



## The Effect of Language Ability on Chinese Immigrants' Earning in Hong Kong

Michael Ng Chi Man<sup>1</sup>

### ABSTRACT

After the handover of Hong Kong sovereignty to China in 1997, the language importance gap between English and Putonghua in Hong Kong has been narrowing, even English language is remain an international language and being adopted in legal documents, but foreign investors cannot avoid speaking Putonghua when doing business with Chinese enterprises, these language importance changes provide a new discourse to human capital theorists. In Hong Kong, natives are desire to be proficient in Putonghua and English while immigrants are eager to learn English and Cantonese, thus, investigating languages skills (Putonghua, English and Cantonese) returns yield a remarkable contribution to the existing immigrants assimilation literature. This paper employs language skills to understand a new assimilation process in Hong Kong and proves that Putonghua language skills are enhancing immigrants' and natives' earning, for industries which have better utilization of Putonghua language skills allow better return rate for immigrants, besides, it also shows the marginal effects of different languages on earnings are industry and occupation dependent.

**Keywords:** Assimilation, Human Capital Theory, Immigrant, Language Ability.

**JEL Codes:** J15, J31, J61.

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### 1.0 INTRODUCTION

Economic assimilation of migrant workers has attracted a huge amount of theoretical and empirical research which generally concludes the earnings of immigrants assimilate over their years of residence, this conclusion generally attributes to the accumulation of host country specific human capital, including labour market information and language skills. Language skills in immigrants' mother tongue are developed when young, however, immigrants are eager to learn language capital which relevant to the host country, such learning process definitely a tough process when the host country language differs strictly from the mother tongue. [Chiswick and Miller \(1995\)](#) called this process as "linguistic adjustment". Hong Kong is a society of immigrants ([Lam and Liu 1998](#)) where receives Chinese

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<sup>1</sup> Assistant Professor, School of Arts and Social Sciences, The Open University of Hong Kong, Hong Kong. Email: cmng@ouhk.edu.hk

immigrants with same ethnicity but different languages, most Chinese immigrants are proficient in Putonghua while Hong Kong natives are capable to use English as well as Cantonese but not Putonghua in daily communication. For example, before 1997, when Hong Kong was under the governance of British colonial government that English language was adopted in government officials circle, some Hong Kong people (including Hong Kong natives and Chinese immigrants) did not actively present their own viewpoints regarding economic and political issues due to linguistic barriers. After the handover of Hong Kong sovereignty to China in 1997 and along with economic upswing of China, the language importance gap between English and Putonghua seems to be narrowing, even English language is remain an international language and being adopted in legal and official documents, but foreign investors cannot avoid using Putonghua when doing business with Chinese enterprises, these language importance changes provide a new discourse to human capital theorists. Fascinatingly, Hong Kong is a small and open economy where external forces are always an issue to its economic fluctuation, Hong Kong had its own historical reason to justify the usage of English language and currently undergo a change in language usage, from English-dominant to “English and Putonghua”-dominant social and business environment, it is not hard to verify this point by, for example, tracing the change of job requirements in language skills requirements for any clerical jobs in which proficiency in English and Putonghua is one of the basic job requirements. Previous literature confirmed an acquisition of host country-specific human capital, especially language, is one of the important forces in assimilation process, but in Hong Kong, natives are desire to be proficient in Putonghua and English while immigrants are eager to learn English and Cantonese, thus, investigating languages skills (Putonghua, English and Cantonese) returns yield a remarkable contribution to the existing assimilation literature. In short, if assimilation process refers to the convergence of earnings between natives and immigrants throughout the year of residence for acquiring host country-specific human capital process, it seems that convergence of earnings does not only depend upon those conventional determinants, such as year of duration and human capital, but also depend upon the reliance of host country economy towards immigrants-sending country economy. In fact, after the Asian Financial Crisis, Hong Kong economy relied much more on China economic growth than otherwise, even China economic growth does not directly imply Chinese immigrants are enjoying higher living standard since income inequalities and externalities are widely observed in China, economic incentives do direct Chinese immigrants who believe their inherent human capital and Chinese style management know-how are potentially and greatly demanded by Hong Kong employers, thus Chinese immigrants believe they can be rewarded handsomely in Hong Kong, then they would eventually migrate to Hong Kong. Besides, since language proficiency is essentially regarded as a human capital that promotes effective daily and business communication and the demand for language skills is somewhat different between natives and immigrants, natives are expected to be proficiency in local language and required to learn foreign languages while immigrants are expected to be proficiency in foreign language and required to learn local language. This paper employs language skills as one of the major predictors for understanding this new assimilation process in Hong Kong. Previous research studies in this area are twofold, one is about the determinants of investing in host country-specific language skills, the other is related to the effect of possessing host country-specific language skills on immigrants’ earnings, both theoretical and empirical studies have been conducted extensively for the United States labour market, however, this kind of empirical studies for China-Hong Kong migration is very rare and inadequate, this paper can supplement existing literature. The policy significance of this language importance issue is not trivial either. Firstly, if different Chinese immigrant cohorts possess different levels of language proficiency, these languages proficiency differentials may affect the earnings and occupational distributions in Hong Kong labour market. Secondly, recent Chinese immigrants respond to growing English earnings premiums may somewhat relieve political fears that immigration yields a deterioration of linguistic identity in Hong Kong. Thirdly, if the recent Chinese immigrants possess better language skills than previous migration cohorts, the cost and design of remedial schooling programmes for Chinese immigrants with limited-language proficiency may tail off over time. This paper is structured as follow: section II reviews literature and section III discusses one Hong Kong language earning power study and the dataset in this empirical study, and empirical model and results will be discussed in section IV and V respectively. Section VI concludes.

## 2.0 LITERATURE REVIEW

In the immigrants' assimilation literature, there are two research questions have attracted the attention of researchers, the first question is about the determinants of language proficiency of migrants and the second question is related to the relationship between fluency in the host country's dominant language and labour market performance. The first issue has been discussed in various dimensions in the literature. For example, [Dustmann \(1999\)](#) found that immigrants' intention to investing language capital is sensitive to their years of duration in the host country's labour market. [Lazear \(1999\)](#) developed another theoretical model which focuses on how immigrants proportion affect incentive to learn foreign language. [Lazear \(1999\)](#) demonstrated that most immigrants live in communities with small proportions of individuals from their own country are most likely proficient in English. [Bauer et al. \(2005\)](#) provided similar findings that suggested Mexican migrants with good English proficiency tend to select living place with a small network in the United States while those migrants with poor English proficiency tend to select a large network location. [Dávila and Mora \(2000b\)](#) concluded that socioeconomic and economic elements are deterministically influencing migrants' incentive to acquire English skills.

From immigrants' perspective, host country is a heterogeneous environment to live and work, ordinary people expect immigrants' earning is lower than native counterparts as they are not able to communicate in host country's dominant language. This paper concerns the relationship between fluency in the host country's dominant language and labour market performance, I tried to examine this relationship under the control of different gender, occupations, industries and possible cohort effects which previous studies ignored. Previous studies showed uncontroversial and convincing results regarding the effect of English proficiency on earnings. [McManus et al. \(1983\)](#) was probably the first study to explain earnings differentials between natives and immigrants using language skills and concluded that English language skills differentials can explain almost all Hispanic wage differentials variations. [McManus \(1990\)](#) refined his previous joint research study through considering if the earnings loss due to English language deficiency would be less for Hispanics in enclaves and found that English proficiency generally raises the earning returns to schooling and work experience of Hispanic men and the associated earnings loss with deficiency in English should be mitigated by large scale language enclaves. Undoubtedly, personal earnings are a reflection of employees' achievement, occupational achievement or privilege can also be used in place of earnings to represent individual success. [Stolzenberg \(1990\)](#) studied the language proficiency effect on occupational achievement and the results indicated a pattern of "conditional occupational assimilation", this conditional assimilation implies that occupational achievement depends upon the English language skills that Hispanic possess given comparable level of educational attainment and other human capital. [Chiswick \(1991\)](#) examined the effects of English language fluency on earnings and found that English language fluency and immigrants' years of duration are positively related in the United States, and such correlation are relatively higher for those who are more educated and who are not Hispanic, and attributed this results to the complementarity of schooling and language acquisition and utilization.

The literature on ethnic wage differences assumes employees could realize economic benefits once they became proficient in the host country dominant language. [Dávila et al. \(1993\)](#) challenge this assumption by considering if "accent penalties" exist in the U.S. labor market. They argued even Mexican could become proficient in English, Mexican Americans speaking English with an accent tend to earn lower wages than their nonaccented peers. However, [Chiswick and Miller \(1995\)](#) challenge this argument by conducting an international language proficiency study, they argued that [Dávila et al. \(1993\)](#) theory can only be applied to Mexican and Hispanic group only and showed that English-language fluency is positively correlated with earnings for Australian in 1981 and 1986 respectively and these correlations were even more significant for those from non-English-speaking countries in 1981 and 1986 respectively. [Stolzenberg and Tienda \(1997\)](#) developed a mathematical model to show the hypothesis of "conditional economic assimilation" in which empirical results supported the model prediction of English language fluency and schooling produces higher return rates for Asians and white

Hispanic than for white non-Hispanics. [Dávila and Mora \(2000a\)](#) employed the U.S-Mexico border as a minority-language region and examined if English skills affect differently to the earnings and occupational achievement of Mexican Americans, the results indicated a comparable English deficiency earnings penalties to Mexican immigrants. English language proficiency is not only affecting employees, but also self-employed persons. [Dávila and Mora \(2004\)](#) specified a model that controlled for non-language human capital determinants and found that English proficiency played a more deterministic role in foreign-born entrepreneurs' earnings in 1990 than in 1980. In 2002, Chiswick and Miller proved linguistic enclaves are negatively related to immigrant's own English language skills, also immigrants' earnings disadvantages can attribute to the immigrants' English proficiency problem. The above theoretical and empirical studies do suggest a positive impact on earning if immigrants acquire certain level of host country human capital, especially language.

### 3.0 LANGUAGE PROFICIENCY RETURNS IN HONG KONG AND DATA DESCRIPTION

There was one language ability returns study in Hong Kong ([Lui 2007](#)) which employed the 1991 and 2001 Hong Kong population censuses and ran the standard [Mincer's \(1974\)](#) human capital earnings equation to estimate the returns to language skills for working population, [Lui \(2007\)](#) concluded that Putonghua speaking skill is relatively unimportant in the labour market. This paper extends [Lui's \(2007\)](#) estimations with four additional indigenous and essential considerations. First, language proficiency returns are industry-dependent, immigrants' job performance in different industries and occupations are vary, for example, service workers and shop sales workers are normally required a better language skills, or required higher usage of particular language, thus the implications of language proficiency on earnings in these occupations are expected to be different from those occupations which requires lower usage of certain language. Second, language proficiency returns are not unidimensional since code-switching is commonly observed in reality. Different combinations of language usage, like Cantonese and Putonghua versus English and Cantonese, have different implications on immigrants' earning, industries such as finance and insurance demand more on interpersonal contacts with clients, as Cantonese is the most common language, employees are proficient in Putonghua other than English should be rewarded differently from whom are only proficient in English. Third, if the importance of Putonghua language has been structurally changed after the handover of Hong Kong, [Lui's model \(2007\)](#) omitted the fixed effects in estimation, years of duration is a commonly used variable that control the immigrant quality bias across different cohorts (*cohort effect*), this paper extends [Lui's \(2007\)](#) estimation model though considering the possibility of immigrants' quality change. Cohort effect cannot be ignored in the estimation model due to two reasons: First, there were some interviewees who were re-interviewed in the 2001 census sample, their language skills might be changing during their residence in Hong Kong. Second, there were new Chinese immigrants come to Hong Kong during the inter-census period, that is from 1992 to 2000, immigrants came to Hong Kong in different periods and the reasons for migration may change over inter-census period, [Lui \(2007\)](#) possibly neglected these implicit migration intention change if he just ran two regression models separately and simply compare the coefficients in these two regression models, coefficients may not be comparable as the basic measurement units may not be identical. Fourth, language proficiency is years-of-duration-dependent. [Chiswick \(1991\)](#) showed both English speaking and reading fluency increase with year of duration in the United States, thus language ability is technically interacting with years of duration, ordinary people believe the country-specific skills would be accumulated throughout the year of duration in host country, this paper extends [Lui's \(2007\)](#) estimation by incorporating an interaction effect in the empirical model in order to obtain a more accurate and comprehensive results.

This study aims to investigate the effect of language on earnings, which is expected to be different amongst industries and occupations, if we are studying an industry in which Putonghua is a major communication medium, the marginal effect of Putonghua on earning is expected to be larger than that of industry which Cantonese or English dominate communication medium. Hong Kong census data is the major data sources in this study, there are four (1991, 1996, 2001 and 2006) Hong Kong census dataset recorded the usual language or dialect the enumerated residents used in daily

communication, there are three other variables recorded other languages which the enumerated residents can speak in addition to that spoken at home. Usual languages in the survey consist of Cantonese, English, Putonghua, Chiu Chau, Hakka, Fukien, Sze Yap, Shanghainese, other Chinese dialects, Filipino, Japanese and other languages, they are self-reported and recorded in a nominal measurement scale. This study extracts three languages for empirical study, namely, Cantonese, English and Putonghua, the reason for selecting these three languages is that, Cantonese is the most commonly used language in Hong Kong, English is an international language and Putonghua is a common language in China. A quasi-panel data was constructed using abovementioned four Hong Kong census datasets. The study mainly target to Hong Kong natives or Chinese immigrants individual who are aged 15 or above with positive main employment income. The quasi-panel data would be sub-sampled into eight different occupations and six different industries, and the human capital earning function would be modified so as to incorporate a set of standard human capital determinants and demographic variables, the details of empirical model will be discussed in section IV.

#### 4.0 EMPIRICAL MODEL

The empirical model for testing the effect of language on earning is specified as follow:

$$\begin{aligned} \ln Y_{itj} = & A_1 + B_1(S_{itj}) + B_2(EXP_{itj}) + B_3(EXP2_{itj}) + B_4(D1_{itj}) + B_5(D2_{itj}) + B_6(D3_{itj}) \\ & + B_7(D1_{itj} \times S_{itj}) + B_8(D1_{itj} \times EXP_{itj}) + B_9(D1_{itj} \times EXP2_{itj}) + B_{10}(D1_{itj} \times D2_{itj}) + B_{11}(D1_{itj} \times D3_{itj}) \\ & + B_{12}(D1_{itj} \times YD_{itj}) + B_{13}(D1_{itj} \times YD2_{itj}) + B_{14}(D1_{itj} \times D2_{itj} \times YD_{itj}) + B_{15}(D1_{itj} \times D2_{itj} \times YD2_{itj}) \\ & + B_{16}(D1_{itj} \times D3_{itj} \times YD_{itj}) + B_{17}(D1_{itj} \times D3_{itj} \times YD2_{itj}) + \sum B_k(D1_{itj} \times Cohort_{itj}) + \varepsilon_{itj} \end{aligned}$$

where subscript  $i$  indexes individuals,  $t$  indexes census years, they are 1991, 1996, 2001 and 2006;  $j$  stands for various demographic types, including gender (two levels); occupations (eight levels); industry (six levels).  $\ln Y$  is natural logarithm of earnings,  $S$  denotes years of schooling,  $EXP$  denotes years of work experience, the usual definition of years of work experience is used which is respondents' age minus years of schooling minus six,  $EXP2$  is the squared of years of work experience. There are three dummy variables,  $D1$  captures the effect of place of birth, it equals one for Chinese immigrant and zero for Hong Kong native;  $D2$  equals one for Putonghua user and  $D3$  equals one for English user and both equal zero for Cantonese user.  $YD$  represents years of duration of Chinese immigrant.  $Cohort$  denotes the cohort effect which is the year of arrival of Chinese immigrant, since there are different cohort years which is the estimated years of arrival, datasets showed they are from 1976 to 2006, cohort effects are captured by  $B_{18}, B_{19}, B_{20} \dots B_{48}$ , the estimated years of arrival is defined as census year minus years of residence in Hong Kong reported by Chinese immigrant, also the latter terms are some interactive terms in the model. The effects of languages on earnings, namely Putonghua for natives, English for natives, Putonghua for immigrants, English for immigrants are represented by  $B_5, B_6, B_{10}, B_{11}$  respectively. Table 1 shows different combinations of dummy variables for language effects. The reference group in this model is Hong Kong native whose main language is Cantonese that represented by intercept term ( $A_1$ ); Parameters  $A_1, B_1$  to  $B_6$  are all for Hong Kong natives,  $B_1$  measures the effect on percentage change of earnings given one year change of schooling while  $B_2$  and  $B_3$  measure respectively the linear and nonlinear effect on percentage change of earnings given one year change of work experience.  $B_4$  measures the earning differential between Chinese immigrant and Hong Kong native whereas  $B_5$  and  $B_6$  measure the earning effect of using Putonghua and English as main language respectively.  $B_7$  measures the marginal effect of years of schooling on earnings between Chinese immigrant and Hong Kong native whereas  $B_8$  and  $B_9$  measure respectively the linear and nonlinear earning differential of years of work experience between Chinese immigrant and Hong Kong native.  $B_{10}$  and  $B_{11}$  measure respectively the earning differential of using Putonghua and English as main language between Chinese immigrant and Hong Kong native.  $B_{12}$  and  $B_{13}$  measures the linear and nonlinear assimilation effect respectively of Chinese immigrants on earnings based on their years of duration in Hong Kong,  $B_{14}$  and  $B_{15}$  measures the linear and nonlinear effect respectively of using Putonghua on Chinese immigrants' earnings based on their years of duration in Hong Kong while  $B_{16}$  and  $B_{17}$  measures the linear and nonlinear effect respectively of using English on Chinese immigrants' earnings based on their years of duration in Hong Kong. Finally, parameters  $B_{18}$  to  $B_{48}$  are used for

controlling the cohort effect, and  $\epsilon$  is the normally distributed disturbance term.

<b>Table 01: Different combinations of dummy variables for language effects</b>		
	Hong Kong Native ( $D_1=0$ )	Chinese Immigrant ( $D_1=1$ )
Cantonese ( $D_2=0; D_3=0$ )	(0,0,0)	(1,0,0)
Putonghua ( $D_2=1; D_3=0$ )	(0,1,0)	(1,1,0)
English ( $D_2=0; D_3=1$ )	(0,0,1)	(1,0,1)

Note: The figures in parentheses represent different combination of  $D_1, D_2, D_3$ , that is ( $D_1, D_2, D_3$ )

## 5.0 EMPIRICAL RESULTS

### GENDER

Table 2 shows the empirical results by gender, people who reported English as main language earn 40.93 percent more than those reported Cantonese as main language, such superiority is higher for male (50.56 percent) than female (30.41 percent). English language superiority is of particular significant for immigrants than natives, immigrants possess excellent command of spoken and written English skills can earn 66.88 percent higher income than their counterparts, this advantage is comparable for male and female immigrants. Moreover, ordinary people believe that Chinese immigrants could learn and practice English skills when they stay in Hong Kong, and hence immigrants stay longer years in Hong Kong could yield higher earning using their English language skills, however, results reveal that earning power of English language ability does not interact with year of duration, in other words, whether immigrants can earn higher income based on English language skills they possess is independent to the year of duration they resided in Hong Kong.

Interestingly, excellent command of Putonghua is unrewarded for natives, but only for immigrants, results show the parameters of Putonghua for natives are insignificant whereas immigrants' are all significant and positive. Despite the fact that male immigrants (50.04 percent) outperform female immigrants (14.86 percent) in terms of possessing Putonghua as part of human capital, on average, immigrants who are competence in Putonghua earn 39.29 percent more than their counterparts. Moreover, year of duration is interacting fairly with Putonghua skills in determining immigrants' income, approximately, one additional year of duration deteriorates the earning power of Putonghua by 3 percent to male immigrants, female immigrants do not suffer from such deterioration. Moreover, after controlling several language skills and its association with year of duration, assimilation hypothesis is valid in a way that immigrants' income increase by 6.85 percent given additional year of duration, this assimilation effect is stronger for male immigrants (7.63 percent) than female immigrants (5.69 percent).

### OCCUPATION

Occupations can be characterized by different levels of language usage, Table 3 shows the return of languages in different occupations and the effects of English language on earning, and the overall results are summarized in Table 4. Possessing English language skill always reward labors positively, compare to natives, the effect on immigrants is much larger for managers and administrator, professionals and associate professionals, while the effect on immigrants is similar to that of natives in occupations like clerks and plant and machine operators and assemblers, an inverse pattern happens for occupations like service workers and shop sales workers and craft and related workers. Table 3 shows an interesting pattern of English language earning power, immigrants generally earn less than native in professional sector, but English language skills do improve earning for immigrants to a remarkable extent. As Table 4 indicates that Putonghua skills do allow natives to earn extra income while it is also the case for immigrants, immigrants' earning power is enhanced by possessing Putonghua skills in which professionals immigrants' earning increase by 12.14 percent on average (an average of 11.47, 23.47 and 1.49) while immigrants who are working in service and shop sales

occupations also benefit in this regard, earning increment is around 23 percent. In short, there are different levels of earning power of English and Putonghua on immigrants' earning, it is not hard to understand why these language effects vary among occupations, this result reveals partially different degrees of usage on Putonghua and English in different workplaces. In general, as long as employers place higher value for a specific skill, they are more willing to pay for hiring employees who possess such specific skill (such as Putonghua and English), especially those skills are expected to be vital in company decision making and its profitability. Moreover, Table 3 reveals that year of duration do not interact with Putonghua and English skills, the hypothesis that narrate language skills can be improved or deteriorated throughout year of duration is rejected. Furthermore, the year of duration coefficient represents assimilation rate of immigrants among different occupations, after controlling language skills and its possible interaction effect with year of duration, results validate the presence of immigrants' assimilation in various occupations.

**Table 02: Language effect on earning (By Gender)**

	ALL	Male	Female
(Constant)	5.9328* (0.0000)	6.0408* (0.0000)	5.6719* (0.0000)
Years of Schooling	0.1195* (0.0000)	0.1148* (0.0000)	0.1248* (0.0000)
Experience	0.0672* (0.0000)	0.0679* (0.0000)	0.0644* (0.0000)
Experience- Squared	-0.0012* (0.0000)	-0.0012* (0.0000)	-0.0012* (0.0000)
Chinese Immigrants	-0.3572* (0.0000)	-0.0763 (0.0998)	-0.7404* (0.0000)
Putonghua	0.0590 (0.2557)	0.0188 (0.7877)	0.1208 (0.1056)
English	0.4093* (0.0000)	0.5056* (0.0000)	0.3041* (0.0000)
<u>Chinese Immigrant</u>			
Schooling	-0.0590* (0.0000)	-0.0516* (0.0000)	-0.0729* (0.0000)
Experience	-0.0490* (0.0000)	-0.0297* (0.0000)	-0.0614* (0.0000)
Experience-Squared	0.0009* (0.0000)	0.0005* (0.0000)	0.0012* (0.0000)
Putonghua	0.3929* (0.0000)	0.5004* (0.0000)	0.1486 (0.0761)
English	0.6688* (0.0000)	0.6665* (0.0000)	0.6691* (0.0000)
Year of Duration	0.0685* (0.0000)	0.0763* (0.0000)	0.0569* (0.0000)
Year of Duration-Squared	-0.0010* (0.0000)	-0.0011* (0.0000)	-0.0009* (0.0000)
Putonghua with Year of Duration	-0.0197* (0.0000)	-0.0323* (0.0000)	0.0013 (0.8388)
Putonghua with Year of Duration-Squared	0.0003* (0.0030)	0.0006* (0.0000)	-0.0001 (0.6795)
English with Year of Duration	0.0084 (0.5817)	-0.0104 (0.6331)	0.0319 (0.1457)
English with Year of Duration-Squared	-0.0010* (0.0038)	-0.0010* (0.0498)	-0.0011* (0.0210)
Adj R-sq	ALL 0.3728	Male 0.4195	Female 0.3434
F	668.0876* (0.0000)	382.370*3 (0.0000)	312.0283* (0.0000)
n	52751	24800	27951

Notes: p-values are in parentheses \*statistically significant at 5% level

**Table 03:** Language Effect on Earning (By Occupation)

	Occupation							
	Managers and Administrators	Professionals	Associate Professionals	Clerks	Service Workers and Shop Sales Workers	Craft and Related Workers	Plant and Machine Operators and Assemblers	Elementary Occupations
(Constant)	6.6552* (0.0000)	5.6118* (0.0000)	7.2800* (0.0000)	6.7835* (0.0000)	7.3018* (0.0000)	7.4483* (0.0000)	8.4942* (0.0000)	8.1411* (0.0000)
Years of Schooling	0.1068* (0.0000)	0.1369* (0.0000)	0.1058* (0.0000)	0.0600* (0.0000)	0.0202* (0.0000)	0.0262* (0.0001)	0.0308* (0.0015)	0.0187* (0.0002)
Experience	0.0443* (0.0000)	0.0810* (0.0000)	0.0974* (0.0000)	0.0731* (0.0000)	0.0635* (0.0000)	0.0108* (0.0193)	0.0217* (0.0004)	0.0302* (0.0000)
Experience-Squared	-0.0007* (0.0001)	-0.0017* (0.0000)	-0.0022* (0.0000)	-0.0016* (0.0000)	-0.0013* (0.0000)	-0.0001 (0.3779)	-0.0004* (0.0170)	-0.0005* (0.0000)
Chinese Immigrants	0.6939* (0.0002)	-0.8406* (0.0102)	0.7891* (0.0000)	0.1169 (0.1273)	-0.2603* (0.0002)	-1.0340* (0.0000)	-0.5145* (0.0008)	0.0870 (0.2660)
Putonghua	-0.2598 (0.1212)	0.0244* (0.0071)	-0.1877 (0.2249)	0.1282* (0.0070)	0.3289* (0.0033)	0.3196* (0.0074)	0.0439* (0.0087)	-0.2236 (0.0573)
English	0.2752* (0.0027)	0.4767* (0.0002)	0.0259* (0.0000)	0.0706* (0.0001)	0.5338* (0.0000)	0.1412* (0.0003)	0.0752* (0.0002)	0.0733* (0.0000)
<b>Chinese Immigrant</b>								
Schooling	-0.0566* (0.0000)	0.0129 (0.4281)	-0.0528* (0.0000)	-0.0221* (0.0000)	-0.0048 (0.3022)	-0.0090 (0.2036)	-0.0099 (0.3413)	-0.0070 (0.1857)
Experience	-0.0328* (0.0000)	-0.0156 (0.0961)	-0.0542* (0.0000)	-0.0521* (0.0000)	-0.0356* (0.0000)	0.0070 (0.1609)	-0.0135 (0.0519)	-0.0237* (0.0000)
Experience-Squared	0.0006* (0.0059)	0.0000 (0.9278)	0.0011* (0.0000)	0.0011* (0.0000)	0.0006* (0.0000)	-0.0003 (0.0572)	0.0001 (0.6963)	0.0003* (0.0000)
Putonghua	0.3745* (0.0000)	0.2103* (0.0000)	0.2026* (0.0000)	0.1218* (0.0000)	0.2358* (0.0000)	0.1128* (0.0000)	0.1833* (0.0000)	0.0501* (0.0000)
English	0.3162* (0.0000)	0.4304* (0.0000)	0.7409* (0.0000)	-0.0022* (0.0000)	-0.2795* (0.0000)	-0.0556* (0.0000)	0.0012* (0.0000)	-0.5645 (0.2546)
Year of Duration	0.0316* (0.0000)	0.0459* (0.0000)	0.0259* (0.0000)	0.0411* (0.0000)	0.0547* (0.0000)	0.1220* (0.0000)	0.0738* (0.0000)	0.0215* (0.0000)
Year of Duration-Squared	-0.0005* (0.0000)	-0.0005* (0.0001)	-0.0002* (0.0033)	-0.0006* (0.0000)	-0.0008* (0.0000)	-0.0019* (0.0000)	-0.0010* (0.0000)	-0.0003* (0.0000)

Putonghua	with	0.0149	-0.0472	-0.0119	-0.0008	0.0058	-0.0113	0.0529	0.0047
Year of Duration		(0.1267)	(0.1173)	(0.5595)	(0.9236)	(0.7531)	(0.1087)	(0.0710)	(0.7965)
Putonghua	with	-0.0003	0.0026	0.0005	0.0000	0.0000	0.0005*	-0.0024	-0.0002
Year of Duration-Squared		(0.1686)	(0.1408)	(0.6768)	(0.9484)	(0.9592)	(0.0016)	(0.0970)	(0.8570)
English	with	0.0898	-0.0983	-0.0611	-0.0297	0.0154	-0.0521	-0.0258	0.2022
Year of Duration		(0.2229)	(0.3992)	(0.0870)	(0.7418)	(0.9184)	(0.0970)	(0.7528)	(0.2313)
English	with	-0.0064	0.0057	0.0011	0.0056	-0.0012	-0.0001	-0.0010*	-0.0045
Year of Duration-Squared		(0.1451)	(0.5178)	(0.1355)	(0.3367)	(0.9061)	(0.9933)	(0.0010)	(0.1792)
Occupation									
		Managers and Administrators	Professionals	Associate Professionals	Clerks	Service Workers and Shop Sales Workers	Craft and Related Workers	Plant and Machine Operators and Assemblers	Elementary Occupations
Adj R-sq		0.1880	0.3690	0.2938	0.2494	0.2253	0.6412	0.2552	0.0677
F		19.3999*	25.7895*	49.2690*	60.3984*	82.9747*	265.8855*	20.4123*	17.6214*
		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
n		3735	1993	5339	8404	13251	6819	2551	10524
Note: p-values are shown in parentheses. *statistically significant at 5% level									

**Table 04:** Marginal effect of language ability on earnings (By Occupation)

	English		Putonghua	
	Native	Immigrant	Native	Immigrant
Managers and Administrators	27.52%*	59.14%*	-25.98%	11.47%*
Professionals	47.67%*	90.71%*	2.44%*	23.47%*
Associate Professionals	2.59%*	76.68%*	-18.77%	1.49%*
Clerks	7.06%*	6.84%*	12.82%*	25.00%*
Service Workers and Shop Sales Workers	53.38%*	25.43%*	32.89%*	56.47%*
Craft and Related Workers	14.12%*	8.56%*	31.96%*	43.24%*
Plant and Machine Operators and Assemblers	7.52%*	7.64%*	4.39%*	22.72%*
Elementary Occupations	7.33%*	-49.12%	-22.36%	-17.35%*

\*statistically significant at 5% level

## INDUSTRY

Hong Kong natives' Putonghua language skills do not boost their income as much as English language skills do, Table 5 reveals that proficiency in English language skills enhance natives' earning on average by 34.13 percent, in which two industries, namely transport, storage and communication; financing, insurance, real estate and business services, rank the highest amongst six industries, the English language return rates are 47.41 and 47.94 percent respectively; Industries which has lower usage on English language skill, such as construction and community, social and personal services, rank the lowest. Chinese immigrants' earning is boosted through possessing Putonghua and English language skills, two industries, again transport, storage and communication; financing, insurance, real estate and business services, rank the highest. Table 6 shows that the earning power of Putonghua for immigrants which range from 25.72 to 61.76 percent while the earning power of English language skill range from 39.26 to 105.55 percent, this indicates that different kinds of language proficiency influence the earning power of immigrants. In addition, Table 5 indicates an insignificant interaction effect between year of duration and Putonghua and English skills, the hypothesis of language skills can be improved or deteriorated throughout year of duration is again not supported by empirical evidence.

In 1991, Chiswick examined the effects of English language fluency on earnings and found that English language fluency and immigrants' years of duration are positively related in the United States, and such correlation are relatively higher for those who are more educated and who are not Hispanic, the above empirical results indicates Chiswick's (1991) observation did not occur in Hong Kong, one possible explanation is that Hong Kong natives and immigrants are selectively assigned to different kinds of schools, Hong Kong natives are always allocated to the school which provide a better language training while a poor language training school would mainly recruit Chinese immigrants. As there exists a great difference in initial endowed features of language background as well as the post-migration training, it is not surprising to observe an insignificant relationship between language proficiency and year of duration in Hong Kong. Besides, the coefficient of year of duration represents assimilation rate of immigrants under different marital status, after controlling language skills and its possible interaction effect with year of duration, results validate the presence of immigrants' assimilation in different industries.

## 6.0 DISCUSSION

The empirical results show that English language earning power is positive to both natives' and immigrants' earning regardless of gender. This earning power is larger for male natives than female natives but it is similar for female immigrants and male immigrants, immigrants are able to earn more

than natives given they are proficient in English language. Secondly, regardless of immigrants' gender, immigrants' occupation and the industry they are working in, the interaction effects between English language skills and year of duration on earnings is insignificant. Thirdly, natives and immigrants possess proficient English language skills are rewarded better in industries and occupations that interpersonal skills requirements are more demanding. Lastly, immigrants who possess proficient English language skills are rewarded more than native counterparts regardless of the level of work experience importance and interpersonal skills requirement in various industries and occupations. For Putonghua language skills, the empirical results show that, firstly, regardless of immigrants' gender, immigrants' occupation and the industry they are working in, Putonghua language earning power is statistically significant to both natives' and immigrants' earning and such language earning power is larger for male immigrants than female immigrants. Second, regardless of immigrants' gender, immigrants' occupation and the industry they are working in, the interaction effects between Putonghua language skills and year of duration on earnings is insignificant.

**Table 05:** Language effect on earning (By Industry)

Industry	Language effect on earning (By Industry)					
	Manufacturing	Construction	Wholesale, Retail and Import / Export Trades, Restaurants	Transport, Storage and Communication	Financing, Insurance, Real Estate and Business Services	Community, Social and Personal Services
(Constant)	6.3061* (0.0000)	6.9815* (0.0000)	6.1988* (0.0000)	7.2025* (0.0000)	5.0733* (0.0000)	6.1943* (0.0000)
Years of Schooling	0.1072* (0.0000)	0.0745* (0.0000)	0.0935* (0.0000)	0.1102* (0.0000)	0.1683* (0.0000)	0.1021* (0.0000)
Experience	0.0377* (0.0000)	0.0254* (0.0000)	0.0699* (0.0000)	0.0598* (0.0000)	0.0788* (0.0000)	0.1013* (0.0000)
Experience-Squared	-0.0005* (0.0000)	-0.0003 (0.0434)	-0.0013* (0.0000)	-0.0010* (0.0000)	-0.0014* (0.0000)	-0.0021* (0.0000)
Chinese Immigrants	-0.2196* (0.0273)	-0.1587 (0.1730)	0.4022* (0.0000)	0.4625* (0.0000)	1.2719* (0.0000)	0.4556* (0.0000)
Putonghua	-0.0975 (0.4730)	0.0712* (0.0002)	0.1127* (0.0085)	-0.3347 (0.1658)	0.0734* (0.0090)	-0.0778 (0.5699)
English	0.3767* (0.0002)	0.2047* (0.0001)	0.3035* (0.0002)	0.4741* (0.0000)	0.4794* (0.0003)	0.2091* (0.0000)
<u>Chinese Immigrant</u>						
Schooling	-0.0554* (0.0000)	-0.0472* (0.0000)	-0.0429* (0.0000)	-0.0500* (0.0000)	-0.0801* (0.0000)	-0.0342* (0.0000)
Experience	-0.0299* (0.0000)	-0.0068 (0.2287)	-0.0499* (0.0000)	-0.0322* (0.0000)	-0.0549* (0.0000)	-0.0902* (0.0000)
Experience-Squared	0.0004* (0.0053)	-0.0001 (0.6234)	0.0009* (0.0000)	0.0005* (0.0004)	0.0008* (0.0000)	0.0019* (0.0000)
Putonghua	0.3547* (0.0030)	0.3456* (0.0346)	0.1909* (0.0020)	0.7461* (0.0006)	0.5442* (0.0072)	0.3749* (0.0133)
English	0.3827* (0.0000)	0.3216* (0.0010)	0.1465* (0.0002)	0.4608* (0.0012)	0.5761* (0.0008)	0.1835* (0.0006)
Year of Duration	0.1090* (0.0000)	0.0879* (0.0000)	0.0463* (0.0000)	0.0344* (0.0000)	0.0149* (0.0003)	0.0420* (0.0000)
Year of Duration-Squared	-0.0015* (0.0000)	-0.0014* (0.0000)	-0.0006* (0.0000)	-0.0004* (0.0000)	-0.0001 (0.3172)	-0.0006* (0.0000)
Putonghua with Year of	-0.0167	-0.0205	-0.0062	-0.0443	-0.0269	0.0065

Duration	(0.3461)	(0.2287)	(0.5131)	(0.1146)	(0.1316)	(0.5109)
Putonghua with Year of Duration-Squared	0.0005	0.0005*	0.0000	0.0016	0.0003	-0.0005
English with Year of Duration	(0.5742)	(0.0056)	(0.9981)	(0.2750)	(0.1304)	(0.2096)
English with Year of Duration-Squared	-0.4471	-0.0372	0.0655	-0.0262	0.0206	0.2226*
English with Year of Duration	(0.1117)	(0.5292)	(0.4108)	(0.5682)	(0.5268)	(0.0426)
English with Year of Duration-Squared	0.0176	0.0254*	-0.0020*	-0.0001	-0.0012	-0.0122
Adj R-sq	(0.0947)	(0.0395)	(0.0004)	(0.9234)	(0.2051)	(0.1292)
F	0.5990	0.3719	0.2758	0.2904	0.4064	0.3377
n	230.8730*	62.6502*	165.1982*	37.0009*	92.4622*	108.3747*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
	7233	4687	20261	4048	6281	9899

Notes: p-values are shown in parentheses, \*statistically significant at 5% level

Table 06: Marginal effect of language ability on earnings (By Industry)

	English		Putonghua	
	Native	Immigrant	Native	Immigrant
Manufacturing	37.67%*	75.94%*	-9.75%	25.72%*
Construction	20.47%*	52.63%*	7.12%*	41.68%*
Wholesale, Retail and Import / Export Trades, Restaurants	30.35%*	45.00%*	11.27%*	30.36%*
Transport, Storage and Communication	47.41%*	93.49%*	-33.47%	41.14%*
Financing, Insurance, Real Estate and Business Services	47.94%*	105.55%*	7.34%*	61.76%*
Community, Social and Personal Services	20.91%*	39.26%*	-7.78%	29.71%*

\*statistically significant at 5% level

## 7.0 CONCLUSION

This paper aims to estimate how language skills affect the assimilation process and earnings of Chinese immigrants as well as natives in Hong Kong, under the special nature and evolution of English usage and Putonghua usage in Hong Kong, empirical results are summarized as follow: (1) possessing English language skills can contribute to earning regardless of place of birth, the English language effect on earning is larger for Chinese immigrants than natives, and also different between male and female. Whilst Putonghua language skills do improve male immigrants' earnings by the extent of more than 50 percent and years of duration interact with Putonghua language skill, which implies earning power of Putonghua language skills is changing along with immigrants' year of residence in Hong Kong. (2) English language skill reward more to immigrants than to natives in managerial grade occupation, and similar reward to clerical jobs workers but reward more to natives than to immigrants in craft-related occupations. While Putonghua skill does positively enhance immigrants' and natives' earning regardless of occupations, also the hypothesis that language skills can be improved or deteriorated throughout year of duration is rejected after controlling occupational difference. (3) Industries, such as transport, storage and communication; financing, insurance, real estate and business services, allow the highest

English language return rate for natives and Chinese immigrants, Putonghua language skills are also enhancing immigrants' and natives' earning, for industries which have a better utilization on Putonghua language skills would allow a better return rate for immigrants.

Overall speaking, this study shows the marginal effects of language on earnings are occupation and industry dependent, if we are studying an industry where Putonghua is the major communication medium, the marginal effect of Putonghua on earning is expected to be larger than that of industry where Cantonese or English dominate communication medium. The assimilation hypothesis is valid regardless of gender, occupation and industry, even after controlling language skills, empirical results are still supporting assimilation hypothesis, and last but not least, the hypothesis of language skills can be improved or deteriorated throughout year of duration is rejected in most of the settings in this empirical study.

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