Economic Assimilation of Recent Immigrants in Hong Kong

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Abstract

Previous research has found earnings divergence between Chinese immigrant and native workers in Hong Kong, thus creating an anomaly among immigrant countries in terms of economic assimilation. Using more recent data, this paper found earnings divergence to continue for all workers. However, this earnings divergence masked the reverse trend for low-skill workers. Over time, low-skill immigrant workers gained earnings assimilation but high-skill workers did not. This paper also investigates nativity differences in the skill prices and in the distribution of occupational/industrial structure as explanations for the earnings divergence and convergence by skill levels. The decomposition analysis suggests the relative skill prices cannot be a major explanation for the relative mean earnings differences between immigrants and natives over time. Our results for Hong Kong are consistent with recent research on the economic assimilation of low-skill immigrants.

1. Introduction

Previous work (Lam & Liu, 2002a, 2002b) found that economic assimilation – the convergence of earnings between immigrant and native workers - was absent in Hong Kong during the decade of 1981-1991, as immigrant workers earned increasingly less than did native workers. This earnings divergence by nativity was rather unique among major immigrant countries, such as the United States where immigrant workers improve their economic positions over time relative to native workers (Chiswick 1978; Borjas 1985, 1995). It is even more puzzling since the lack of economic assimilation in Hong Kong is found among Chinese immigrants from mainland China, who are largely of the same racial/ethnic and cultural heritage. Chinese immigrants' human capitalmeasured by their education was not only on the rise during the decade studied, the quality of mainland Chinese students' education has been considered to have improved substantially, evidenced by the outstanding achievement of Shanghai students in the 2009 Programme for International Students' Assessment (PISA). Studies on secondary school students also found immigrant students in secondary schools to attain higher test scores than do native students in all subjects except the English language (Pong, 2009; Pong and Tsang, 2010), further suggesting that the schooling quality in Mainland China may not be inferior to that in Hong Kong. Thus it is important to examine whether earnings divergence by nativity was specific to a historical period, not representing a general trend.

Immigrant workers tend to experience occupational downgrading and be trapped in the peripheral segment of the host country's labor market, where jobs lack career ladder and wages are low (Akresh 2006; Massey, 2002). This is particularly true for low-skill immigrant workers with little human capital. However, Hall and Farkas (2008)

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found low-skill immigrant workers in the United States to obtain significant gains over time in earnings relative to their low-skill native counterparts. It is unclear if this result for low-skill immigrant workers can be applicable to Hong Kong. As for high-skill immigrants, the glass ceiling may apply such that they are unable to enjoy the same remuneration for their work as do high-skill native workers. In this paper we present evidence of systematic variations by skill levels, which can be masked by the overall immigrant-native earnings differentials.

Our overarching question is: Had the previously observed earnings divergence found between Hong Kong natives and immigrants from Mainland China remained or changed course in recent years? If so, did low-skill and high-skill workers experience the same trend? Were the differential returns to human capital by immigrant status a major contributor of the recent earnings differentials? We extend previous studies on the economic assimilation of Hong Kong immigrants in several respects. First, we use the most recent data from the Hong Kong Census that provide the most updated information on the economic progress of immigrants that was not previously available. Second, the recent three publicly available Hong Kong Censuses (1996, 2001, and 2006) collected information about immigrants' duration of residence in Hong Kong. This enables us to track three time times of an artificial cohort of immigrants who arrived in Hong Kong between 1991 and 1996. Third, we examined Chinese workers with different skill levels, focusing on the high- and low-skill employees. Lastly, we take into account the confounding factors of occupation and industry when we decompose earnings differentials in order to reveal whether the returns to immigrants' human capital contribute to the earnings divergence by nativity.

2. Hong Kong Context

As one of the world's financial center, Hong Kong enjoys real economic growth rate of about 6.8% (Bureau of East Asian and Pacific Affairs, 2011). HongKong's economic success is built to a large extent upon the human resources of its immigrant population. According to the recent Hong Kong Census, about one-third of its Population was born in Mainland China in 1996, 2001, and 2006 (Hong Kong Census and Statistics Department 2006). It has a continuous population inflow from the Mainland: refugees in the 1950s and 1960s, "new immigrants" in the 1970s and 1980s, and now the "new arrivals" since Hong Kong's reunification with China in 1997 (Siu, 1999). In 1974, Hong Kong issued the "reach-base" policy that aimed at curbing illegal immigration from the mainland. The policy recognized the rights to work of all illegal immigrants who crossed the border prior to November 1974. Those who successfully reached the urban areas of Hong Kong Island and the Kowloon peninsula were considered to be safe by "reaching base" (Lam & Liu, 1998). After then, any illegal immigrants were arrested and repatriated. Those who reached base were eligible for permanent status in Hong Kong after 7 years of residence. This effect of the reach-base policy was short-lived, however. Unilaterally closing the border did not stop illegal immigrants. After China lifted the restriction of internal mobility in accordance with the 1979 economic reform policy, border control of the mainland side weakened and there were surging numbers of illegal immigrants. Between 1978 and 1980, the inflow of Chinese immigrants, about half legal and half illegal, was estimated to be more than 400,000 (Siu, 1999). It was not until the agreement between Britain and the People's Republic of China on Hong Kong's political future when the Hong Kong government

gained China's consent in 1983 to join force to curb illegal immigration to Hong Kong. Since then, Hong Kong has been admitting 150 legal immigrants daily from China.

This change in Chinese immigrants' status from primarily illegal to virtually legal and the political integration between Hong Kong and the mainland since 1997 have been working to the advantage of mainland immigrants' assimilation, as Chinese immigrants to Hong Kong are longer "underground" people of a different country. Additionally, the Hong Kong government has shown concern and taken steps to integrate mainland immigrants and their children in Hong Kong. They range from delivering pamphlets to immigrants parents about local schools and their admission procedures, assisting students in their school placements, to operating various educational programs to help immigrant students to adapt to the Hong Kong school system (Pong 2009). These political and educational factors predict greater social and economic assimilation of immigrants in recent decades.

The concern of the welfare of immigrants has occupied academics and policy makers for decades. It is especially important after Hong Kong's handover to China when transitory and illegal migration has largely curbed. Some studies suggest that immigrants from China faced social barriers and discrimination (Chiu, 2005; Chiu &Lui, 2007; Law & Lee, 2006). However, rejecting the hypothesis of discrimination, Lam and Liu (2002a) proposed that it was the differential change in the returns of immigrants' education that caused the earnings divergence. Education acquired in Hong Kong enabled Hong Kong natives to be more adaptive than immigrants to technological changes. Their research shows the earnings divergence was driven by the relative skill price, measured by the decreasing marginal returns to schooling among Chinese immigrants relative to the marginal returns to schooling among Hong Kong natives.

Since Lam and Liu's research examined the period between 19981 and 1991. It is quite likely that their results are driven by labor market discrimination against illegal workers. Therefore, it is necessary to investigate a more recent period of time to see if Lam and Liu's findings represent a general trend. In addition to replicating Lam and Liu's work using newer data, we also examine the economic assimilation of employees of different skill levels defined by their education. Economic migrants all over the world tend to come from either end of the socioeconomic spectrum. The majority of migrants tend to be either high-skill professionals or low-skill service and manual laborers. Thus we focus our analysis on both high- and low-skill employees. Our results provide evidence of earnings convergence among low-skill Chinese immigrants to Hong Kong, which is consistent with the convergence of the nativity gap in the returns to schooling among low-skill workers. By contrast, the earnings gap by nativity enlarged over time among high-skill workers, despite the fact that relative skill prices are actually in favor of highly educated Chinese immigrants. These results point to differential patterns of economic assimilation for high- and low-skill workers.

3. Data and Summary Statistics

We use data from the 1991, 1996, 2001, and 2006 Hong Kong Population Consistory-Census 20% samples. The samples are restricted to Chinese men who were employees and had non-zero earnings at the time of the interview. We construct an artificial cohort of immigrants based on their residency duration in Hong Kong. Their same-age native peers are included as a comparison group. The immigrant cohort includes Chinese immigrants who were aged 25-50 in 1996 and resided in HK for no more than 5 years at the time of interview. This cohort was observed in three time points that span 15 years in 1996, 2001, and 2006. These individuals were aged 30-55 in 2001

and 35-60 in 2006, and they had resided in Hong Kong for 5-10 years in 2001 and for 10 to 15 years in 2006. The age restriction of 25-50 in the base year is appropriate for our study of employees because it ensures that individuals in our sample hadcompleted their schooling and were economically active at the time they were first observed. The upper age limit eliminates the potential bias of attrition due to retirement at the final time point of observation.

Table 1 shows the percentage distribution of schooling levels by immigrant status in the base year of 1996. The schooling distribution among immigrants appeared to be bimodal, with a large percentage of immigrants possessing a college degree (about 22 percent). Panel B shows three skill levels groups. Over 45 percent of immigrants were high skilled workers, defined as employees completing at least Form 6 (grade 12) or Form 7 (grade 13). Only 30 percent of native workers are in the high-skill category. It is noteworthy that this recent cohort is very different from the one studied in Lam & Liu (2002a).

Panel A in Table 2 shows the average earnings of immigrant and native employees for the full sample. All earnings are deflated at 2006 level. Immigrant employees earned less than native employees and this earnings gap increased over time. Immigrant employees earned about 11.6 percent of what their native counterparts earned during their first 5 years in Hong Kong (1996-2001). This earnings gap was enlarged as immigrants stayed longer. They earned about 25.2and 37.7 percent of what natives earned 5 and 10 years after, respectively.

However, when the sample was split into three groups by the level of worker skills, the results of the nativity gap were quite different. The nativity gap among high-skill workers (panel B) was greater than the overall average and it increased over the

years of immigrants' residence in Hong Kong. However, the nativity gap for low-skill

male (panel C) immigrants *decreased* over the 10 year period. Figure 1 illustrates the

earnings divergence for high-skill workers but earnings convergence for low-skill

workers. When all workers were considered, only earnings divergence was observed.

Workers with different skill levels tend to be segregated by industry and

occupations (Liu, Zhang, & Chong, 2003). It is illustrated in Table 3. Columns (2), (6)

and (10) show the distributions of immigrants across industries in years 1996, 2001 and

2006, respectively. Similar distributions can be found in columns (4), (8) and (12) for

natives. The columns labeled "% of white collar jobs within industry" show the

proportion of natives or immigrants having white collar jobs within a specific industry.

In 1996, the three top industries in which immigrant workers dominated were

manufacturing, utility and construction, and whole sale industries. The top three

industries for native employees also include manufacturing, and utility and construction.

Native workers also concentrated in transportation and communication industries. In

subsequent years, immigrant workers appeared to follow the footsteps of native workers.

In 2001, many immigrant workers left whole sale industries for transportation and

communication. For native workers, many moved into business services. In 2006,

business services became one of the top three industries predominated by immigrant

workers. Because native workers tend to concentrate in industries that offer higher

wages,[1] such as business services, it is apparent that immigrant workers tended to achieve

upward mobility in the labor market. This result is consistent with previous research in

the United States (Hall and Farkas, Duleep & Dowhan, 2002, Newman, 2006).

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[1] Average earnings for each industry in 1996, 2001, and 2006 are available upon request.

However, we can see that even though manufacturing remains to be the biggest industry for both natives and Chinese immigrants, the proportion of white collar occupations is bigger for natives, for example, in 2006, there is 46% natives employed in the manufacturing industry are in white collar jobs while only 25% of immigrants are holding a white collar job in the same industry.

For business sector, while more Chinese immigrants are entering the industry as the natives, the proportion of immigrants holding white collar jobs falls from 67% in 1996 to 30% in 2006, while the natives remain about 60% to 70% holding white collar jobs in the same industry. Given the above results regarding the distributionsby nativity of occupations and industries, our analysis below takes into account these economic factors.

Lastly, our analyses focus on the earnings of the employees; however, labor force participation rate might affect the composition of the employees and thus affect the earnings gap. For example, if there are improved job opportunities for immigrants over time, especially for the low-skill immigrants, their joining into the labor force in later period might make the gap looks narrower. Appendix Table A3 reports the labor force participation for all, high-skill and low-skill Chinese immigrant and native workers in all time periods we study. We do not find any specific pattern for dropping out of or entering into the labor force.

4. Returns to education and decomposition of earnings differences

To understand the role of human capital on earnings differences between natives and immigrants, we follow Smith and Welch (1989)'s two-equation model adapted by

Lam& Liu (2002a) to decompose the log earnings differences . In particular, we run the following regressions for natives and Chinese immigrants separately:

$$\ln w_{it}^{h} = \alpha_{it}^{h} + \beta_{t}^{h} Edu_{it}^{h} + \lambda X_{it}^{h'} + \varepsilon_{it}^{h} \tag{1}$$

$$\ln w_{it}^{c} = \alpha_{it}^{c} + \beta_{t}^{c} Edu_{it}^{c} + \lambda X_{it}^{c'} + \varepsilon_{it}^{c} \tag{2}$$

Where the superscripts *h* and *c* refer to Hong Kong natives and Chinese Immigrants, respectively. *I* and *j* index for individual *i* in time *t. lnw* is log of real monthly earnings from main employment at 2006 level. *Edu* represents years of formal education. *X* is a vector for other demographic characteristics including years of working experiences, its squared term, a dummy of white collar occupations[2], and dummies for thirteen industries: Agriculture & Mining; Manufacturing; Utility & Construction; Wholesale (including export/import); Retail, Restaurants, Hotels; Transportation (including Storage) & Communication; Finance ; Business Services; Public Administration; Sanitary and Similar Services; Social and Related Community Services; Amusement and Recreational Services; and Personal Services. Other industries are left as a control group.

Consistent with previous literature, working experience is derived by age minus six minus years of formal education for those who have at least 9 years of education, or age minus 15 for those who have less than 9 years of education.

We run the equation (1) & (2) for three time points, 1996, 2001 and 2006 to trace the same immigrant and their counter native cohorts based on immigrants' duration in Hong Kong: Period 1 is the first five years, Period 2 is the 6th to the 10th year, Period 3 is

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[2] We define managers and administrators; professionals and associate professionals as white collar occupations. Other occupations include clerks, service workers and shop sales workers, skilled agricultural and fishery workers, craft and related workers, plant and machine operators and assemblers, and elementary occupations.

the 11th to 15th year. We look at the changes their earnings and decompose the changes of the mean relative earnings of immigrants compared to the natives between time t and $t+1$ as follows:

$$
\left(\overline{\ln w_{i,t+1}^c} - \overline{\ln w_{i,t+1}^h}\right) - \left(\overline{\ln w_{it}^c} - \overline{\ln w_{it}^h}\right) = \underbrace{\overline{Edu}_{i,t+1}^c \left[(\hat{\beta}_{t+1}^h - \hat{\beta}_{t+1}^n) - (\hat{\beta}_t^h - \hat{\beta}_t^n)\right]}_{(A)}
$$

$$
+ \underbrace{(\overline{Edu}_{i,t+1}^c - \overline{Edu}_{i,t+1}^h)(\hat{\beta}_{t+1}^h - \hat{\beta}_t^h)}_{(B)}
$$

$$
+ \underbrace{\left[(\overline{Edu}_{i,t+1}^c - \overline{Edu}_{i,t+1}^h) - (\overline{Edu}_{it}^c - \overline{Edu}_{it}^h)\right]\hat{\beta}_t^h}_{(C)}
$$

$$
+ \underbrace{(\overline{Edu}_{i,t+1}^c - \overline{Edu}_{it}^c)(\hat{\beta}_t^c - \hat{\beta}_t^h)}_{(D)} + \quad other \quad terms
$$

(3)

Equation (3) contains four different type schooling effects according to Lam & Liu (2002a): (A) is the relative price effect, which measures the effect of the changes in relative skill prices for Chinese immigrants compared to natives in Hong Kong. If the differences in returns to education for immigrants and natives become smaller over time, the immigrants' earnings will catch up with the natives'. (B) is the general price effect. If immigrants have less schooling than natives and if the returns to schooling increase over time, the earnings gap between immigrants and natives will increase. (C) is the relative quantity effect. If the schooling level differences between Chinese immigrants and natives do not vary over time, this term would be closed to zero. Since we choose a cohort of aged 25 and above, we expect the differences between t and t+1 change very little unless the pursuit of further education (due to occupational needs) for immigrants and natives are different. (D) is the general quantity effect. If immigrants are paid less

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than natives for the same level of education, then earnings gap will increase if the mean level of education increases over time.

As we discuss earlier and shown in Table 3, the distribution of industry and occupational type for immigrants and natives are very different. In order to understand better the role of education in explaining the earnings gap between natives and immigrants, we run regressions (1) & (2) without controls for industry and occupational type first and compare the results with controls for industry and occupational type.

The regression results for the decomposition are reported in Appendix Table A1 and illustrated in Figure 2. In general, the skill prices for natives are higher than that for the immigrants. We can see that the returns to education for high-skill immigrants are much closed to the natives in the first period. The returns get even higher than the natives in the later periods. For low-skill workers, the returns to education is lower for immigrants at the beginning, but the differences in schooling coefficients have diminished after they arrived in Hong Kong for ten to fifteen years if we consider the occupation and industrial differences in their employment.

Table 4 shows the decomposition results. Panel A , Panel B and Panel C report respectively the decomposition of relative mean earnings for all male workers, high skilled male workers and low-skill male workers. Row (I) and Row (II) report the results without and with considering the industry and occupation. Consistent with Lam & Liu (2002a)'s finding, we can see from Panel A that the relative price effect mainly predicts the widening earnings gap between immigrants and natives between 1996 (Time1) to 2001(Time 2) and 2001 to 2006 (Time 3). Relative quantity effect is another dimension that served to enlarge the earnings gap. Both general price effect and general quantity

effect seems to close the earnings gap[3]. However, Row (II) implies that the relative skill price of immigrants and natives become smaller when we controls for industry and occupation. In fact, the later period, i.e. from 2001 to 2006, the skill prices in Hong Kong's labor market are in favor of Chinese immigrants, and the relative price effect indicates a narrowing earnings gap between immigrants and natives. However, other terms seem to divert the gap further.

We then look at the high-skill and low-skill workers separately to understand the different pattern of earnings gap we observed earlier (Table 2 and Figure 1). Similar, after we control for the industry and occupation differences in the regression, the relative skill price effect predicts a narrowing earnings gap for both high-skill workers over time. However, the pattern of "other terms" seems to be the major effect that captures the earnings gap changes for this group even after we consider the industry and occupation in our regressions. Therefore, we could not rule out that unobserved skilled could be an important factor behind the earnings divergence of high-skill immigrant and native workers.

We observed economic convergence for low-skill immigrants in both periods. In the first period, the relative low skill prices for low-skill immigrant could not explain the convergence of low-skill immigrants in the second period (i.e. after they arrive Hong Kong for five to ten years compared to the first five years when they first arrived in Hong Kong). Even though the relative quantity effect shows that the low-skill immigrants obtain more schooling after they moved to Hong Kong, "other terms" dominate the effect in both sign and magnitude. However, the later periods, the total schooling effect, in

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[3] The negative relative quantity effect term entails that there is indeed changes of continuing education acquired by immigrant and native workers. The natives' educational level is catching up.

particular the relative price effect, explain the earnings convergence well, which implies that changing skill prices for low-skill immigrants are an important factor for their economic assimilation.

In short, while Lam & Liu (2002a) found that the divergence in returns to education is the major cause of earnings divergence for immigrants and natives in the 1980s, our results show the recent Chinese immigrant cohort who possess more education have gained relative earnings benefits due to the relative rising skill prices. This pattern is especially clear in later period after the immigrants stayed in Hong Kong for 5 to 15 years and for low-skill immigrants. However, there seem to be other unobserved factors affecting the high-skill Chinese immigrants' earnings that enlarge the earnings gap.

5. Returns to education and experiences obtained before and after migration

Since our selected Chinese immigrant cohort obtained most of their education before they moved to Hong Kong, the returns to schooling we estimated can be accounted for the returns to non-Hong Kong education. However, the observed differences in returns to education among immigrants and natives for high skill workers in Hong Kong is not consistent with the general argument that immigrants receive lower returns to schooling obtained in their country of origin than natives who received education that could be highly adaptable to local labor market (Lam & Liu, 2002a[4]). Further, research has shown that imperfect transferability of home country's education can also explain the wage differentials between natives and immigrants (Basilio& Bauer,

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[4] However, Lam & Liu (2002a) did not directly test the hypothesis but assuming the returns to schooling for immigrants and natives are equal like Equation (1) & (2).

2010; Freidberg, 2000). In this section, we would like to test directly the differences of returns to education obtained overseas and in Hong Kong.

We follow Friedberg (2000) by estimating the following:

$$\ln w_{ij} = \alpha + \beta_1 Edu^h_{ij} + \beta_2 Edu^c_{ij} + \gamma \ immigrant_{ij} + \phi_1 Edu^h_{ij} * immigrant_{ij} +$$
$$\mu_1 Exp^h_{ij} + \mu_2 Exp^c_{ij} + \phi_2 Exp^h_{ij} * immigrant_{ij} + \lambda X'_{ij} + \varepsilon_{ij} \tag{2}$$

X is a vector for a dummy of speaking Cantonese, a dummy of speaking English, a dummy of white collar occupations[5], dummies for thirteen industries. This regression model does not only allow returns to Chinese immigrants' education received in China to be different than natives' local schooling in Hong Kong, it also allows the return to immigrants' labor market experience in China to be different than that in Hong Kong. The portability of education and experience obtained in China to Hong Kong's labor market is measured by β_2 and μ_2 , further, we might observe a rise in these two coefficients if immigrants gradually sort themselves into occupations that rewards their home country education and experiences . To allow for greater variation in education and working experiences obtained in home country and Hong Kong, we use a sample that are younger when they first arrived in Hong Kong: those who were aged 15-50 in 1996 and resided in HK for no more than 5 years; aged 20-55 in 2001 and resided in HK for 5 to 10 years; aged 25-60 in 2006 resided in HK for 10 to 15 years. Results are shown in Table 5. Consistent with previous literature, we see that the returns to education and experiences obtained in China are lower for Chinese immigrants in general. However, for high-skill workers, the returns to schooling obtained in China is very high and comparable to the

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[5] We define managers and administrators; professionals and associate professionals as white collar occupations. Other occupations include clerks, service workers and shop sales workers, skilled agricultural and fishery workers, craft and related workers, plant and machine operators and assemblers, and elementary occupations.

returns to schooling obtained in Hong Kong. There is an increasing return from period 1 to period 2. We observe a great variation of skill prices for high- and low-skill immigrants implying that the quality of education received in home country are very likely to be different for low-skill and high-skill workers. The findings support our previous analysis that there are rising returns to skills for Chinese immigrants, regardless where they obtained their education.

Conclusion

Our study has provided an updated picture of the immigrants from Mainland China and their economic assimilation in Hong Kong. Consistent with previous research by Lam and Liu (2002a, 2002b), our results show earnings divergence, indicating an increase in economic disadvantage of Chinese immigrant workers in Hong Kong. However, this general trend masked differences by skill levels. Separate analyses of high- and low skill workers led to very different assimilation patterns. The nativity gap enlarged over time for high-skill immigrants even though their relative skill prices, or relative returns to education are higher than the natives'. By contrast, low-skill immigrant workers achieved earnings parity with low-skill native workers.

An unusual feature of the case of Hong Kong is that Chinese immigrant workers were in general more educated than native workers. This may be due to recent Hong Kong's immigration policy that emphasizes the recruitment of talents. The good news for immigrant assimilation is that, among high-skill workers, the returns to Chinese immigrants' schooling (or Chinese immigrants' skill prices) are higher than that of natives' schooling. However, the bad news is that skill prices cannot explain the earnings

divergence among these high-skill workers. Other explanations, such as occupational segregation or glass ceiling, may offer better insights.

The finding of earnings convergence among low-skill workers is consistent with past literature of economic assimilation of immigrants. To some extent, skill prices explain this convergence but other factors appear to be important as well. Future studies need to look into these other factors.

The usefulness of separating skill level is clear. Although previous work (Lam & Liu, 2002a, 2002b) found that the divergence in returns to education was the major cause of earnings divergence for immigrants and natives in the 1980s, our analyses do not produce the same conclusion. It is possible that previous work captured a specific historical period when illegal immigrants were prevalent, and does not represent the economic assimilation of more recent waves of *legal* immigration which is typical of most immigration societies today. This paper suggests that although earnings divergence exists until the recent periods, the driving forces of the divergence may differ, which warrant further investigations.

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Table 1.Percentage Distribution of Education Levels of Chinese Males aged 20-50 by Immigrant status, 1996

Panel A

Education Level	Immigrant	Native	All
1 Kindergarten or below	0.37	0.79	0.78
2 Primary	10.57	14.89	14.79
3 Lower secondary	22.20	22.90	22.88
4 Upper secondary	21.18	31.97	31.71
5 Form 6/7	8.53	6.24	6.29
6 Higher Diploma	6.74	8.23	8.19
7 First Degree	21.06	11.89	12.11
8 Post-graduate degree	9.35	3.09	3.24
Total	100	100	100
N	3518	142537	146055

Panel B

Education Level	Immigrant	Native	All
Low skilled (1-3)	33.14	38.58	38.45
Medium skilled (4)	21.18	31.97	31.71
High skilled (5+)	45.68	29.45	29.84
Total	100	100	100
N	3518	142537	146055

Notes: Natives are Hong Kong-born individuals, and immigrants are Mainland-born Chinese who entered Hong Kong between 1992 and 1996.

Table 2.The Nativity Earnings Gap by Skill Levels

A. All male workers

Duration in Hong Kong	Immigrants	Natives	Raw nativity gap	Nativity gap as % of native's earnings
1-5 years	13933.11 (3518)	15767.76 (142596)	1834.65	11.64%
5-10 years	15262.52 2535	20394.68 134433	5132.17	25.16%
10-15 years	12701.64 (2863)	20375.89 (119140)	7674.24	37.66%

B. High-skill workers

Duration in Hong Kong	Immigrants	Natives	Raw nativity gap	Nativity gap as % of native's earnings
1-5 years	19947.85	25151.72	5203.87	20.69%
5-10 years	24232.07	34813.00	10580.93	30.39%
10-15 years	18454.49	34245.28	15790.79	46.11%

C. Low-skill workers

Duration in Hong Kong	Immigrants	Natives	Raw nativity gap	Nativity gap as % of native's earnings
1-5 years	8228.10	10405.19	2177.09	20.92%
5-10 years	9293.40	11703.77	2410.37	20.59%
10-15 years	9614.02	11357.89	1743.87	15.35%

Note: All earnings figures are at the 2006's price level. The number of observations is in parentheses.

Table 3. Distribution of Industry and Occupation by Time and Immigration Status

| | 1996 | | | | 2001 | | | | 2006 | | | |
| | Immigrants | | Natives | | Immigrants | | Natives | | Immigrants | | Natives | |
Industry	% of white collar within industry	Total	% of white collar within industry	Total	% of white collar within industry	Total	% of white collar within industry	Total	% of white collar within industry	Total	% of white collar within industry	Total
1	0.00	0.58	6.42	0.55	0.00	0.71	4.85	0.33	0.00	0.35	6.62	0.24
2	18.76	33.24	32.52	23.30	26.60	24.39	41.25	16.86	25.46	14.41	46.14	12.29
3	14.15	15.65	23.77	11.78	7.07	17.43	26.52	9.74	1.18	22.55	27.89	9.26
4	85.98	11.65	73.37	5.45	80.54	9.61	72.08	6.93	57.65	8.16	71.26	7.43
5	24.37	6.79	48.75	6.50	26.37	4.31	52.13	6.70	41.06	6.99	52.75	6.13
6	49.72	7.65	19.23	17.46	26.22	13.09	22.17	18.53	14.32	11.33	22.10	19.68
7	100.00	4.47	92.35	5.62	90.48	3.48	91.31	6.01	90.32	2.47	92.24	5.83
8	67.19	5.44	71.21	9.36	42.28	8.74	67.98	12.13	29.81	12.58	58.89	14.96
9	77.42	0.67	64.19	2.13	0.00	0.17	63.11	4.46	47.37	1.01	67.00	4.74
10	0.00	0.92	12.25	0.66	0.00	0.52	12.26	0.60	0.00	1.68	7.53	0.98
11	94.35	5.33	84.67	6.95	70.95	4.24	81.09	7.91	50.00	5.16	77.06	8.51
12	100.00	0.47	64.88	1.92	44.44	1.28	62.83	1.77		0.00	62.62	1.77
13	8.24	3.66	10.70	3.27	0.00	3.72	11.47	2.67	0.00	2.53	11.07	2.48
14	21.74	3.46	38.57	5.04	12.25	8.31	21.58	5.37	2.46	10.80	22.37	5.69
Total		100.00		100.00		100		100		100		100

Note: industry coding: 1=Agriculture & Mining; 2=Manufacturing; 3=Utility & Construction; 4=Wholesale (including export/import); 5=Retail, Restaurants, Hotels; 6=Transportation (incl. Storage) & Communication; 7=Finance ;8=Business Services; 9=Public Administration; 10=Sanitary and Similar Services; 11=Social and Related Community Services; 12=Amusement and Recreational Services; 13=Personal Services; 14=Others.

Table 4. Decomposition of Changes of Relative Mean Earnings, With and without Taking Into Account Workers' Industry and Occupation

Panel A. All

		relative price effect	general price effect	relative quantity effect	general quantity effect	total schooling effect	other terms	change of relative mean earnings
time2-time1	(I)	-0.2540	0.0041	-0.1132	0.0103	-0.3528	0.2546	-0.0982
	(II)	-0.1546	0.0016	-0.0673	0.0281	-0.1923	0.0940	
time3-time2	(I)	-0.3005	0.0018	-0.0666	0.0106	-0.3547	0.2749	-0.0798
	(II)	0.0322	0.0020	-0.0382	0.0137	0.0097	-0.0895	

Panel B. High Skilled Workers

		relative price effect	general price effect	relative quantity effect	general quantity effect	total schooling effect	other terms	change of relative mean earnings
time2-time1	(I)	0.9379	-0.0011	-0.1021	0.0077	0.8424	-1.0210	-0.1785
	(II)	0.9228	-0.0008	-0.0759	0.0358	0.8818	-1.0604	
time3-time2	(I)	-0.1671	0.0048	-0.0210	0.0034	-0.1800	-0.0284	-0.2084
	(II)	0.0912	0.0057	-0.0157	0.0007	0.0818	-0.2902	

Panel C: Low Skilled workers

		relative price effect	general price effect	relative quantity effect	general quantity effect	total schooling effect	other terms	change of relative mean earnings
time2-time1	(I)	-0.0824	0.0036	0.0062	-0.0016	-0.0741	0.1644	0.0903
	(II)	-0.0824	0.0021	0.0050	-0.0010	-0.0763	0.1666	
Time 3-time2	(I)	0.1167	0.0007	-0.0106	0.0059	0.1127	-0.0351	0.0777
	(II)	0.1678	0.0005	-0.0081	0.0045	0.1647	-0.0870	

Note: relative mean earnings is calculated by subtracting earnings of natives from earnings of immigrants.
(I) without controlling for industry & occupation
 (II) With controls of industry and occupation

Table 5. Returns to different types of education and work experiences, by skill levels.

VARIABLES	period 1		period 2		period 3	
	model 1	model 2	model 1	model 2	model 1	model 2
Panel A: All						
Immigrant	0.467***	0.344***	0.722***	0.580***	1.012***	0.794***
	(0.021)	(0.020)	(0.036)	(0.033)	(0.054)	(0.049)
Education in HK	0.114***	0.070***	0.124***	0.075***	0.128***	0.075***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education in China	0.075***	0.043***	0.070***	0.035***	0.054***	0.026***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)
Education_HK*Immigrant	-0.076***	-0.054***	-0.078***	-0.064***	-0.089***	-0.071***
	(0.006)	(0.005)	(0.005)	(0.004)	(0.005)	(0.004)
Experience in HK	0.033***	0.027***	0.027***	0.023***	0.021***	0.017***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Experience in China	0.007***	0.005***	-0.001	-0.002**	-0.003**	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Experience_HK*Immigrant	-0.003	0.004	-0.010*	-0.006	-0.022***	-0.017***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Adj.R-squared	0.369	0.458	0.369	0.467	0.346	0.468
Panel B: High-skill						
Immigrant	0.404***	0.667***	0.176*	0.597***	0.418***	1.076***
	(0.075)	(0.068)	(0.087)	(0.080)	(0.115)	(0.103)
Education in HK	0.153***	0.108***	0.169***	0.123***	0.166***	0.118***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Education in China	0.135***	0.076***	0.165***	0.091***	0.150***	0.077***
	(0.004)	(0.004)	(0.005)	(0.004)	(0.005)	(0.005)
Education_HK*Immigrant	-0.106***	-0.086***	-0.030***	-0.050***	-0.040***	-0.080***
	(0.013)	(0.011)	(0.009)	(0.008)	(0.009)	(0.008)
Experience in HK	0.055***	0.045***	0.044***	0.038***	0.033***	0.030***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Experience in China	0.015***	0.008***	0.003	0.002	-0.004	-0.002
	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Experience_HK*Immigrant	-0.096***	-0.073***	-0.028***	-0.015*	-0.037***	-0.043***
	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)
Adj.R-squared	0.390	0.503	0.381	0.483	0.283	0.424

Table 5 (Continued)

VARIABLES	period 1		period 2		period 3	
	model 1	model 2	model 1	model 2	model 1	model 2
Panel C: Low-skill						
Immigrant	0.110***	0.081*	0.258***	0.213***	0.426***	0.289***
	(0.032)	(0.032)	(0.050)	(0.049)	(0.074)	(0.070)
Education in HK	0.034***	0.030***	0.034***	0.027***	0.038***	0.029***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Education in China	0.014***	0.012***	0.025***	0.022***	0.010**	0.008*
	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)
Education_HK*Immigrant	-0.039***	-0.036***	-0.038***	-0.036***	-0.052***	-0.035***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.008)
Experience in HK	0.019***	0.018***	0.013***	0.011***	0.009***	0.008***
	0.000	0.000	0.000	0.000	0.000	0.000
Experience in China	0.003***	0.002**	-0.004***	-0.004***	-0.007***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Experience_HK*Immigrant	0.040***	0.043***	-0.011*	-0.011*	-0.008	-0.002
	(0.006)	(0.006)	(0.005)	(0.005)	(0.006)	(0.005)
Adj.R-squared	0.123	0.159	0.063	0.125	0.037	0.139

Appendix

Table A1: The Returns to Education by Nativity for All Workers , High-skill Workers, and Low-skill Workers, without and with industry and occupation variables

|	Time 1		Time 2		Time 3	
	N	Y	N	Y	N	Y
All Workers						
Native	0.116	0.069	0.129	0.074	0.12	0.064
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
	142537	142537	134424	134424	119140	119140
Immigrant	0.105	0.039	0.095	0.03	0.058	0.023
	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
	3518	3518	2535	2535	2863	2863
High-skill Workers						
Native	0.148	0.11	0.181	0.135	0.149	0.097
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
	41973	41973	41730	41730	38978	38978
Immigrant	0.137	0.059	0.232	0.145	0.189	0.113
	(0.007)	(0.008)	(0.010)	(0.012)	(0.009)	(0.009)
	1607	1607	1002	1002	968	968
Low-skill Workers						
Native	0.031	0.025	0.038	0.029	0.041	0.031
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
	54990	54990	51255	51255	44091	44091
Immigrant	0.012	0.013	0.008	0.006	0.027	0.031
	(0.008)	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)
	1166	1166	1131	1131	1273	1273

Note: standard errors are in parentheses; the number of observations is in square brackets.

"Y" means controlling for variables of industries and occupations; "N" means without controlling those variables.

Table A2.   Labor force participation of Chinese Immigrants and Natives

Year	ALL		High Skilled		Low-skilled	
	Chinese Immigrants	Natives	Chinese Immigrants	Natives	Chinese Immigrants	Natives
1996	95.23%	97.36%	95.01%	97.69%	94.14%	96.30%
2001	92.33%	94.21%	97.17%	96.52%	89.56%	91.51%
2006	90.39%	89.89%	93.66%	93.04%	89.60%	86.09%

Figure 1. The Nativity Gap in Three Time Points – 1996, 2001, and 2006

a. All Workers
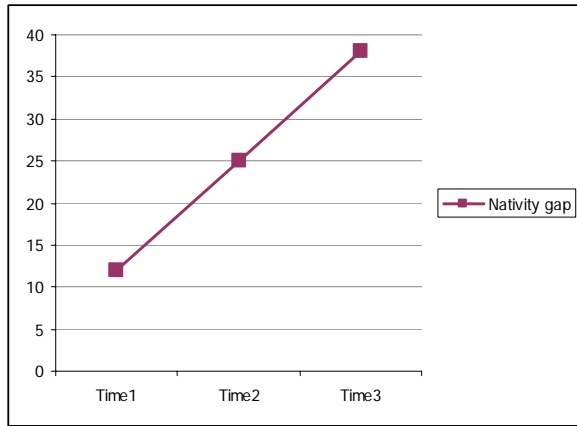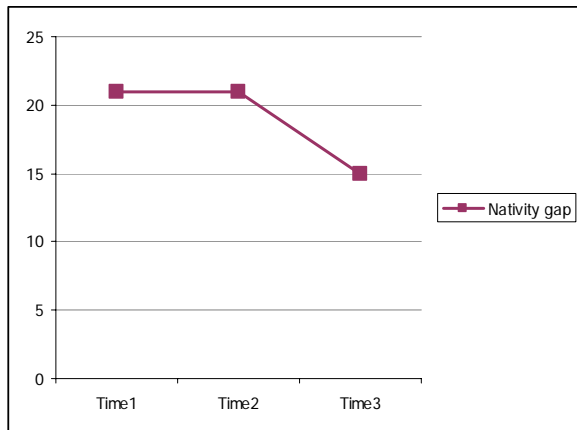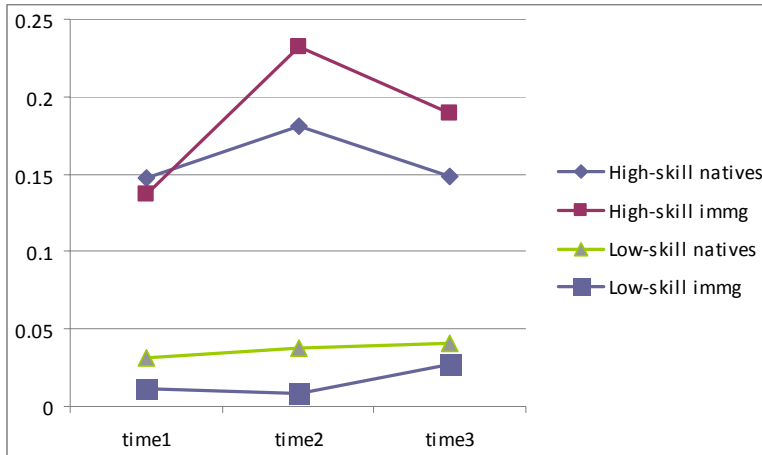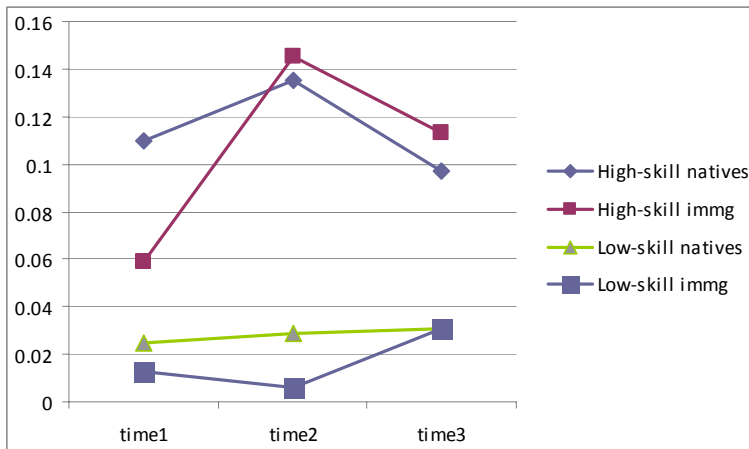

b. High-skill Workers
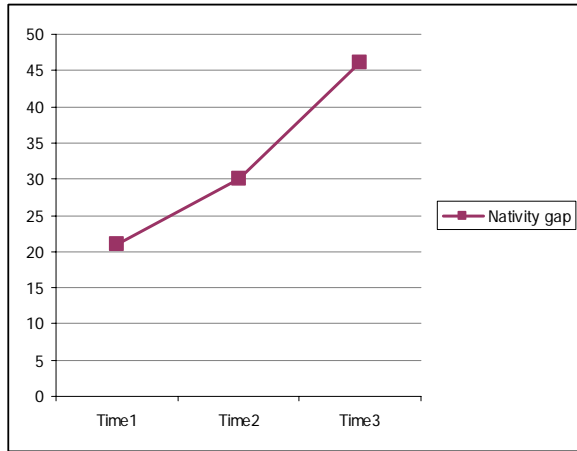
c. Low-skill Workers

Figure 2. The Earnings Gap by Skill Levels and by Immigrant Status , With and Without Taking Into Account Workers' Industry and Occupation

a. Without Workers' Industry and Occupation

b. With Workers' Industry and Occupation

c. For all Workers, with and without industry and occupation