban locals (*hukou* set to 1) in the cities are grouped, etc. OLS estimates of the coefficients on English listening or speaking may be biased

Thus we set the retire age at 60 (male) and 55 (female) here.

due to the presence of unobserved heterogeneity (Chiswick & Miller, 1995) or measurement errors in language proficiency (Dustmann & Fabbri, 2003). Therefore, we treat English skills as potentially endogenous variables and adopt an instrumental variable (IV) approach to address this issue.

Finding a good instrument is important. Some studies on immigrants used whether the individuals were married overseas (Chiswick & Miller, 1995) or age at arrival to the host country (Bleakley & Chin, 2004, 2010) as IVs for host country's language skills, but this is not relevant in CGSS2015 since China is not an immigration country. However, CGSS2015 collects information on provinces and municipalities where the respondents reside and work. The average English language proficiency of local workers within a region can reflect their true individual skills of English but irrelevant to their earnings. Therefore, we use the means of the English listening and speaking proficiency of other workers (except for respondents themselves) in the same provinces/municipalities as an IV for English listening and speaking, respectively.

Also, English language skill is an acquired ability, which is influenced not only by the language of instruction during schooling (Casale & Posel, 2011) but also by the family background (Carneiro & Heckman, 2003). This is especially the case in China since there is no other public linguistic environment than Mandarin. In that case, although parents' education has been commonly used as an IV for education in the literature, a parent-child transmission mechanism in English may exist in China's context, through which parents' education may have an influence on children's English skills by affecting children's educational achievements (Grenier & Vaillancourt, 1983). Though respondents' levels of education have been controlled for in equation (1), following Dustmann and van Soest（2001), we also use parent's educational attainments (years of schooling) of the respondents as another IV for English listening or speaking, trying to further control for the possible endogeneity among English language skills and earnings in China. We conduct IV tests for validity in the next section, and the results indicate that our instruments are valid and acceptable.

5. Empirical Results

5.1 English listening, speaking, and earnings

Table 2 reports the effect of English listening and speaking on log monthly labor earnings for the entire sample[1]. Columns 1-3 are OLS estimates for English listening and columns 5-7 are for English speaking. We can see that the coefficients of both English listening and speaking are reduced accordingly along with more control variables being added into the specifications (from 0.3073 to 0.1171 for listening and from 0.2958 to 0.0995 for speaking). Also, we see that age, as well as work experience, has a significantly positive effect on earnings while being single has a negative effect. Meanwhile, being male, being with post-secondary education, being healthy, and being urban locals have significantly positive effects on earnings. Overall, OLS results suggest that English listening and speaking are associated with 11.71% and 9.95% higher monthly labor earnings, respectively, with age, gender, marriage, education, health, *hukou*, occupation, and provinces, etc. controlled for. This result is similar to findings from previous studies using OLS (see e.g. Chiswick & Miller, 1995; Azam et al., 2013).

[Insert Table 2 Here]

As discussed above, the OLS estimates of the coefficients on English language skills may be biased. Hence, columns 4 and 8 report IV (2SLS) estimates on listening and speaking using the same sample as used in OLS regression. The results of the IV tests for validity are reported at the bottom of Table 2. We can see that the IV estimates satisfy the Cragg-Donald Wald F statistic that the instruments are not weak and the Hansen J statistic for over-identification.

The 2SLS estimates suggest that English listening is associated with an 8.87% increase in labor earnings (significant at the 1% level) and English speaking is associated with a 5.38% increase (significant at the 5% level), both of which are lower than the OLS estimates. This reflects an adjustment of the upward bias in OLS estimates, which would be the case when there is unobserved heterogeneity that is

[1] All specifications in this paper are estimated with robust standard errors.

potentially related with both English-language ability and earnings. For instance, more wealthy individuals would more likely choose to learn English because they are more capable to afford the learning costs. More productive individuals are more likely to acquire English proficiency and have better jobs. Note that there are works reporting larger IV estimates (see e.g. Chiswick & Miller, 1995, 2010; Bleakley & Chin, 2004). But it is not the case in our setting.

In short, our IV estimates suggest that there are high economic returns to English listening and speaking in urban China and that compared to English speaking, English listening has a larger impact on labor earnings. This may well be the case, since English is a foreign language in China and the first priority of workers is to try to understand others by listening rather than speak when English is involved.

5.2 Heterogeneity in returns to English listening and speaking

The previous literature has shown that there is heterogeneity in the returns to language skills. So in Tables 3-6, we report OLS and 2SLS estimate across different sub-samples to further investigate this issue. We conduct the tests for IV validity. Again, all IV specifications satisfy the Cragg-Donald Wald F statistic that the instruments are not weak and the Hansen J statistic for over-identification, which indicate that our IVs are valid instruments. Although each specification includes a complete set of controls as we used in Table 2 we only report the coefficients on English listening and speaking.

Table 3 reports the results for the impact of English listening and speaking on earnings by gender and *hukou*. For listening, the economic return by OLS estimate is 10.76% for males, which is slightly lower than that of 11.34% for females. Accordingly, the 2SLS estimate results in English listening for males and females are 7.89% and 8.26% respectively, and both statistically significant at the 5% level. The case of English speaking, however, is just the opposite. Both OLS and IV estimates suggest that returns to English speaking are higher for males (11.27% and 6.76%) than for females (7.47% and 2.48%).

[Insert Table 3 Here]

Substantial studies have found gender differences in the effects of language skills

on earnings, and an explanation of occupational sorting (Mora & Davila, 1998) through gender has been widely recognized. In our setting, as we have seen in the descriptive statistics (Table 1), more females work as clerks, service and sale workers, for whom the chances of being exposed with English are relatively larger than males, who are more likely to engage in physically-demanding works. So in general, for females, the demand for English is higher than for males in such positions. This may explain why the returns to English listening are lower for males than for females. But how to explain the returns to English speaking are higher for males than for females? A possible explanation is that although there are occupational sorting effects of gender difference, China is a predominantly agricultural country with thousands of years of history, in which gender differences in many respects have been shaped or deeply influenced (Alesina et al., 2013). When it comes to the use of language and verbal communication, males, most of whom as head of household, tend to speak, while females, most of whom as dependents, tend to listen. This language behavior may pass on to the use of English. As a result, English speaking contributes more to earnings for males than for females and English listening contributes more to earnings for females than for males.

We also find that the economic returns to English listening and speaking are statistically significant among urban locals. The 2SLS estimates of returns to English listening and speaking for urban locals are 8.93% and 5.94% respectively. But for rural-urban migrants, only OLS estimates suggest significant results (the coefficients are lower than those for urban locals), not 2SLS estimates. This indicates that the returns to English skills for rural-urban migrants are not robust. Due to the discrimination effects of *hukou* system (Song, 2016) as well as lack of human capital and social networks, compared to urban locals, rural-urban migrants are segmented in labor-intensive sectors of industry and low-skilled low-paid jobs, in which the demand for English is relatively low, and thus the returns to English is likely to be low or even none.

[Insert Table 4 Here]

Table 4 reports the results according to age brackets. Overall, the returns to

English listening and speaking go higher with the increase of age although the 2SLS estimates of returns to English listening for 30-39 age bracket and English speaking for 18-29 and 30-39 age brackets are statistically insignificant. There is evidence that returns to English language proficiency are higher among workers in middle age brackets (Azam et. al., 2013). Our results are different from Azam et al. (2013) which argued that middle age workers have the work experience that complements English skills and allows them to take advantage of career opportunities that younger workers are unable to. In China's context, it seems to be elder workers who have the work experience that complements English skills. As age goes up, the workers with more work experience have obtained the higher economic returns to English skills are.

[Insert Table 5 Here]

Table 5 reports the results on returns to English skills across occupations. The returns to English listening and speaking are insignificant for managers and group of electrician/plumber/welder/mechanics. The 2SLS estimates of returns to English listening for the group of professionals/technicians and group of clerks, social service and sales workers are 11% and 7.72% respectively, and the corresponding results on English speaking for these occupations are 8.65% and 6.25% respectively. Surprisingly, both OLS and 2SLS estimates suggest that the returns to English listening and speaking for plant and machine operators/assemblers are much higher than that for either professional/technicians or group of clerks, social service and sales workers. This may reflect the fact that with reform and opening up to the outside world, English has penetrated into all walks of life in China. Unlike electricians, plumbers, welders, and mechanics, plant and machine operators/assemblers deal with machines every day, most of which are imported from developed countries, and as such, they may require good English to be successful in reading manual book, taking verbal instructions, or even speaking to foreign experts as far as machine operation and assembling are concerned. The differences in returns to English skills across occupations partly reflect the language-skill complementarity in certain skilled occupations. The results are consistent with the findings in Berman et al (2003) that language complements high-skill occupations.

Furthermore, we examine whether the economic returns to English listening and speaking vary across levels of education. We split the sample into two categories according to educational attainments - “12 years or less” and “over 12 years” since 12 years of schooling is the divide between secondary education and post-secondary education. The results are reported in Table 6. For English speaking, OLS and 2SLS estimates suggest that workers with higher education receive higher returns. This is in line with some previous studies on the complementarity between language ability and education (Chiswick & Miller, 2003). But for English listening, Both OLS and 2SLS estimates suggest that compared to less educated workers (12 years of schooling or less), workers with higher education (over 12 years of schooling) receive lower returns. In addition, the 2SLS estimates of returns to English listening are significant for both education groups, whereas the returns to English speaking following the same approach is significant only for more educated, despite the fact that the results on English speaking by OLS estimate are significant for both education groups as well. All of these indicate that the complementary link between English skills and education in the context of China cannot be firmly established. Given our smaller sub-sample size for this issue, it is not clear whether this is due to an absence of effect, or due to a lack of statistical power in the analysis. Nevertheless, these results reinforce the previous conclusions regarding differences in the economic returns to English skills between listening and speaking in the results for males and females.

Finally, we employ college degree, instead of 12 years of schooling, as the indicator variable for education. The estimation results are similar. We also consider only the workers in Beijing, Shanghai and Guangdong (the big cities). We find the results of OLS estimates are similar and slightly higher than that for the full sample. However, several IV estimates results are not statistically significant, likely due to the reduction in the sample size. The results are not reported here but available upon request.

[Insert Table 6 Here]

6. Conclusions

The rapid integration of the world economy during the past decades has

highlighted the role of languages and triggered the study on language skills and earnings. Many studies have analyzed the impact of the host countries' language on the earnings of immigrants. The empirical evidence on the foreign language ability premium for native-born workers in developing economies is thin. In this paper, we have examined the returns to English listening and speaking in China. After controlling for educational attainments, working experience, *hukou* system, occupations, provinces/municipalities as well as demographic characteristics including age, gender, marriage, and health status, we find high, statistically significant economic returns to English listening and speaking in urban China. Overall, English listening and speaking are associated with 8.87% and 5.38% higher monthly labor earnings (by 2SLS estimates), respectively. For men, English listening premium is 7.89% and speaking premium is 6.76%; for women, the corresponding premiums are 8.26% and 2.48% respectively. Further analyses show that there is considerable heterogeneity in the returns to English skills in China. Urban locals, elder workers, and those in professional/technical/clerk/service and machine operating/assembling occupations receive higher returns to English. We also find differences in the economic returns to English skills between listening and speaking. For instance, males receive higher returns to English speaking, while females receive higher returns to English listening. Previous studies show that there is a relationship of complementarity between language skills and other forms of human capital. We do find language-skill complementarity in certain skilled occupations. There is also evidence that English skills complement work experience. But only limited evidence on the complementarity between language and education has been found with our sample.

The findings in this study also have implications for the examination of foreign language education policy in China and indirectly answer the question of "what the English education in China is worth". Along with the pursuit of economic development, the Chinese government has invested a great deal in foreign language education since the 1980s in order to facilitate communication with the rest of the world. High economic returns to English language skills in urban China may explain

why Chinese people show such enthusiasm for English language learning. But along with this kind of enthusiasm and huge investments in English language education by government, there has been a long time debate over the practice of China's English education, which was described by some as the "time-consuming and inefficient" project (Jing, 1999). In China's context, English acquisition is mainly done through language education in school. This study finds that English language skills are positively associated with earnings in urban China, which suggests that, from the perspective of individuals, the direction of China's English education policy guidance is correct, or at least we may say its initial intention is good. In addition, English has been used as the official language by most international organizations and documents, which would benefit workers that seek international employment opportunities the most, including scholars and business leaders visiting abroad to study and bring advanced skills back to China. Note that since our sample includes only workers in China, we would be missing Chinese workers overseas who are benefiting the most from the language education in China. All the positive returns found in the paper would reflect only a part of the benefits from the English language education.

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Appendix

Table 1 Descriptive statistics

	All	Male	Female
	Mean (Standard deviation)		
Log monthly labor earning (RMB)	7.91 (0.93)	8.05(0.93)	7.75(0.89)
English listening (very well, well, moderate=1; otherwise= 0)	0.26(0.44)	0.24(0.42)	0.29(0.45)
English speaking (very well, well, moderate=1; otherwise= 0)	0.23(0.42)	0.21(0.41)	0.25(0.43)
Age	39.77(10.32)	40.84(10.98)	38.52(9.35)
Gender (male=1; otherwise=0)	0.53(0.49)	-	-
Marriage (single=1; otherwise=0)	0.15(0.36)	0.17(0.37)	0.13(0.33)
Educational attainment (%)			
Secondary education	52.48	55.86	48.56
Post-secondary education	19.94	18.43	21.69
Working experience	15.22(10.28)	16.58(10.94)	13.59(9.18)
Health (very healthy, healthy, moderate=1; otherwise= 0)	0.73(0.44)	0.74(0.43)	0.72(0.44)
Hukou (urban locals =1; otherwise=0)	0.66(0.47)	0.69(0.49)	0.64(0.49)
Occupations (%)			
Managers	6.13	7.33	4.74
Professionals/technician	20.60	19.91	21.41
Clerks/ service and sale workers	29.42	22.49	37.49
Electrician/plumber/welder/mechanics	7.06	9.86	3.80
Plant and machine operators/assemblers	8.12	11.34	4.38
Provinces/municipalities (%)			
Anhui	2.18	2.11	2.26
Beijing	8.96	7.86	10.27
Chongqing	0.87	0.8	0.95
Fujian	3.84	4.15	3.48
Gansu	1.23	1.09	1.39
Guangdong	9.08	9.61	8.44
Guangxi	2.65	2.98	2.26

Guizhou	3.33	2.98	3.74
Hebei	1.86	1.67	2.09
Heilongjiang	3.84	4.36	3.22
Henan	2.97	2.54	3.48
Hubei	5.43	5.89	4.87
Hunan	3.76	3.56	4.01
Inner Mongolia	0.31	0.36	0.26
Jiangsu	5.35	4.87	5.92
Jiangxi	3.57	3.71	3.39
Jilin	2.61	2.84	2.35
Liaoning	5.98	6.33	5.57
Ningxia	0.75	0.58	0.95
Qinghai	1.26	1.45	1.04
Shan’xi	1.66	1.31	2.09
Shandong	5.55	6.04	4.96
Shanghai	7.02	6.91	7.14
Shanxi	3.09	3.35	2.78
Sichuan	2.38	2.54	2.17
Tianjin	3.53	3.71	3.31
Yunnan	1.22	0.8	1.74
Zhejiang	5.59	5.46	5.74
Number of observations	2521	1373	1148

Data source: CGSS2015

Table 2 Returns to English listening and speaking in China (OLS and 2SLS estimates)

	(1) OLS	(2) OLS	(3) OLS	(4) IV (2SLS)	(5) OLS	(6) OLS	(7) OLS	(8) IV (2SLS)
English listening	0.3073***	0.2077***	0.1171***	0.0887***				
	(17.00)	(10.75)	(6.05)	(3.43)				
English speaking					0.2958***	0.1887***	0.0995***	0.0538**
					(13.75)	(8.96)	(5.34)	(1.98)
Age	0.1142***	0.0604***	0.0646***	0.0644***	0.1139***	0.0621***	0.0655***	0.0647***
	(7.74)	(3.34)	(3.78)	(3.81)	(7.74)	(3.42)	(3.84)	(3.81)
$Age^2/100$	-0.1467***	-0.0913***	-0.0948***	-0.0954***	-0.1480***	-0.0949***	-0.0969***	-0.0969***
	(-8.15)	(-4.00)	(-4.48)	(-4.48)	(-8.25)	(-4.15)	(-4.51)	(-4.55)
Gender	0.4138***	0.3469***	0.3574***	0.3555***	0.4217***	0.3496***	0.3595***	0.3552***
	(13.12)	(11.39)	(12.12)	(12.14)	(13.30)	(11.41)	(12.13)	(12.02)
Marriage	-0.1391***	-0.0735	-0.1247***	-0.1232***	-0.1480***	-0.0775	-0.1272***	-0.1232***
	(-2.70)	(-1.48)	(-2.63)	(-2.61)	(-2.83)	(-1.54)	(-2.66)	(-2.59)
Secondary education		0.0320	0.0127	0.0114		0.0370	0.0156	0.0127
		(0.83)	(0.35)	(0.32)		(0.97)	(0.42)	(0.34)
Post-secondary education		0.4105***	0.2809***	0.3034***		0.4432***	0.2991***	0.3322***
		(9.69)	(7.04)	(7.15)		(10.15)	(7.50)	(7.88)
Working experience		0.0216***	0.0156**	0.0154**		0.0210***	0.0152**	0.0151**
		(2.94)	(2.29)	(2.27)		(2.84)	(2.22)	(2.22)
Working $experience^2/100$		-0.0157	-0.1518	-0.0149		-0.0131	-0.0138	-0.0141
		(-0.79)	(-0.84)	(-0.83)		(-0.66)	(-0.76)	(-0.78)
Health		0.0927**	0.1204***	0.1215***		0.0938**	0.1216***	0.1240***
		(2.45)	(3.31)	(3.36)		(2.46)	(3.34)	(3.42)
Hukou			0.0556*	0.0634*			0.0569*	0.0716**
			(1.72)	(1.95)			(1.76)	(2.18)
Occupations			controlled	controlled			Controlled	controlled
Provinces/municipalities			controlled	controlled			Controlled	controlled
_cons	5.065***	6.1349***	5.8310***	5.8801***	5.1445***	6.1725***	5.8584***	5.9381***
	(17.23)	(18.80)	(16.32)	(16.49)	(17.43)	(18.82)	(16.35)	(16.61)
Instrumental variables				IV1, IV3				IV2, IV3
Cragg-Donald Wald F statistic				1111.53				1078.79
Hansen J statistic				0.513				0.884
Chi-sq(1) *p*-val				0.4740				0.347
N	2521	2521	2521	2521	2521	2521	2521	2521
adj. R^2	0.164	0.214	0.339	0.339	0.153	0.206	0.336	0.335

Notes: IV1= the means of the English listening proficiency of other workers (except for respondents themselves) in the same provinces/municipalities; IV2= the means of the English speaking proficiency of other workers (except for respondents themselves) in the same provinces/municipalities; IV3=parent's years of schooling. *t* statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Data source: CGSS2015

Table 3 Effects of English listening and speaking on earnings by gender and *hukou*

	Male	Female	Urban locals	Rural-urban migrants
Panel A: English listening				
Coefficient of OLS	0.1076***	0.1134***	0.1307***	0.0788*
	(3.93)	(4.10)	(5.97)	(1.77)
N	1373	1148	1733	788
adj. R^2	0.346	0.321	0.369	0.287
Coefficient of 2SLS	0.0789**	0.0826**	0.0893***	0.0911
	(2.03)	(2.26)	(3.10)	(1.60)
Cragg-Donald Wald F statistic	557.083	539.757	757.437	339.805
Hansen J statistic	0.660	0.053	0.440	0.116
Chi-sq(1) *p*-val	0.4166	0.8182	0.5070	0.7338
N	1373	1148	1733	788
adj. R^2	0.346	0.321	0.367	0.288
Panel B: English speaking				
Coefficient of OLS	0.1127***	0.0747***	0.1018***	0.0721**
	(4.46)	(2.62)	(4.76)	(1.89)
N	1373	1148	1733	788
adj. R^2	0.3127	0.3407	0.363	0.287
Coefficient of 2SLS	0.0676**	0.0248*	0.0594**	0.0396
	(1.76)	(1.89)	(2.02)	(0.53)
Cragg-Donald Wald F statistic	551.042	580.802	726.840	347.779
Hansen J statistic	0.084	1.199	0.722	0.049
Chi-sq(1) *p*-val	0.7717	0.2736	0.3955	0.8241
N	1373	1148	1733	788
adj. R^2	0.321	0.341	0.362	0.288

Notes: See notes to Table 2; the 2SLS estimates employ IV1/IV3 for listening and IV2/IV3 for speaking; all specifications include a complete set of controls; *t* statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: CGSS2015

Table 4 Effects of English listening and speaking on earnings by age group

	18-29	30-39	40-49	50-60
Panel A: English listening				
Coefficient of OLS	0.1091***	0.0630*	0.1416***	0.1973***
	(2.69)	(1.80)	(4.43)	(3.77)
N	543	741	818	419
adj. R^2	0.269	0.383	0.413	0.418
Coefficient of 2SLS	0.0947***	0.0171	0.1359***	0.1877***
	(3142)	(0.35)	(3.22)	(2.70)
Cragg-Donald Wald F statistic	257.372	357.226	343.875	193.291
Hansen J statistic	0.484	0.130	5.003	1.365
Chi-sq(1) *p*-val	0.4837	0.8623	0.0253	0.2428
N	543	741	818	419
adj. R^2	0.259	0.379	0.414	0. 406
Panel B: English speaking				
Coefficient of OLS	0.0902**	0.0496*	0.1343***	0.1791***
	(2.26)	(1.70)	(3.93)	(3.04)
N	543	741	818	419
adj. R^2	0.265	0.381	0.411	0.412
Coefficient of 2SLS	0.0858*	-0.0124	0.1044**	0.1676**
	(1.72)	(-0.25)	(2.41)	(2.39)
Cragg-Donald Wald F statistic	276.620	352.581	291.534	253.677
Hansen J statistic	0.352	0.096	5.732	1.380
Chi-sq(1) *p*-val	0. 4650	0.7831	0.0267	0. 24012
N	543	741	818	419
adj. R^2	0.255	0.376	0.408	0.398

Notes: See notes to Tables 2 and 3; *t* statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Data source: CGSS2015

Table 5 Effects of English listening and speaking on earnings by occupation

	managers	P/T	CSSW	EPWM	PMOA
Panel A: English listening					
Coefficient of OLS	0.0037	0.1042***	0.0814**	0.0531	0.1879***
	(0.05)	(3.31)	(2.37)	(0.60)	(2.77)
N	184	618	887	212	244
adj. R^2	0.461	0.354	0.293	0.327	0.334
Coefficient of 2SLS	-0.0842	0.1100***	0.0772**	-0.0031	0.1622**
	(-0.78)	(2.79)	(2.15)	(-0.04)	(2.24)
Cragg-Donald Wald F statistic	64.578	303.235	453.007	184.479	106.051
Hansen J statistic	0.9563	0.844	0.125	1.647	0.737
Chi-sq(1) *p*-val	0.3642	0.3673	0.8832	0.1994	0.3892
N	184	618	887	212	244
adj. R^2	0.435	0.334	0.273	0.255	0.326
Panel B: English speaking					
Coefficient of OLS	-0.0011	0.0902***	0.0746**	-0.0051	0.2113***
	(-0.01)	(2.70)	(2.21)	(-0.06)	(3.16)
N	184	618	887	212	244
adj. R^2	0.461	0.351	0.293	0.325	0.339
Coefficient of 2SLS	-0.0872	0.0865**	0.0625**	-0.0499	0.1875**
	(-0.68)	(2.15)	(2.20)	(-0.60)	(2.30)
Cragg-Donald Wald F statistic	62.963	227.638	325.070	157.335	102.415
Hansen J statistic	1.345	0.758	0.098	1.906	1.122
Chi-sq(1) *p*-val	0.1969	0.4213	0.7642	0.1675	0.2631
N	184	618	887	212	244
adj. R^2	0.436	0.331	0.293	0.249	0.332

Notes: See notes to Tables 2 and 3; P/T refers to professionals/technicians; CSSW refers to clerks, social service and sales workers; EPWM refers to electrician/plumber/welder/mechanics; PMOA refers to plant and machine operators/assemblers. *t* statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Data source: CGSS2015.

Table 6 Effects of English listening and speaking on earnings by education

	12 years or less	over 12 years
Panel A: English listening		
Coefficient of OLS	0.0862***	0.0819***
	(2.95)	(2.98)
N	1537	984
adj. R^2	0.232	0.347
Coefficient of 2SLS	0.0784**	0.0518**
	(2.63)	(2.25)
Cragg-Donald Wald F statistic	747.806	448.440
Hansen J statistic	1.572	1.708
Chi-sq(1) *p*-val	0.3587	0.1912
N	1537	984
adj. R^2	0.214	0.337
Panel B: English speaking		
Coefficient of OLS	0.0714**	0.0748**
	(2.53)	(2.52)
N	1537	984
adj. R^2	0.230	0.345
Coefficient of 2SLS	0.0370	0.0618**
	(1.06)	(2.07)
Cragg-Donald Wald F statistic	410.904	470.583
Hansen J statistic	1.660	0.124
Chi-sq(1) *p*-val	0.1976	0.1816
N	1537	984
adj. R^2	0.210	0.334

Notes: See notes to Tables 2 and 3; *t* statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Data source: CGSS2015