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Earnings Divergence of Immigrants

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I. Introduction

From 1981 to 1991, the mean earnings of male immigrants fell further behind male natives in Hong Kong. Specifically, the mean earnings gap widened substantially from 11.3 per cent in 1981 to 25.5 per cent in 1991. In most countries which receive a substantial flow of immigrants, immigrants are able to narrow the earnings gap with respect to the natives as they stay in the country for a longer period. Earnings divergence between immigrants and natives over time as observed in the case of Hong Kong is rather unique among major recipient countries of immigrants.

Immigrants in Hong Kong are predominantly from mainland China. A high proportion (35.6 per cent in 1991) of Hong Kong's population are Chinese immigrants who have the same ethnic origin and share a common language and culture with the native-born, and who have been admitted on a non-selective basis (see section II). In this regard, Hong Kong is more similar to Israel than other major recipient countries of immigrants, such as the United States, Canada and Australia.[1] However, immigrants in Israel are able to narrow the wage gap with respect to natives (Eckstein and Weiss, 1998), but not immigrants in Hong Kong. What has happened to immigrants in Hong Kong?

The closing of the earnings gap between immigrants and natives typically observed in other countries has been attributed to a number of forces that operate after the immigrants' arrival. Immigrants import human capital which may be country specific and not transferable (Lam, 1986). After arrival in the recipient country they may acquire country specific skills, such as the local language, culture and knowledge of the market, thus narrowing the earnings gap in a process of economic assimilation (Chiswick,

1978; Borjas, 1985, 1995; LaLonde and Topel, 1992). Furthermore, immigrants initially tend to accept any available job. As they spend time in the new country, they may find a better match with local employers (Weiss and Gotlibovski, 1995; Eckstein and Weiss, 1998) causing returns to their imported skills to rise. While these processes may also be in operation in the Hong Kong labour market contributing to narrowing of the earnings gap, a third force may be in operation causing ultimately earnings divergence.

A change in production technology in the economy may have a differential impact on not only prices of different *levels* of skill, but also on prices of skill from different *sources*. It may enhance the productivity of the local skills of natives more than the imported skills of immigrants. This may be because skills acquired by natives in their own country are more adaptive to technological change in that country, whereas imported skills acquired by immigrants in the source country are not only less productive in the recipient country at arrival because of country-specificity, but may also become increasingly relatively less productive as the production technology changes. Specifically, we will show in this paper that earnings divergence between immigrants and natives in Hong Kong is mainly caused by the decline in the relative skill prices for immigrants' education. In other words, the main cause is that relative to natives, returns to immigrants' schooling have deteriorated over time. We interpret this decline in relative skill prices to be caused by the rapid economic restructuring that the economy of Hong Kong underwent in the 1980s. Immigrants in Hong Kong may have been assimilating in the usual sense (as analyzed by Chiswick, 1978; Borjas, 1985, 1995; LaLonde and Topel, 1992), but this assimilation effect is overwhelmed by the substantial change in relative education skill prices, causing earnings divergence.

The rest of the paper is organized as follows. The immigration policy in Hong Kong is reviewed in section II. Section III contains a description of the census data sets. Relative earnings of immigrant cohorts and earnings divergence between immigrants and natives are quantified in section IV. Changes in earnings

structure and prices of unobserved skills as possible explanation of earnings divergence are discussed in sections V and VI, respectively. The change in prices of observed skills is identified as the main cause for the earnings divergence in section VII. In section VIII, the earnings divergence is decomposed into components to show that the dominant factor is the widening differential in schooling returns. The results are interpreted in section IX.

II. Background to Chinese Immigration to Hong Kong

Hong Kong is a society of Chinese immigrants and their descendants. In 1961, over half of the Hong Kong population was born in mainland China who migrated to Hong Kong. Even though the percentage of mainland-born Chinese immigrants in the Hong Kong population has declined over time due to changes in Hong Kong's immigration policy, Chinese immigrants still made up 35.6 per cent of the Hong Kong's population of 5.7 million in 1991 (see Table 1). Among the native-born, most had parents or grandparents who had been immigrants from mainland China.

For historical and geographical reasons, mainland China has always been the dominant source of immigrants to Hong Kong. After the Second World War in 1945 and the communist take-over of China in 1949, on each occasion there was a large influx of immigrants from China who migrated into Hong Kong for economic or political reasons. The collapse of agricultural production following collectivization and the Great Leap Forward movement in China and the subsequent famine in the early 1960s brought another surge of immigrants from China into Hong Kong. Immigrants in these three waves were mostly illegal in the sense that they entered Hong Kong without exit permits from the Chinese authorities or entry visas from Hong Kong.

Due to the special status of Hong Kong *vis-à-vis* China, Hong Kong cannot stop Chinese immigration without the official consent of China. Prior to 1974, Hong Kong admitted all entrants,

Table 1 Place of Birth of Hong Kong Population, 1961-1991 (%)

Place of birth	1961	1971	1981	1991
Hong Kong	47.7	56.4	59.4	59.8
Mainland China	50.5	41.6	37.0	35.6
Elsewhere	1.8	2.0	3.6	4.6
Total	100.0	100.0	100.0	100.0

Source: Hong Kong Population Census, 1961, 1971, 1981 and 1991.

legal or otherwise, from China without screening. In 1974, with the consent of China, this policy was changed to become what was known as the "touch-base" policy. The police and the army of Hong Kong tried to stop illegal immigrants at the border and repatriated those who were caught. Those who reached the urban area and found a place of accommodation were deemed to have touched base. They were permitted to apply for an identification card and to reside and work in Hong Kong. Their right to work was no different from that of the native-born. After seven years of residence, they would become permanent residents of Hong Kong.

In 1979, China implemented an open door policy of economic reform. The open door policy allowed Chinese people who had hitherto been insulated to come into closer contact with the outside world, particularly Hong Kong, at a time when border control was weakened. A massive wave of illegal immigrants crossed the border and flooded Hong Kong in 1979-1980. Within two years, the population of Hong Kong increased by about 7 per cent. The "touch-base" policy became untenable. With the consent of China, this policy was abolished in October 1980 and replaced by a policy of immediate repatriation, regardless of circumstances, once the illegal immigrants were identified and captured. Henceforth, legal residents of Hong Kong were required to carry identification cards at all time. Illegal immigrants, even if they had

evaded arrest at the border and had gone underground in the urban area, would no longer be able to apply for residence. The door to residence in Hong Kong by illegal entry was closed. Employing illegal immigrants to work in Hong Kong was made a criminal offence.[2]

Since 1980, immigrants from China all have been legal in that they have entered Hong Kong with exit permits issued by the Chinese authorities. According to an agreement with China, Hong Kong would receive only 150 Chinese legal immigrants daily. The immigrant flow since 1980 has been drastically reduced in comparison with the waves of illegal immigrants in the earlier decades.

Hong Kong government has had no authority to screen Chinese immigrants within the daily quota for entry into Hong Kong because China has always considered Hong Kong, though under British rule, part of China and therefore has had no sovereign rights. Hong Kong basically has accepted everyone sent by the Chinese authorities within the quota. The selection criteria which the Chinese authorities apply in approving immigrants for migration to Hong Kong have not been made transparent until very recently. Family reunion purportedly is the most important consideration, but there have been reports of rampant corruption in the approval process. Chinese immigration into Hong Kong is unique in that the recipient, in this case Hong Kong, does not select the immigrants it receives.

III. Data

The data sets we use are a 20 per cent micro-data sample of the 1981 population census and a 5 per cent sample of the 1991 population census. Our samples consist of male natives born in Hong Kong and male Chinese immigrants who immigrated from mainland China. The samples include only male employees of age 20 to 64 and contain a total of 196,628 and 58,520 individuals in the 1981 and 1991 data sets, respectively. In the 1981 data set, 55.9 per

cent of the male employees in Hong Kong are immigrants. This percentage falls to 40.0 per cent in the 1991 data set.

In both the 1981 and 1991 censuses, immigrants can be identified by their place of birth. The 1981 census only reports the year of arrival of immigrants who arrived within five years of the census, while the 1991 census reports the year of arrival of immigrants within ten years of the census. This limited information available on year of arrival allows us to identify several arrival cohorts of five-year interval in the two repeated cross sections of census data (Table 2).

The pre-1981 arrival cohort is the only cohort on which there is information in both repeated cross sections. A finer breakdown of this cohort by year of arrival is not possible because of data limitation in the censuses. We will focus on the analysis of this cohort. Besides being dictated by the data available, the isolation of this synthetic cohort for analysis has a rational basis. The pre-1981 arrival cohort arrived Hong Kong before the abolition of the "touch-base" policy in October 1980, as mentioned in the previous section. Immigrants in the cohort are predominantly illegal ones. Presumably illegal immigrants, by self-selection, share some characteristics among themselves that are different from the legal immigrants who arrived after 1980. The pre-1981 arrival cohort is also different from later arrival cohorts in that immigrants in this cohort mostly arrived before the launching of the open door

Table 2 Definition of Immigrant Arrival Cohorts

	Cohorts identified	
	1981	1991
1986 - 91 arrival	No	Yes
1981 - 86 arrival	No	Yes
Pre-1981 arrival	Yes	Yes
1976-81 arrival	Yes	No

policy and economic reform in China in 1979. Their skills and work experience were mostly derived from working in a centrally planned socialist economy, whereas immigrants of later arrival cohorts would have had experience in the market-oriented economy of China before emigrating to Hong Kong.

The census data sets contain the main variables that are relevant to our study, like sex, age, education, monthly earnings and place of birth. Working experience is given by age minus year of schooling minus six (age minus 15 for those with less than nine years of schooling because the legal working age is 15). Summary statistics of the data sets are in Appendix 1. There are no data on hours of work, but since our samples are restricted to male employees of age 20 to 64 for whom part-time employment is uncommon, variance in hours of work is expected to be small. The earnings variable is used instead of the wage variable for which information is not available. In 1991, immigrants of all the identified arrival cohorts on average earn substantially less than the natives. They are on average older and more experienced. Immigrants of the more recent arrival cohorts (1981-86 and 1986-91) are legal. They are on average more educated than the pre-1981 arrival cohort, which is a cohort of illegal immigrants. The improvement in educational attainment across cohorts is substantial, so much so that the most recent cohort (1986-91 arrival) has on average slightly more years of schooling than the natives.

An important difference in the schooling of natives and immigrants is that the former have acquired all their schooling in Hong Kong whereas the latter have acquired most of their schooling in China. Even though, like most empirical studies on this subject, the breakdown of schooling of immigrants into schooling acquired in China before immigration and schooling acquired in Hong Kong after immigration is not possible because of data limitation, we can infer from the age distribution of immigrants on arrival that most of the illegal immigrants of the pre-1981 arrival cohort are likely to have completed their formal schooling before migration.[3] Furthermore, it has been reported that the participation rate of new immigrants in part-time continuing educa-

tion after migration is very low.[4] Hence, it is safe to conclude that the reported schooling of immigrants of the pre-1981 arrival cohort has been mostly acquired in China before immigration to Hong Kong.

IV. Earnings Divergence: Empirical Observation

In contrast to the experience of immigrants in other countries, immigrants' earnings in Hong Kong diverge from those of the natives over time. Table 3 shows the relative mean earnings of male immigrant employees as measured by the difference in mean log earnings between immigrants and natives, and their intercensal change.

Three stylized facts are apparent from the data. First, the mean earnings of immigrants are lower than the natives', as shown by the negative entries in 1981 and 1991 in Table 3. Secondly, the relative mean earnings of the pre-1981 arrival cohort declines over time from 1981 to 1991. There is earnings divergence between immigrants and natives over time, as indicated by the negative entry under the intercensal change column in Table 3. Specifically, the mean earnings gap between immigrants (pre-

Table 3 Relative Mean Earnings and Intercensal Change of Male Immigrant Employees

Cohort	1981	1991	Intercensal change (1991-1981)
All immigrants	-0.1128	-0.2552	-0.1424
1986-91 arrival	—	-0.3517	—
1981-86 arrival	—	-0.3254	—
Pre-1981 arrival	-0.1128	-0.2471	-0.1343

Note: 1981 and 1991 entries are mean log earnings of immigrants minus mean log earnings of natives.

1981 arrival) and natives widens by 13.4 percentage points from 11.3 per cent in 1981 to 24.7 per cent in 1991 (subject to the log approximation). Thirdly, the relative mean earnings of cohorts of more recent arrivals are lower than those of the earlier cohorts. The mean earnings gap between more recent immigrants cohorts and natives is wider than the gap for earlier cohorts.

For the rest of the paper, we will focus on the pre-1981 cohort of immigrants whose relative earnings we can track across censuses. To give a more comprehensive picture of the deteriorating relative earnings of immigrants, we can track the earnings position of immigrants relative to the earnings distribution of natives. Table 4 reports the percentage of immigrants (pre-1981 arrival) who earn less than the natives by percentile of the natives' earnings distribution. It clearly shows a worsening of the immigrants' earnings position relative to the natives.

The pre-1981 arrival cohort of immigrants is substantially older than the native-born (see Appendix 1). To control for the impact of years of labour market experience on relative earnings, we can further sub-divide immigrants (pre-1981 arrival) and natives into experience cohorts of five-year intervals (Table 5). These experience cohorts can be indexed by their year of labour market entry. For instance, reading across rows in Table 5, we can track the relative mean earnings of an experience cohort of immigrants who enters the labour market in 1976-80 from 1981 when they would have one to five years of work experience to 1991 when their experience increases to 11-15 years. Their relative mean earnings decline from being 11.58 per cent less than the natives in 1981 to being 21.9 per cent less in 1991, a widening of 10.32 percentage points in the mean earnings gap. Indexing by year of labour market entry allows us to track changes in the relative mean earnings of synthetic labour market entry cohorts of immigrants with years of experience controlled within a five-year interval in a life cycle setting. Column 3 of Table 5 shows that, except for the two earliest labour market entry cohorts (1946-50 and 1941-45), immigrants' mean earnings gap with respect to the natives widens over the decade. The degree of earnings divergence tends to

Table 4 Percentage of Immigrants (Pre-1981 Arrival) Earnings Less than Natives by Percentile, 1981 and 1991

Percentile of native distribution	1981	1991
10	16	21
25	30	39
50	56	64
75	81	87
90	94	95

Table 5 Relative Mean Earnings of Immigrants (Pre-1981 Arrival) and Intercensal Change by Year of Labour Market Entry

	(1)	(2)	(3)
Year of labour market entry	1981	1991	Intercensal change (1991-1981)
1986-90	—	-0.1769	—
1981-85	—	-0.1769	—
1976-80	-0.1158	-0.2190	-0.1032
1971-75	-0.1267	-0.2183	-0.0916
1966-70	-0.1150	-0.1540	-0.0390
1961-65	-0.1735	-0.2054	-0.0319
1956-60	-0.2885	-0.3611	-0.0726
1951-55	-0.2401	-0.2461	-0.0060
1946-50	-0.1835	-0.1492	0.0343
1941-45	-0.1538	-0.0809	0.0729

decrease from the more recent (younger) labour market entry cohorts to the earlier (older) cohorts until the sign of the intercensal change in relative mean earnings is reversed and the mean earnings gap narrows, beginning with the 1946-50 entry cohort.

One possible hypothesis that explains the widening mean earnings gap between immigrants and natives is increasing labour market discrimination against the former from 1981 to 1991. This explanation, however, is not very plausible. Unlike immigrants in most countries, migrants to Hong Kong from China are ethnic Chinese just like the native-born; they share the same language and culture. As large a number as 40 per cent of the male employees in Hong Kong in 1991 are immigrants, and almost all native-born have parents or ancestors who themselves were immigrants from China. Even if there were labour market discrimination against new immigrants at the beginning, staying longer in Hong Kong would have reduced it. Afterall, by 1991 all immigrants of the pre-1981 arrival cohort had been in Hong Kong for at least ten years and many had been in Hong Kong for decades. Had discrimination been a significant cause for the earnings differential, one would have expected a closing of the earnings gap over time.

The divergence of mean earnings between immigrants and natives over time can be attributed to a number of factors, such as changes in the earnings structure in favour of those with high skills and changes in returns to unobserved and observed skills. The rest of the paper is devoted to an analysis of how these factors impinge on the observed phenomenon of earnings divergence.

V. Change in Earnings Structure

Studies on the earnings structure of the United States (Katz and Murphy, 1992; Murphy and Welch, 1992; Juhn, Murphy and Pierce, 1993) have indicated that earnings of the more skilled diverge from those of the less skilled because there had been a shift in market demand over time in favour of skilled workers.

The earnings structure in Hong Kong has gone through similar changes. Natives at the higher percentiles of the earnings distribution (more skilled) experience a larger earnings growth than those at a lower percentile (less skilled). Specifically, from 1981 to 1991 the intercensal growth in earnings of natives at the ninetieth percentile is 131.2 per cent, as compared to 133.4 per cent at the median and 117.9 per cent at the tenth percentile. Since earnings of the more skilled grow faster than the less skilled, there is divergence in earnings by skill, but this divergence seems more moderate than that reported for the United States by Juhn, Murphy and Pierce (1993).

Another indication of earnings divergence by skill in Hong Kong is the widening of the earnings gap between the more educated and the less educated, and between the more experienced and the less experienced, over time. For instance, in the 1966-70 labour market entry cohort, natives with university education earned 72.8 per cent more than those with only secondary education in 1981. By 1991, they earned 99.8 per cent more. In 1981, natives with 26 to 30 years of experience earned 54.9 per cent more than those with up to ten years of experience. By 1991, the gap widened to 75.7 per cent.[5]

Since there has been widening earnings inequality by skill in Hong Kong, earnings divergence between immigrants and natives could be accounted for by the uneven distribution of skill, immigrants being generally less skilled than natives. However, we can show that skill level differences cannot fully explain earnings divergence between immigrants and natives. Even if we control for observed skills as proxied by years of experience and years of schooling, immigrant earnings, at least by those who are more skilled, still diverge from native earnings.

To illustrate this point, we repeat the analysis of Table 5 in Table 6 by disaggregating the census samples into three education levels: primary (no schooling to completion of primary education), secondary (above primary up to completion of secondary education) and university (post-secondary to university). Once the sample is disaggregated and education attainment is control-

Table 6 Relative Earnings of Immigrants (Pre-1981 Arrival) and Their Intercensal Change by Year of Labour Market Entry and Education Level

	Primary			Secondary			University		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year of labour market entry	1981	1991	Intercensal change (1991-1981)	1981	1991	Intercensal change (1991-1981)	1981	1991	Intercensal change (1991-1981)
1986-90	—	0.1958	—	—	-0.0323	—	—	-0.3494	—
1981-85	—	0.0813	—	—	-0.0561	—	—	-0.2246	—
1976-80	-0.1727	0.0217	0.1944	-0.0741	-0.1391	-0.0650	0.0135	-0.1655	-0.1790
1971-75	-0.0483	-0.0388	0.0095	-0.1323	-0.2426	-0.1103	-0.0317	-0.0710	-0.0393
1966-70	-0.0773	-0.0727	0.0046	-0.1442	-0.1935	-0.0493	-0.2392	-0.4290	-0.1898
1961-65	-0.0851	-0.0936	-0.0085	-0.2052	-0.2301	-0.0249	-0.6348	-0.7761	-0.1413
1956-60	-0.0614	-0.0164	0.0450	-0.2938	-0.4066	-0.1128	-0.6754	-0.6582	0.0172
1951-55	-0.0805	-0.1042	-0.0237	-0.2872	-0.2981	-0.0109	-0.5072	-0.4376	0.0696
1946-50	-0.0846	-0.0679	0.0167	-0.2360	-0.2064	0.0296	-0.4803	*	—
1941-45	-0.0653	-0.0186	0.0467	-0.1964	-0.1514	0.0450	*	*	—

Note: *Mean earnings not reported because sample size is too small.

led, it is clear from columns 6 and 9 that, at the middle and high skill levels (proxied by secondary and university education), immigrant earnings continue to diverge from native earnings, except for the earliest arrival cohorts. The pattern at the low skill level (proxied by primary education) is however rather different. Except for two labour market entry cohorts (1961-65 and 1951-55), there is a trend towards earnings convergence (see column 3).

Earnings divergence between immigrants and natives possessing the same middle and high level skills documented in Table 6 cannot be readily explained simply by observed changes in the earnings structure in favour of skilled workers. In any case, one needs to explore further what causes earnings inequality between the more skilled and the less skilled to increase. Several causes are possible. For instance, prices of unobserved or observed skills could increase over time, causing the earnings of the more skilled to increase faster than those of the less skilled. We will now turn to an analysis of changes in skill prices.

VI. Earnings Divergence and Unobserved Skills

To isolate the effect of unobserved skills on earnings, observed differences in education and experience must be controlled. This is achieved by disaggregating natives and immigrants (pre-1981 arrival) into labour market entry cohorts of five-year experience interval and regressing log earnings on year of schooling and a set of dummies, one for each year of experience within the interval for 1981 and 1991, as follows:[6]

$$y_i = \alpha_i + r_i S_i + \beta_i E_i + \varepsilon_i \quad (1)$$

$$y_n = \alpha_n + r_n S_n + \beta_n E_n + \varepsilon_n \quad (2)$$

where y is log earnings, S is year of schooling with "rate of return" r, E is a vector of year of experience dummies for the five-year interval of labour market entry, omitting the dummy for the first year in the interval, α is a constant and ε is a stochastic disturbance term. Immigrants and natives are indexed by i and n, respectively.

Residuals from these cohort-specific earnings regressions for natives and immigrants capture the effect of the returns to unobserved skills on earnings (Juhn, Murphy and Pierce, 1991, 1993; Eckstein and Weiss, 1998). These returns change over time as the "quantity" and/or the "price" of unobserved skills change.

Table 7 reports the immigrant-native residual differentials in 1981 and 1991 and their intercensal change by labour market entry cohorts. In 1981, all residual differentials except one are negative, but by 1991 most of them have become positive. The intercensal change in regression residual differentials is all positive, except for one entry cohort. Changes in returns to unobserved skills over time have in fact contributed to convergence in earnings between immigrants and natives, even though the magnitude is small. The reason immigrants are able to gain on natives in returns to unobserved skills could be that self-selected immigrants possess char-

Table 7 Residual Differential of Immigrants (Pre-1981 Arrival) and Natives by Year of Labour Market Entry

Year of labour market entry	(1) 1981	(2) 1991	(3) Intercensal change (1991-1981)
1986-90	—	2.50E-10	—
1981-85	—	-2.53E-10	—
1976-80	4.80E-09	-1.43E-10	-4.94E-09
1971-75	-3.79E-09	3.19E-10	4.11E-09
1966-70	-1.41E-09	1.01E-10	1.51E-09
1961-65	-4.42E-10	2.52E-10	6.94E-10
1956-60	-9.03E-10	1.97E-10	1.10E-09
1951-55	-6.82E-10	4.87E-11	7.31E-10
1946-50	-1.41E-09	-1.30E-11	1.40E-09
1941-45	-2.10E-09	-1.46E-11	2.09E-09

acteristics on which the market places a premium when job matching is improved. In this connection, it should be noted that the increase in immigrants' relative returns to unobserved skills can be interpreted as a part of the process whereby immigrants catch up with natives in earnings as postulated by Chiswick (1978), and LaLonde and Topel (1992). It is also consistent with the finding of Eckstein and Weiss (1998) for Israel that the price of unobserved skills of immigrants rises but its importance declines with immigrants' time spent in the country.

In any case, changes in returns to unobserved skills contribute to earnings convergence. It cannot be the reason for earnings divergence between immigrants and natives in Hong Kong.

VII. Earnings Divergence and Observed Skills

This brings us to focus our explanation of earnings divergence on changes in price and quantity of observed skills. Specifically, we will show that the major cause for the pattern of earnings divergence documented in Table 5 is the divergence in the price of skill for education between immigrants and natives over time.

Cohort-specific regressions of equations (1) and (2) allow us to track estimated returns to schooling of a labour market entry cohort from 1981 to 1991. Table 8 summarizes the schooling coefficients of these regressions and their intercensal change.[6] The schooling coefficients may be interpreted as the education "skill prices" or "rates of return" to education.

The pattern of skill prices for education across labour market entry cohorts reported in Table 8 is revealing. Columns (1) and (2) show that the native skill prices are the highest for the most recent labour market entry cohorts. These prices fall as we move down the columns to the earlier (older) entry cohorts. This pattern of declining skill prices is repeated among the immigrants, but the differential in skill prices across cohorts is not as steep as the natives'. The pattern of declining cohort-specific skill prices can be interpreted as due to the cohort effect of schooling quality. Schooling quality could have improved over time across cohorts. Specifically, the quality of schooling of the more recent entry cohorts of natives who are younger could be higher than that of the older and earlier entry cohorts. The skill prices reflect the difference in productivity of the human capital invested.

Table 8 Returns to Schooling of Natives and Immigrants (Pre-1981 Arrival) and Intercensal Change

	Natives			Immigrants		
	(1)	(2)	(3)	(4)	(5)	(6)
Year of labour market entry	1981	1991	Intercensal change (1991-1981)	1981	1991	Intercensal change (1991-1981)
1986-90	—	0.1269	—	—	0.0745	—
1981-85	—	0.1306	—	—	0.0678	—
1976-80	0.1092	0.1342	0.0250	0.0706	0.0690	-0.0016
1971-75	0.0836	0.1212	0.0376	0.0576	0.0812	0.0236
1966-70	0.0842	0.1105	0.0263	0.0591	0.0780	0.0189
1961-65	0.0844	0.1014	0.0170	0.0401	0.0496	0.0095
1956-60	0.0897	0.1036	0.0139	0.0371	0.0455	0.0084
1951-55	0.0825	0.0737	-0.0088	0.0427	0.0435	0.0008
1946-50	0.0688	0.0554	-0.0134	0.0447	0.0353	-0.0094
1941-45	0.0664	0.0408	-0.0256	0.0404	0.0361	-0.0043

Over the decade, native skill prices for education increased for all entry cohorts, except for the three earliest cohorts (column 3). The intercensal increase in skill prices reflects the shift in demand for skilled workers which we discussed in section V. Moving down column 3, it is evident that the magnitude of the intercensal increase in schooling returns declines across labour market entry cohorts from 2-3 percentage points for the most recent ones to 1-2 percentage points for the earlier ones. It is significant to note that,

for the three earliest entry cohorts (1941-45, 1946-50 and 1951-55), schooling returns, instead of increasing, actually fall over time. This may be interpreted within the context of an intertemporal change in skill demand in the economy of Hong Kong. While there has been an increasing demand for skills over time, bringing higher returns to schooling for the more recent entry cohorts, the demand has also changed in such a way that skills acquired by the older and earlier entry cohorts through low-quality schooling has actually become less productive in the market. As a result, returns to schooling for these earlier cohorts actually fall. Human capital invested through schooling a long time ago has become obsolete. The pattern of intercensal change in skill prices for education is essentially the same for the immigrants, but the magnitude of the intercensal increase is smaller (column 6, Table 8).

A comparison of the differential in schooling returns between immigrants and natives over time is revealing. Columns (1) and (2) of Table 9 show that the immigrants' schooling returns are lower than the natives' of the same labour market entry cohort for which the year of experience and essentially age are controlled. More importantly, there is an intercensal divergence in schooling returns between immigrants and natives in the more recent labour market entry cohorts; the gap in schooling returns widens by 0.6 to 2.7 percentage points from 1981 to 1991 (column 3, Table 9). The magnitude of the widening of the gap declines from the more recent entry cohort to the earlier ones. While there has been an intercensal increase in immigrants' schooling returns, the magnitude of the increase is not as large as the natives' of the same entry cohort. Consequently, schooling returns diverge. For the three earliest entry cohorts (1941-45, 1946-50 and 1951-55), the schooling return gap between immigrants and natives actually narrows by 0.4 to 2 percentage points over the decade mainly because natives of these three oldest cohorts actually suffer a drop in their schooling returns which is larger than the immigrants.

The pattern of the intercensal change in differential in education skill prices reported in column 3 of Table 9 is strikingly similar to the pattern of intercensal change in relative mean earnings documented in column 3 of Table 5. This strongly suggests that earnings divergence between immigrants and natives can be understood in the context of divergence in education skill prices.

Table 9 Differential in Returns to Schooling between Immigrants (Pre-1981 Arrival) and Natives and Intercensal Change

Year of labour market entry	(1) 1981	(2) 1991	(3) Intercensal change (1991-1981)
1986-90	—	-0.0524	—
1981-85	—	-0.0628	—
1976-80	-0.0386	-0.0652	-0.0266
1971-75	-0.0260	-0.0400	-0.0140
1966-70	-0.0251	-0.0325	-0.0074
1961-65	-0.0443	-0.0518	-0.0075
1956-60	-0.0526	-0.0581	-0.0056
1951-55	-0.0398	-0.0302	0.0096
1946-50	-0.0241	-0.0201	0.0040
1941-45	-0.0260	-0.0047	0.0213

Note: 1981 and 1991 entries are schooling returns of immigrants minus schooling returns of natives.

It is well known that immigrants receive lower returns to imported skills acquired through schooling in their source country than natives. In the literature, this stylized fact has been interpreted as a result of country specificity of human capital; imported skills are less productive in the recipient country because of specificity (Chiswick, 1978; Lam, 1986). Alternatively, it has been attributed to the dynamic process of job matching; immigrants enter the labour force quickly and initially accept any available job, hence the lower returns to schooling (Eckstein and Weiss, 1998). Either interpretation would predict that the schooling return gap between immigrants and natives will narrow as

immigrants invest in specific human capital or as they improve their job matching in the recipient country.[7] What is surprising in the case of Hong Kong is that, instead of narrowing, there is strong evidence of a widening in schooling returns between immigrants and natives, thus suggesting that there are other factors, besides human capital specificity and job matching, at work in the economy which brings about this divergence. We will return to a discussion of these factors in the last section of the paper.

VIII. Earnings Divergence: A Decomposition

To help us assess quantitatively the contribution of intercensal change in observed skill prices, skill quantities and other factors in explaining earnings divergence between immigrants and natives, it is useful to decompose the intercensal change in the mean earnings gap into components. There could be a number of ways of decomposition, but the one used by Smith and Welch (1989) to explain the change in racial earnings differential is useful for our purpose.[8] Based on the regression estimates of equations (1) and (2), and indexing 1981 by t' and 1991 by t, the intercensal change in mean log earnings differential can be decomposed into

$$\begin{aligned}&(\bar{y}_{it} - \bar{y}_{nt}) - (\bar{y}_{it'} - \bar{y}_{nt'})\\ &= \bar{S}_{it}\,[(r_{it} - r_{nt}) - (r_{it'} - r_{nt'})] + [(\bar{S}_{it} - \bar{S}_{nt}) - (\bar{S}_{it'} - \bar{S}_{nt'})]\, r_{nt'} +\\ &\quad (\bar{S}_{it} - \bar{S}_{it'})\,(r_{it'} - r_{nt'}) + (\bar{S}_{it} - \bar{S}_{nt})\,(r_{nt} - r_{nt'}) + \text{other terms} \qquad (3)\end{aligned}$$

where a bar denotes the mean value of the variable and "other terms" represents intercensal change in differentials of the experience dummies and the constant term.

The effect of schooling can be decomposed into four component contributions. The first term on the RHS of equation (3) is the price effect. It measures the effect of the intercensal change in relative skill prices. If the differential in schooling returns between immigrants and natives widens over time, immigrants' earnings will fall relative to natives' and the earnings gap will increase.

The second term is the quantity effect. It measures the effect of the intercensal change in the difference in the quantity of skill (as proxied by year of schooling) between immigrants and natives valued at base year (1981) of natives' parameter values. Specifically, if the schooling gap between immigrants and natives diminishes over time, this term will be positive and the earnings gap will correspondingly narrow.

The third term is the interactive price effect. It measures the effect of the interaction between the differential in skill prices and the changing quantity of skill over time. If immigrants receive lower returns for their skill (schooling) and their skill level decreases over time, they will gain relative to natives, thus narrowing the earnings gap.

The fourth term is the interactive quantity effect. It measures the effect of the interaction between the skill differential and the changing skill price over time. If immigrants have less skill (schooling) than natives', the earnings gap will widen if the natives' skill price increases over time.

The sum total of the above four effects constitutes the total effect due to schooling which, together with the "other terms," explains the intercensal change of the earnings gap between immigrants and natives in equation (3). The "other terms" capture the effect due to the intercensal change of the difference in the regression constant terms between immigrants and natives, as well as any residual effect due to experience arising from variation in years of experience within the narrow five-year interval of each labour market entry cohort. The regression constant term summarizes the average impact of unmeasured characteristics of immigrants and natives.

The pattern of the intercensal change in relative earnings of immigrants across labour market entry cohorts that needs to be explained is shown in column 7 of Table 10. The total schooling effect reported in column 5 mimics the pattern in column 7 both in sign and in magnitude rather closely. This suggests strongly that earnings divergence/convergence of immigrants in Hong Kong can mainly be explained by changes in the prices and quantity of

Table 10 Decomposition of Intercensal Change of Relative Earnings of Immigrants (Pre-1981 Arrival) by Year of Labour Market Entry

Year of labour market entry	(1) Price effect	(2) Quantity effect	(3) Interactive price effect	(4) Interactive quantity effect	(5) Total schooling effect	(6) Other terms	(7) Intercensal change of relative earnings
1976-80	-0.2425	0.0003	0.0395	-0.0308	-0.2335	0.1303	-0.1032
1971-75	-0.1182	-0.0067	-0.0030	-0.0322	-0.1601	0.0685	-0.0916
1966-70	-0.0626	0.0139	-0.0027	-0.0029	-0.0543	0.0153	-0.0390
1961-65	-0.0592	0.0091	0.0083	-0.0007	-0.0425	0.0106	-0.0319
1956-60	-0.0426	-0.0150	0.0138	-0.0160	-0.0598	-0.0128	-0.0726
1951-55	0.0599	0.0127	0.0190	0.0066	0.0982	-0.1042	-0.0060
1946-50	0.0214	0.0130	0.0126	0.0090	0.0560	-0.0217	0.0343
1941-45	0.0951	0.0242	0.0239	0.0106	0.1538	-0.0809	0.0729

skill for education. By contrast, the sign pattern of the "other terms" in column 6 is essentially opposite to the pattern of intercensal change in relative earnings, thus suggesting that unobserved skills and the residual effect of experience cannot be a factor behind earnings divergence.

Among the four components of the total schooling effect, both the price effect (column 1) and the interactive quantity effect (column 4) exhibit the same sign pattern as the total schooling effect. However, the price effect is three to twenty times larger than that of the interactive quantity effect in absolute magnitude, depending on the labour market entry cohort. It is clear that the price effect is the dominant component of the total schooling effect which is the major explanatory factor for earnings divergence.

As indicated in equation (3), the sign pattern of the price effect reflects that of the differential in schooling returns between immigrants and natives, $(r_{it} - r_{nt}) - (r_{it'} - r_{nt'})$. Hence, the major cause of the intercensal earnings divergence between immigrants and natives can be traced to the intercensal divergence in returns to schooling, as we have mentioned in the previous section. We will elaborate more on this point in the next section.

The interactive quantity effect (column 4, Table 10) also contributes to earnings divergence of the more recent entry cohorts because immigrants have less schooling than natives (details in Table 11 below), and schooling returns rise over time but the magnitude of this effect is small relative to the price effect.

The quantity effect, however, contributes to earnings convergence (except for two labour market entry cohorts) because immigrants are narrowing their schooling gap with respect to natives over time. Table 11 shows that surprisingly, with the exception of a few entry cohorts, there has been an intercensal decline in the mean years of schooling within each entry cohort for both natives and immigrants in Hong Kong. The gradual depletion of the human capital stock in Hong Kong in the 1980s is probably due to the continuous massive emigration of Hong Kong residents who were concerned about the political uncertainty over Hong Kong's future after the changeover of sovereignty in 1997.

Table 11 Mean Years of Schooling of Natives and Immigrants (Pre-1981 Arrival) and Intercensal Change

	Natives			Immigrants		
	(1)	(2)	(3)	(4)	(5)	(6)
Year of labour market entry	1981	1991	Intercensal change (1991-1981)	1981	1991	Intercensal change (1991-1981)
1986-90	—	12.8963	—	—	12.0249	—
1981-85	—	11.3167	—	—	9.7500	—
1976-80	11.3917	10.3688	-1.0229	10.1577	9.1373	-1.0204
1971-75	9.0802	9.2740	0.1938	8.3071	8.4207	0.1136
1966-70	8.5484	8.4910	-0.0574	8.2748	8.3820	0.1072
1961-65	8.2874	7.9914	-0.2960	8.1390	7.9509	-0.1881
1956-60	8.8040	8.7084	-0.0956	7.8282	7.5652	-0.2630
1951-55	7.6794	7.0483	-0.6311	6.7702	6.2933	-0.4769
1946-50	6.5978	5.8873	-0.7105	5.7418	5.2199	-0.5219
1941-45	6.1683	4.8841	-1.2842	5.3881	4.4683	-0.9198

During the 1980s, as many as 20,000 to 60,000 emigrated from Hong Kong annually.[9] The major destination countries were Canada, Australia and the United States. As a consequence of the immigrant selection criteria of these recipient countries, emigrants were mostly well-educated and skilled. The departure of a large number of the highly educated individuals lowered the mean years of schooling of the remaining population. It is interesting to note that the intercensal decline in mean years of schooling is larger for natives than for immigrants for all labour market entry cohorts except one (1956-60 entry). This is probably because the educated native-born Hong Kong people are generally more inclined to emigrate and successful in emigrating overseas than Chinese immigrants. Both in terms of cultural adaptation after

migration and fitting the immigrant selection criteria of the recipient countries, the educated native-born are more likely candidates for emigration than immigrants. To summarize, as a result of immigrants' smaller intercensal decline in mean years of schooling than natives', the schooling gap narrows (column 3, Table 12), and this contributes to earnings convergence, but the magnitude is too small to avert the overall trend of earnings divergence.

Lastly, the interactive price effect (column 3, Table 10) also contributes towards earnings convergence, except for two labour market entry cohorts (1966-70 and 1971-75), but again the magnitude is too small to make a significant difference to the overall trend of divergence. The earnings gap narrows because the immigrants' mean years of schooling decline (due to emigration from Hong Kong), and their schooling returns are lower than natives'.

IX. Interpretation

As we have shown in the previous section, the major factor which explains the pattern of earnings divergence between immigrants and natives across cohorts is the intercensal change in relative education skill prices. Specifically, for the more recent (younger) labour market entry cohorts, education skill prices between immigrants and natives diverge, whereas for the earliest (oldest) entry cohorts, the gap tends to narrow. Disaggregating relative earnings of immigrants by levels of schooling, Table 6 shows that controlling education at the primary level, by and large, there is a trend towards earnings convergence (column 3), whereas at the secondary and university level there is earnings divergence (columns 6 and 9). This implies that there is divergence in the prices of middle and high level skills (as proxied by secondary and university education) but not for low level skills (primary education). It remains necessary to interpret this cohort pattern of

Table 12 Differential in Mean Years of Schooling between Immigrants (Pre-1981 Arrival) and Natives and Intercensal Change

Year of labour market entry	(1) 1981	(2) 1991	(3) Intercensal change (1991-1981)
1986-90	—	-0.8714	—
1981-85	—	-1.5667	—
1976-80	-1.2340	-1.2315	0.0025
1971-75	-0.7732	-0.8534	-0.0802
1966-70	-0.2737	-0.1090	0.1647
1961-65	-0.1484	-0.0405	0.1079
1956-60	-0.9758	-1.1432	-0.1674
1951-55	-0.9091	-0.7550	0.1541
1946-50	-0.8560	-0.6673	0.1887
1941-45	-0.7801	-0.4158	0.3643

intercensal change in relative education skill prices within the context of changes in the Hong Kong economy.

The Hong Kong economy restructures rapidly following the opening up of China in 1979. Hong Kong manufacturers take advantage of the low labour and land costs in south China which are only a small fraction of those in Hong Kong and move their labour-intensive low value-added production operations across the border into south China, leaving the front-end and back-end manufacturing processes, such as sourcing, merchandizing, marketing and design, in Hong Kong.[10] These are the higher value-added processes which require different skills from those of assembly. Products of these outward-processing activities of Hong Kong manufacturers in China are mostly re-exported through Hong Kong. This stimulates a fast growth in the re-export trade in Hong Kong and demand for services to support these

activities, including transportation, storage, business services, insurance and trade financing, expands rapidly. The Hong Kong economy rapidly restructures itself to become service-oriented. What is unusual about the economic restructuring of Hong Kong in the 1980s is its speed. From 1981 to 1991, the share of manufacturing in employment fell from 41.3 per cent to 28.2 per cent. An index of sectoral shift in employment measuring the minimum proportion of workers who have to find employment in a different sector in 1987-1992 is 8.90 for Hong Kong as compared with 3.27 for Singapore, 6.50 for Korea, 2.22 for Japan and 2.16 for the United States.[11]

The intertemporal shift in industrial and occupation distribution of natives and immigrants in Tables 13 and 14 illustrates the pace of the restructuring process. The share of employment of natives in manufacturing dropped substantially by 13 percentage points (but only 10 for immigrants) over a period of ten years. There is a large shift of employment towards finance, insurance and business services, followed by wholesale, retail, export, import and hotel industry. In terms of occupation, there is a large decline in the share of employment in production and related workers of 18 percentage points for natives (but only 14 for immigrants), in line with the large decline in manufacturing employment. The share of natives who are professional and administrative workers increases substantially by 15 percentage points (but only 4 for immigrants). Immigrants are less occupationally mobile than natives.[12] They are less adaptive than natives in taking advantage of job opportunities that arise from the shifting demand in the labour market caused by economic restructuring.

As the economy of Hong Kong restructures, demand for workers shifts from manufacturing towards the service sector, and from the less skilled towards the more skilled. Specifically, demand shifts towards middle- to high-level skills that are productive in high value-added service industries, such as finance, insurance, business services, export and import. Hence, the prices of these relevant skills increase faster than the prices of

Table 13 Industry Distribution of Employment of Natives and Immigrants (Pre-1981 Arrivals) (%)

	Natives		Immigrants	
Industry	1981	1991	1981	1991
Agriculture, fishing, mining, quarrying	0.1	0.4	0.1	0.5
Manufacturing	**38.5**	**25.7**	**44.5**	**34.5**
Electricity, gas, water	1.0	0.9	0.6	0.6
Construction	6.2	5.0	12.3	12.6
Wholesale, retail, export, import, hotel	**14.8**	**19.8**	**16.7**	**21.1**
Transport, storage, communication	9.8	11.6	7.1	8.8
Finance, insurance, business services	**8.6**	**14.4**	**2.9**	**6.7**
Social and personal services	20.2	21.9	14.9	15.0
Others	0.9	0.3	1.0	0.3
Total	100.0	100.0	100.0	100.0

Table 14 Occupation Distribution of Employment of Natives and Immigrants (Pre-1981 Arrivals) (%)

	Natives		Immigrants	
Occupation	1981	1991	1981	1991
Professional and administrative worker	**11.5**	**26.3**	**5.7**	**10.1**
Clerical and related worker	23.4	24.2	7.7	8.6
Sales and service worker	18.7	21.4	27.2	31.9
Agriculture and fishery worker	0.1	0.2	0.2	0.2
Production and related worker	**44.0**	**25.6**	**54.1**	**40.1**
Others	2.2	2.4	5.2	9.1
Total	100.0	100.0	100.0	100.0

low-level production or service skills. *Ipso facto*, education which enables graduates to acquire these skills more easily will be rewarded with higher returns. Schooling that natives have acquired in Hong Kong in recent decades is probably flexible and adaptive to this shift in demand for middle- and high-level skills. This is consistent with the observation that natives are occupationally mobile and moving into professional and administrative jobs that require these skills (Table 14). It also accounts for the rising returns to natives' schooling over time from 1981 to 1991.

In contrast, skills that immigrants (pre-1981 arrival) acquired through schooling and training in China are probably more productive in the labour-intensive assembly processes of manufacturing but not in high value-added service industries. This is because, before their migration to Hong Kong, they operated in an economy which was primarily agricultural with only some labour-intensive manufacturing. There was no high value-added service industry of any significance in the Chinese economy at that time. Therefore, immigrants' skills acquired through schooling in China are probably more productive in manufacturing but less so in service industries. Meanwhile, service industries in Hong Kong are becoming more interpersonal skill-intensive and international, requiring high standard of language proficiency, especially the English language, and better knowledge of the local and global business, economic and social environment. Schooling acquired by immigrants in China does not help them to acquire easily new skills which are productive in middle- to high-level jobs in the service economy of Hong Kong, although it may not be a disadvantage with regard to low-level service jobs that require very simple skills. This is consistent with the observation that, relative to natives, immigrants are less occupationally mobile in moving out of production jobs into professional and administrative jobs, but are not handicapped in moving into clerical, sales and simple service jobs (Table 14). Consequently, over time immigrants' skill prices for middle- and high-level skills increase more slowly than natives'. This accounts for the observation that earnings of immigrants and natives with

secondary and university education diverge but not with primary education (Table 6).

It is interesting to note that Hong Kong natives who completed their schooling decades ago in the 1950s or earlier are also finding difficulty in adapting to a restructured service economy. Not only is their schooling of lower quality, it also does not enable them easily to acquire new skills that are productive in the high value-added service industries of the changing economy. This accounts for the lower and declining education skill prices of the early labour market entry cohorts (1941-45, 1946-50 and 1951-55 entry cohorts in Table 8). Immigrants of the early entry cohorts are in the same situation as their native counterparts, but for reasons that are unclear, the intercensal decline in education skill prices is less than natives' in magnitude, resulting in a slight convergence in skill prices between immigrants and natives of these entry cohorts.

To conclude, controlling for the cohort effect, intertemporal shift in the demand for skills causing changes in relative skill prices is an important factor which helps to explain earnings convergence/divergence between immigrants and natives. What we have shown in this paper is that, in the case of Hong Kong, this shift does not only have a differential impact on prices of different levels of skill but also on prices of skills from different source countries. Because of the differential impact on education skill prices brought about by economic restructuring, on the average immigrants are falling farther behind natives in earnings.

Earnings divergence of the magnitude that we document for Hong Kong in this paper is rather unusual among major recipient countries of immigration. Despite many similarities between Hong Kong and Israel as regards the size of population, share of immigrants in the population, intermittent influx of a large number of immigrants that are admitted without selection, and ethnic homogeneity between immigrants and natives, the economic experience of Chinese immigrants in Hong Kong is very different from that of Jewish immigrants in Israel.

Notes

1. One major difference is that immigrants in Israel are generally more skilled than immigrants in Hong Kong.
2. For a brief history of Chinese immigration in Hong Kong, see Lam and Liu (1998).
3. In Hong Kong, the percentage of youngsters in the relevant age cohort attending university is very small, about 3 per cent in 1981. Most youngsters complete their schooling after secondary school at the age of 17-19. We have no information on the age distribution of the male immigrants (pre-1981 arrival) at the time they arrived in Hong Kong. However, we have the age distribution of the 1976-81 arrival cohort from the 1981 census which could be representative of the age distribution of the earlier arrivals. In that cohort, about 67 per cent of the new arrivals were aged 20 or above. We can infer that most of them would have ceased all schooling upon arrival in Hong Kong. Also, the mean age at which immigrants of the pre-1981 arrival cohort completed their schooling is 13. Based on the age distribution of the 1976-81 cohort, fewer than 18 per cent of the new arrivals were 13 or below. One can conclude that before the abolition of the "touch-base" policy in 1980 most of the illegal immigrants who crossed the border stealthily were adults who had completed their schooling in China.
4. See a report on continuing education of the University and Polytechnic Grants Committee (Chung, Ho and Liu, 1994).
5. Detailed tabulations of earnings divergence by skill level are available from the authors.
6. Estimated results of the regressions are available from the authors.
7. Through better job matching, Eckstein and Weiss (1998) shows that there is narrowing in the earnings gap between immigrants and natives in Israel. Whether there is convergence depends on whether immigrants' schooling acquired abroad is of the same quality as natives' schooling.

8. The parameterization in equation (3) is not unique (see Smith and Welch, 1989). Alternative parameterization using natives' means and immigrants' prices does not change the conclusion, namely the first term of equation (3) (price effect) is dominant. A different decomposition using Blinder's approach (Blinder, 1974) has also been attempted, yielding the same conclusion.
9. For details of the emigration of Hong Kong people in the years leading up to 1997, see Lam and Liu (1998).
10. It has been estimated that three-quarters of Hong Kong's manufacturers have invested in China, employing more than three million workers in south China as compared to a manufacturing work force of 565,000 in Hong Kong.
11. See Suen (1995). The index of sectoral shift in employment is defined as

$$I_t = \sum_j \left| e_{jt} - e_{jt-1} \right| / 2$$

where e_{jt} is the employment share of the j^{th} industry in year t.
12. This finding is contrary to the result of Green (1999) for immigrants in Canada. He finds that immigrants are more occupationally mobile than natives in Canada. He argues that occupational adjustment is an important part of the assimilation process and suggests that immigrants are a valuable resource, providing labour in a flexible manner that could help in adjusting to new technology. The major difference between Hong Kong and Canada is that immigrants in Hong Kong are relatively less skilled and admitted without selection by Hong Kong (see section II), whereas immigrants in Canada are more skilled, many of whom are admitted after being assessed on a point system. For an analysis of occupational mobility as immigrants improve their job matching over time in Israel, see Eckstein and Weiss (1998).

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Appendix 1

Summary Statistics of Male Employees, Age 20-64, 1981 and 1991

1981 Mean of variables	Natives	Immigrants (pre-1981 arrival)	Immigrants (1976-81 arrival)
Monthly earnings	2245.98 (1829.29)*	1954.67 (1510.26)	1485.52 (681.50)
Log earnings	7.553 (0.529)	7.440 (0.492)	7.232 (0.372)
Age	29.426 (8.993)	40.045 (11.989)	29.149 (8.795)
Schooling	9.041 (3.408)	7.132 (3.741)	8.088 (3.353)
Experience	13.021 (9.254)	24.269 (12.210)	13.269 (8.420)
No. of cases	86,685	109,943	18,173

1991 Mean of variables	Natives	Immigrants (pre-1981 arrival)	Immigrants (1981-86 arrival)	Immigrants (1986-91 arrival)
Monthly earnings	8617.60 (8128.64)	6447.78 (5652.86)	5694.22 (5431.67)	6016.84 (7943.93)
Log earnings	8.841 (0.608)	8.594 (0.551)	8.516 (0.461)	8.489 (0.541)
Age	32.451 (8.811)	44.358 (10.941)	35.628 (11.171)	34.086 (10.815)
Schooling	10.124 (3.457)	7.528 (3.740)	9.632 (3.499)	10.353 (4.026)
Experience	15.467 (9.374)	28.516 (11.224)	19.016 (10.747)	16.782 (10.661)
No. of cases	35,101	21,320	1,311	962

Note: * Standard deviation in parentheses.

Earnings Divergence of Immigrants

Abstract

From 1981 to 1991, the mean earnings of immigrants fell further behind natives in Hong Kong, with the earnings gap widening from 11.3 per cent to 25.5 per cent. Earnings divergence of this magnitude, as documented in this paper, is rather unusual among major recipient countries of immigration. This paper shows that earnings divergence in Hong Kong is mainly due to divergence in skill prices for education between immigrants and natives. Intertemporal shift in the demand for skills caused by economic restructuring in Hong Kong does not only have a differential impact on prices of different *levels* of skill, but also on prices of skills from different *sources*.

移民收入差距的擴闊

林潔珍
廖柏偉

（中文摘要）

由一九八一至一九九一年香港移民的平均收入比本地出生的港人落後得更遠，收入差距由 11.3% 擴大至 25.5%。本文所紀錄收入差距擴濶的幅度，在主要接受移民國家中，實屬罕見。香港收入差距的擴濶，主要是由移民及本地出生居民之間教育的技術價格擴濶所造成。香港經濟轉型導致對技術的需求隨著時間而轉移，不但對不同水平技術的價格構成不同的衝擊，而且對不同來源的技術的價格，也有不同的影響。