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Are Immigrants Assimilating Better Now than A Decade Ago?

The Case of Hong Kong

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Abstract

In this study we use census data to analyze the change in earnings differential between new immigrants from China and natives of Hong Kong over time. Our study shows that the quality of the cohort of new male immigrants immigrating into Hong Kong after the abolition of the "touch-base" policy in 1981 has been increasing steadily over time, both in terms of their endowment in schooling and experience, and in terms of their innate ability. However, the difference in rate of return to schooling and experience between immigrants and natives is widening at the same time to such an extent that from 1986 to 1991, the earnings disadvantage of new immigrants increases. The decrease in the rate of return to human capital investment of the male immigrants relative to the natives is attributed to the rapid restructuring of the Hong Kong economy in the 1980s. The expanding service industries, which provide most of the employment in the economy, require more country-specific human capital for production than the declining manufacturing industries. A large portion of the human capital of immigrants acquired in mainland China has to be written off when they join the service sector. Consequently new immigrants in the 1990s will have greater difficulties assimilating into the Hong Kong economy.

I. Introduction

International migration is a worldwide phenomenon and is affecting a lot of countries. According to a report by the United Nations in July 1993, there are now approximately one billion people living in a country where they were not born, representing approximately 2% of the total world population. This kind of movement of people across national borders affects both the sending countries and the receiving countries. On the part of the receiving countries, one main area of concern is how well the immigrants

get assimilated into the local economy. This has been studied widely in major receiving countries like the U.S.A. and some European countries.[1]

Hong Kong has also been an important receiving country for migrants from mainland China, particularly after China turned to the Communists in 1949. The large inflow of Chinese immigrants has important effects on the growth of the economy, partly through its contribution to the growth of the labor force. The percentage of Chinese immigrants in the labor force has been significant, being around 53.1% in 1981 and 38.9% in 1986.[2] In contrast to the significance of the flow of immigration, studies have been relatively scanty on how well these immigrants assimilate into the local economy and their effects on the economy.

The study of these issues in Hong Kong is now of particular interest for two reasons. First, in the last decade or so, Hong Kong has been undergoing a major structural change, with the percentage of working population in traditional manufacturing industries declining and that in the tertiary sector expanding steadily.[3] It is interesting to see how well the new immigrants can fit in with this structural change and whether they can assimilate better now than a decade ago. The experience of assimilation of immigrants in Hong Kong in face of its structural change can throw light on the assimilation of immigrants in other receiving countries expecting similar structural changes. Second, the cohort of Chinese immigrants may be of different characteristics than the cohort immigrating before 1981. Before the abolition of the touch-base policy in October 1981, a large proportion of immigrants reached Hong Kong through illegal ways.[4] After that, the flow of immigrants into Hong Kong was largely reduced and they were composed mainly of legal immigrants. It would be interesting to see whether the cohort of immigrants before 1981 experienced a different pattern of assimilation than the more recent cohort of immigrants, as well as the implications of this for the economy.

With the above issues in mind, this paper has three objectives: (1) to study the extent of earnings differential between immigrants and natives and how these change over time, (2) to study the structure of earnings differential between new immigrants and natives and its changes over time, and (3) to study how fast the earnings of new immigrants catch up with other groups in the economy, and how this pattern changes over time. We will restrict our study of immigrants to immigrants from mainland China only, as they are the majority and their assimilation pattern may be different from that of other immigrants.

The outline of the rest of the paper is as follows. In Section II, the data sets used for this study will be described, while the methodology for our analysis will be explained in Section III. The earnings differential between immigrants and natives will be presented in Section IV. We will analyze the structure of the earnings differential in Section V and the rate of assimilation of immigrants in Section VI. The paper will conclude in Section VII with a discussion of policy implications.

II. The Data

The data sets we use include the 15% sample micro-data of the 1981 population census, the 20% sample of the 1986 population by-census, the 5% sample of the 1991 population census, and a random sample of the Hong Kong land population collected in the summer of 1991. The common advantages of the census data sets are that they are large, representative and contain the main variables that are relevant to our study, like sex, age, education, occupation, and monthly earnings. For the 1981 and 1986 census data sets, they also contain information on the place of birth for the identification of nationality and the address five years ago to identify whether the immigrant is a new immigrant. We include in our samples only those natives born in Hong Kong or Chinese immigrants who immigrated from mainland China since the majority of immigrants in Hong Kong are Chinese immigrants and the pattern of economic assimilation of these immigrants is very different from those from advanced countries. Our 1981 and 1986 data sets contain a total of 178,333 and 276,969 paid employees respectively. The summary statistics of the above data sets are presented in Table 1 and Table 2 respectively.

Table 1 Summary Statistics of Paid Employees, 1981 Census (Standard deviation in parentheses)

	All		Natives		Chinese Immigrants					
					All		New		Old	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
N	114125	64208	47639	34771	66486	29437	21814	10546	44672	18891
S	8.428	8.092	9.476	9.503	7.677	6.425	8.044	7.401	7.498	5.881
	(3.680)	(4.249)	(3.376)	(3.397)	(3.706)	(4.540)	(3.211)	(3.762)	(3.912)	(4.837)
AGE	33.300	31.310	29.080	26.505	36.905	36.985	27.236	28.585	41.627	41.674
	(12.212)	(12.328)	(9.596)	(8.261)	(12.825)	(13.836)	(9.108)	(11.238)	(11.676)	(12.901)
EXP	20.212	18.221	14.607	12.007	24.229	25.561	14.194	16.187	29.129	30.794
	(13.473)	(14.777)	(10.408)	(9.444)	(13.976)	(16.477)	(9.247)	(12.414)	(13.258)	(16.143)
MEARN	2125.80	1557.270	2379.01	1774.90	1944.36	1300.21	1423.47	1021.37	2198.72	1455.87
	(1886.82)	(1394.10)	(2131.62)	(1539.42)	(1666.25)	(1148.05)	(657.24)	(382.00)	(1929.78)	(1380.12)
HWAGE	10.254	8.309	11.859	9.675	9.105	6.696	6.388	4.907	10.431	7.695
	(10.428)	(9.364)	(11.837)	(9.496)	(9.116)	(8.942)	(3.867)	(2.168)	(10.536)	(10.917)
HOUR	51.666	47.098	49.439	45.423	53.263	49.076	54.258	49.373	52.776	48.911
	(12.458)	(11.305)	(11.203)	(9.518)	(13.052)	(12.827)	(12.461)	(9.626)	(13.304)	(14.303)
FOR	0.583	0.458								
	(0.493)	(0.498)								
FOR.NEW	0.191	0.164								
	(0.393)	(0.371)								
NEW					0.328	0.358				
					(0.470)	(0.479)				

Notes: S = number of years of schooling; EXP = years of experience; MEARN = monthly earnings; HWAGE = computed hourly wage; HOUR = number of hours worked in a week; FOR: 1 = Chinese immigrants, 0 = natives; NEW: 1 = new immigrants, 0 = old immigrants.

Table 2 Summary Statistics of Paid Employees, 1986 Census (Standard deviation in parentheses)

	All		Natives		Chinese Immigrants					
					All		New		Old	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
N	173480	103489	98041	70604	75439	32885	3932	4068	71507	28817
S	8.645	8.661	9.594	9.771	7.413	6.279	9.389	7.656	7.304	6.085
	(3.658)	(4.052)	(3.310)	(3.303)	(3.720)	(4.463)	(3.592)	(3.972)	(3.696)	(4.494)
AGE	34.426	31.481	29.245	27.161	41.159	40.754	33.244	34.707	41.595	41.608
	(11.808)	(11.405)	(8.916)	(7.855)	(11.709)	(12.281)	(11.510)	(10.925)	(11.564)	(12.222)
EXP	20.782	17.821	14.653	12.393	28.747	29.476	18.856	22.053	29.291	30.524
	(13.483)	(13.948)	(10.048)	(9.380)	(13.212)	(14.975)	(11.649)	(12.681)	(13.078)	(14.978)
MEARN	3545.41	2678.72	3783.61	2913.81	3235.84	2173.98	2479.18	1738.44	3277.45	2235.47
	(3080.30)	(2237.71)	(3337.48)	(2345.76)	(2678.39)	(1889.63)	(1898.47)	(852.81)	(2708.67)	(1985.34)
HWAGE	17.618	15.071	19.241	16.410	15.510	12.198	11.778	9.039	15.715	12.643
	(19.948)	(17.852)	(20.863)	(17.784)	(18.481)	(17.659)	(13.768)	(10.308)	(18.684)	(18.419)
HOUR	51.133	45.448	49.556	44.768	53.184	46.909	53.254	48.378	53.180	46.702
	(13.219)	(11.411)	(12.353)	(10.479)	(14.004)	(13.074)	(13.004)	(11.605)	(14.057)	(13.255)
FOR	0.435	0.318								
	(0.496)	(0.466)								
FOR.NEW	0.023	0.039								
	(0.149)	(0.194)								
NEW					0.052	0.124				
					(0.222)	(0.329)				

Note: See Table 1.

Table 3 Summary Statistics of Working Individuals, 1991 Census (Standard deviation in parentheses)

	All		Local		Chinese Immigrants			
					NEW (YSM<6)		RECENT (YSM<10)	
	Male	Female	Male	Female	Male	Female	Male	Female
N	73890	42204	70869	38846	1455	1925	3021	3358
S*	9.457 (3.515)	9.635 (3.753)	9.426 (3.515)	9.736 (3.729)	10.465 (3.597)	8.5751 (3.905)	10.174 (3.452)	8.475 (3.835)
NOSCH	0.039 (0.194)	0.064 (0.244)	0.040 (0.196)	0.061 (0.240)	0.023 (0.151)	0.091 (0.288)	0.026 (0.160)	0.092 (0.290)
PRIM	0.249 (0.433)	0.200 (0.400)	0.253 (0.435)	0.193 (0.395)	0.158 (0.365)	0.265 (0.442)	0.159 (0.366)	0.272 (0.445)
LOWSEC	0.256 (0.436)	0.160 (0.367)	0.252 (0.434)	0.148 (0.355)	0.318 (0.466)	0.304 (0.460)	0.333 (0.471)	0.303 (0.459)
UPPSEC	0.280 (0.449)	0.387 (0.487)	0.281 (0.449)	0.402 (0.490)	0.220 (0.414)	0.200 (0.400)	0.249 (0.433)	0.204 (0.403)
MATRIC	0.049 (0.216)	0.062 (0.242)	0.049 (0.215)	0.064 (0.245)	0.053 (0.224)	0.039 (0.195)	0.051 (0.221)	0.044 (0.206)
NONDEG	0.063 (0.243)	0.079 (0.270)	0.063 (0.243)	0.083 (0.276)	0.073 (0.260)	0.042 (0.201)	0.059 (0.235)	0.037 (0.189)
UNIV	0.064 (0.246)	0.048 (0.215)	0.062 (0.241)	0.048 (0.215)	0.155 (0.362)	0.058 (0.233)	0.122 (0.328)	0.048 (0.214)
AGE	36.916 (11.740)	33.287 (10.91)	37.040 (11.72)	33.022 (10.867)	32.658 (11.643)	35.279 (10.923)	34.000 (11.719)	36.356 (10.954)

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Table 3 (Continued)

EXP	21.468 (13.313)	17.670 (13.14)	21.623 (13.353)	17.306 (13.113)	16.199 (11.699)	20.714 (12.706)	17.833 (11.751)	21.888 (12.731)
MEARN	7960.44 (8148.29)	5844.47 (5387.32)	8056.46 (8240.93)	6026.93 (5531.10)	5585.54 (5070.42)	3652.38 (2360.41)	5707.78 (5049.13)	3733.74 (2454.57)
REC	0.041 (0.198)	0.080 (0.271)						
REC.YSM	0.2159 (1.195)	0.3769 (1.499)					5.281 (2.862)	4.737 (2.753)
YSM	9.8071 (1.099)	9.5812 (1.622)			2.661 (1.562)	2.680 (1.545)	5.2807 (2.862)	4.7367 (2.753)

* The number of years of schooling are approximated from discrete schooling categories.

Notes: See Note 6 for the classification of various schooling categories.

REC: 1 = recent immigrants, 0 = others.

YSM = number of years since immigration.

However, for the 1991 census, information on place of birth of the individual is not available. Thus we cannot identify whether an individual is a native born in Hong Kong or whether he is an immigrant immigrated from China. The nationality concept used in the 1991 census is a legal one, which is not necessarily related to ethnicity, race or place of birth. Fortunately, the years of residence in Hong Kong is available by single years up to nine years. By blending the information on nationality, duration of residence in Hong Kong, and the usual language, we identify a group of 'locals,' who are either Chinese or English speaking and have lived in Hong Kong for ten years or more, and a group of 'recent Chinese immigrants' who are Chinese speaking and have been in Hong Kong for less than ten years. The 1991 census data set we work with contains 116,094 working individuals and the summary statistics are presented in Table 3.

Besides the problem of identifying the nativity of an individual, one other limitation of the 1991 census data set is that it does not contain information on the number of years of schooling of an individual. Instead, education is classified into several discrete categories. Thus we cannot obtain the rate of return to schooling from this data set. Besides, the activity status of an individual is classified as either working or non-working and we cannot single out the paid employees for this cohort as in the previous census data sets.

In view of the above problems of the 1991 census data set, we supplement our analysis with the 'summer 1991' data set. The advantage of this data set is that it contains information on the place of birth, the number of years of schooling, years of schooling acquired abroad, and the actual years of full-time experience, of which the latter two are not available in all the census data sets. However, this data set is relatively small, containing only 726 paid employees. Also it does not contain enough recent immigrants for any analysis associated with years since migration of an immigrant. The summary statistics of the 'summer 1991' data set is presented in Table 4.

Table 4 Summary Statistics of Paid Employees, 'Summer 1991' Data Set (Standard deviation in parentheses)

	All		Natives		Chinese Immigrants					
					All		New		Old	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
N	431	295	290	227	141	68	7	2	134	66
S	10.084	9.608	10.941	10.405	8.319	6.949	12.214	11.000	8.116	6.826
	(3.813)	(3.676)	(3.521)	(3.196)	(3.796)	(3.937)	(4.071)	(2.828)	(3.685)	(3.916)
AGE	36.886	32.783	32.879	30.264	45.128	41.191	37.286	46.000	45.537	41.045
	(11.301)	(9.866)	(9.164)	(7.887)	(10.826)	(11.137)	(9.517)	(8.485)	(10.765)	(11.226)
EXP	17.459	11.084	13.570	10.074	25.461	14.459	14.571	24.500	26.030	14.155
	(11.475)	(8.103)	(9.195)	(6.827)	(11.579)	(10.765)	(7.850)	(12.021)	(11.479)	(10.679)
MEARN	9985.61	6073.88	11222.67	6662.62	7441.30	4108.53	6285.71	5000.00	7501.67	4081.52
	(8548.78)	(4050.31)	(9792.63)	(4279.70)	(4101.19)	(2260.48)	(2058.66)	(0)	(4176.10)	(2289.50)
HWAGE	50.004	32.022	56.786	35.286	36.055	21.127	31.876	23.765	36.274	21.047
	(50.410)	(24.271)	(58.058)	(25.764)	(23.572)	(13.754)	(12.756)	(3.055)	(24.012)	(13.951)
HOUR	50.429	46.044	50.307	45.700	50.681	47.191	47.000	49.500	50.873	47.121
	(12.367)	(9.334)	(12.401)	(8.265)	(12.337)	(12.253)	(4.796)	(6.364)	(12.586)	(12.408)
FOR	0.327	0.231								
	(0.470)	(0.422)								
FOR.NEW	0.0016	0.0068								
	(3.401)	(0.082)								
NEW					0.050	0.029				
					(0.218)	(0.170)				
YSM					25.108	23.044	4.107	4.750	26.205	23.598
					(13.383)	(11.772)	(1.069)	(0.707)	(12.809)	(11.499)

Note: See Tables 1 and 3.

III. Methodology

To study the extent of earnings disadvantage of immigrants, we will compute the earnings ratio between new immigrants and natives, as well as between old immigrants and natives. In this paper, new immigrants are those Chinese immigrants who have resided in Hong Kong for less than six years and old immigrants are those who have resided for a period of six years or more. We then proceed to analyze the structure of the earnings differential between the new immigrants and the natives. We base our analysis on the Mincerian earnings regressions of the following type:

$$\ln Y = b_0 + b_1 S + b_2 EXP + b_3 EXP2 + b_4 FOR + b_5 FOR.NEW + b_6 FOR.S + b_7 FOR.EXP + b_8 FOR.EXP2 \quad (1)$$

where Y is the monthly earnings, S is the number of years of schooling, EXP is the years of experience and EXP2 is its squared term.[5] FOR is a dummy variable which takes the value of one for Chinese immigrants and zero for natives. NEW is a dummy variable which takes the value of one for new immigrants who have been in the receiving country for less than six years. FOR.NEW is an interactive term between the variable FOR and the variable NEW. The rest of the explanatory variables are the interactive terms between the variable FOR and the human capital variables S, EXP and EXP2.

In this basic model, we allow the rate of return to schooling and experience to be different among immigrants and natives. Their differences can be tested empirically by observing whether the coefficients b_6, b_7 and b_8 are statistically different from zero. From the estimated coefficients, we can get the expected earnings differential between an average new immigrant and an average native by evaluating lnY at their respective sample mean. Following the methodology by Blinder (1974), this differential can be decomposed into three components, i.e.

$$\ln Y = E + C + U \quad (2)$$

where

$$E = \sum_j \beta_{Ij} (\overline{X}_{Ij} - \overline{X}_{Nj})$$

is the portion of differential attributable to differing endowments,

$$C = \sum_j \overline{X}_{Nj} (\beta_{Ij} - \beta_{Nj})$$

is the portion of differential attributable to differing coefficients. The subscript 'N' in the equation denotes 'Natives,' and the subscript 'I' denotes 'Immigrants.' U is the unexplained portion of the differential. The breaking down of the earnings differential into its various components is important because (1) we expect a change in the quality of cohort of new immigrants over time with a change in immigration policy, and thus the endowment effect may change over time, and (2) as the structure of the economy is changing over time, the applicability of human capital acquired in other countries may change and the rate of return to human capital embodied in immigrants may change, and thus the coefficient effect may change over time. Without a breakdown of the total earnings differential, we will not be able to understand fully how it changes over time.

To estimate the rate of assimilation of new immigrants into the local economy, we have to make use of the information on the year of arrival of immigrants. This information is available in the 1991 census only for immigrants immigrated less than ten years ago, and for the 1981 census only for immigrants immigrated less than six years ago. The regression estimated for the 1991 census is of the following form:

$$\text{LnY} = CX + c_1 EXP + c_2 EXP2 + c_3 REC + c_4 REC.YSM + c_5 REC.YSM2 + c_6 REC.EXP + c_7 REC.EXP2 \quad (3)$$

where X is a vector including various human capital variables,[6] and C is the vector of their corresponding coefficients. REC is a dummy variable which takes the value of one for recent immigrants immigrated less than ten years ago. YSM is the number of years since immigration, and YSM2 is its squared term. REC.YSM and REC.YSM2 are the interactive terms between REC and YSM, YSM2 respectively. For the 'Summer 1991' data set, the

variable REC is replaced by the more appropriate measure of the variable FOR and we have the following regression:

$$\begin{aligned} LnY = {} & c_0 + c_sS + c_1EXP + c_2EXP2 + c_3FOR + c_4FOR.YSM \\ & + c_5FOR.YSM2 + c_6FOR.EXP + c_7FOR.EXP2 \\ & + c_7FOR.S \end{aligned} \quad (4)$$

The earnings disadvantage of immigrants is reducing at a rate of ($c_4 + 2*c_5*YSM + c_6 + 2*c_7*EXP$) per year. For the 1981 census, year of arrival dummies are used in place of the variables YSM and YSM2 because of the short range of years available.

IV. Earnings Ratio between Immigrants and Natives

The earnings ratio between immigrants and natives are tabulated in Table 5. It shows the average monthly earnings of new and old immigrants relative to that of natives. In 1981, a male new immigrant just earns about 59.8% of that of its native counterpart. However, the ratio increases significantly to 65.5% in 1986. The 1991 census data shows that the ratio between new immigrants and 'locals' is still higher, being 69.3%. Since this ratio is an overestimation of the earnings ratio between new immigrants and natives, the figures actually show that the increase in relative earnings between new immigrants and natives slows down, or it has even decreased from 1986 to 1991, as indicated by the ratio based on the 'Summer 1991' data set. For the case of female, the census data sets indicate that the increase in relative earnings of new immigrants over time is of a much smaller magnitude than that of the male.

Table 5 Earnings Ratios between Immigrants and Natives, 1981-1991 (In percentages)

Year	1981	1986	1991 (a)[1]	1991 (b)[2]
Male				
Earnings of New Immigrants / Earnings of Natives	59.83	65.52	69.33	56.01
Earnings of Old Immigrants / Earnings of Natives	92.42	86.62		66.84
Female				
Earnings of New Immigrants / Earnings of Natives	57.55	59.66	60.60	75.05
Earnings of Old Immigrants / Earnings of Natives	82.03	76.72		61.26

[1] The data set used is the 1991 census data set. The sample includes all working individuals whereas for the other data sets, only paid employees are included. Besides, the ratios shown are between new immigrants and 'locals' who have resided in Hong Kong for ten years or more, and are thus an overestimation of earnings ratios between new immigrants and natives.

[2] The data set used is the 'Summer 1991' data set.

The increase in relative earnings of new immigrants from 1986 to 1991 is consistent with the observed increase in education of new immigrants. In 1981, the average years of schooling of male new immigrants is 1.5 years less than that of natives, however, in 1986, the cohort of male new immigrants is more educated and their average years of schooling are just slightly less than that of their native counterparts.

However, the change in earnings ratio over-time evidently cannot be explained by the change in education of new immigrants, as seen by the fact that the average years of schooling of the 1991 cohort of new immigrants are still higher than that of the 1986 cohort and are even higher than that of their native counterparts, but their relative economic performance does not increase

accordingly. In Section V, we will study the structure of earnings differential between new immigrants and natives in greater detail.

For all years, the relative earnings of old immigrants is higher than that of the new immigrants. For example, in 1981, the average earnings of an old immigrant is as much as 92% of his native counterparts whereas a new immigrant just earns about 60% of his native counterparts. The higher relative earnings of old immigrants suggests that the economic performance of an immigrant improves as he stays longer in the economy. It cannot be explained by a difference in education level as the new immigrants are as a rule more educated than the old immigrants. However, whereas the earnings ratio of the new immigrants increases over time, that of the old immigrants decreases for both male and female. Again, this cannot be explained by any change in education level of old immigrants, as the difference in schooling between old immigrants and natives is rather stable. In Section VI, we will come back to this again when we study the assimilation pattern of immigrants and how this changes over time.

V. Structure of Earnings Differential between Immigrants and Natives

To study the structure of earnings differential between immigrants and natives, we base our analysis on the Mincerian earnings regressions as laid out in Section III. The empirical results of the Mincerian earnings regressions for various years are shown in Table 6 to Table 9. For those who are interested, the empirical results of the corresponding wage regressions are shown in Table A1 to Table A4. It can be seen that the results in the two sets of tables are very similar in pattern. In this section, for the results of the year 1991, we base our analysis mainly on the 'Summer 1991' data set, as the years of schooling variable is not available for the 1991 5% sample of the population census.

Table 6 Estimated Coefficients of the Earnings Regressions, 1981 Census (T-statistics in parentheses)

Dependent variable: lnY

Variable	Male		Female	
Model	(1)	(2)	(3)	(4)
Constant	6.4553 (1019.020)	5.8670 (614.139)	6.2898 (779.142)	5.7470 (509.459)
S	0.0675 (157.600)	0.1032 (155.026)	0.0821 (139.970)	0.1165 (143.032)
EXP	0.0499 (123.330)	0.0761 (116.414)	0.0254 (52.254)	0.0520 (69.433)
EXP2	-0.0008 (-103.460)	-0.0012 (-83.424)	-0.0003 (-36.028)	-0.0008 (-46.421)
FOR	-0.0895 (-25.343)	0.9477 (71.301)	-0.0870 (-17.404)	0.9496 (56.478)
FOR.NEW	-0.2076 (-48.503)	-0.2934 (-65.874)	-0.2216 (-36.656)	-0.2868 (-47.080)
FOR.S		-0.0571 (-66.842)		-0.0640 (-56.179)
FOR.EXP		-0.0445 (-52.290)		-0.0444 (-43.911)
FOR.EXP2		0.0007 (38.024)		0.0006 (31.796)
R^2	0.2995	0.3380	0.3359	0.3798
$\overline{R}^2$	0.2995	0.3380	0.3358	0.3798
N	114125	114125	64208	64208

Note: See Table 1.

Table 7 Estimated Coefficients of the Earnings Regressions, 1986 Census (T-statistics in parentheses)

Dependent variable: lnY

Variable	Male		Female	
Model	(1)	(2)	(3)	(4)
Constant	6.5740 (1159.030)	6.0430 (797.957)	6.3583 (804.866)	5.8409 (586.200)
S	0.0872 (225.747)	0.1198 (230.038)	0.1068 (0.001)	0.1390 (196.084)
EXP	0.0614 (179.548)	0.0841 (178.016)	0.0386 (0.000)	0.0634 (108.134)
EXP2	-0.0009 (-140.750)	-0.0012 (-120.020)	-0.0004 (0.000)	-0.0009 (-65.705)
FOR	-0.1722 (-60.954)	1.0122 (82.868)	-0.1983 (0.004)	1.0769 (62.254)
FOR.NEW	-0.2513 (-31.363)	-0.2797 (-35.492)	-0.1970 (0.009)	-0.2086 (-24.600)
FOR.S		-0.0632 (-83.588)		-0.0747 (-66.230)
FOR.EXP		-0.0499 (-65.936)		-0.0533 (-54.023)
FOR.EXP2		0.0007 (50.307)		0.0008 (40.703)
R^2	0.3077	0.3474	0.3226	0.3638
$\bar{R}^2$	0.3077	0.3474	0.3226	0.3637
N	173480	173480	103489	103489

Note: See Table 1.

Table 8 Estimated Coefficients of the Earnings Regressions, 1991 Census (T-statistics are parentheses)

Dependent variable: lnY

Variable	Male				Female			
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	7.9246 (621.069)	7.9256 (621.110)	7.8868 (607.374)	7.8868 (607.388)	7.7884 (492.012)	7.7904 (491.913)	7.7236 (460.664)	7.7236 (460.662)
PRIM	-0.0170 (-1.488)	-0.0169 (-1.486)	-0.0190 (-1.644)	-0.0190 (-1.644)	-0.0823 (-5.954)	-0.0823 (-6.018)	-0.0905 (-6.150)	-0.0905 (-6.150)
LOWSEC	0.1303 (10.722)	0.1299 (10.69)	0.1321 (10.712)	0.1321 (10.712)	0.1252 (8.089)	0.1240 (8.014)	0.1326 (8.011)	0.1326 (8.011)
UPPSEC	0.3661 (29.849)	0.3657 (29.818)	0.3804 (30.560)	0.3804 (30.560)	0.5278 (34.408)	0.5227 (34.297)	0.5663 (34.756)	0.5663 (34.756)
MATRIC	0.5936 (40.510)	0.5933 (40.500)	0.6137 (44.222)	0.6137 (41.223)	0.7563 (42.565)	0.7547 (42.462)	0.8101 (43.287)	0.8101 (42.287)
NONDEG	0.8182 (57.911)	0.8183 (57.922)	0.8494 (59.178)	0.8494 (59.179)	0.9853 (57.433)	0.9839 (57.349)	1.0389 (57.587)	1.0389 (57.587)
UNIV	1.0927 (78.246)	1.0939 (78.312)	1.1400 (79.854)	1.1400 (79.856)	1.1940 (64.967)	1.1929 (64.906)	1.2618 (65.015)	1.2618 (65.015)
EXP	0.0548 (100.771)	0.0547 (100.618)	0.0569 (102.267)	0.0569 (100.270)	0.0356 (53.182)	0.0356 (53.113)	0.0394 (56.748)	0.0394 (56.748)
EXP2	-0.0010 (-92.289)	-0.0010 (-92.190)	-0.0010 (-93.351)	-0.0010 (-92.353)	-0.0007 (-49.049)	-0.0007 (-49.057)	-0.0007 (-51.063)	-0.0007 (-51.062)
REC	-0.3039 (-30.911)	-0.4108 (-13.244)	0.2080 (3.032)	0.1044 (1.441)	-0.2733 (-9.807)	-0.3083 (-11.666)	0.3645 (7.145)	0.2807 (5.242)
REC.YSM		0.0334 (2.256)		0.0178 (1.204)		-0.0003 (-0.022)		-0.0038 (-0.296)

Table 8 (Continued)

REC.YSM2	-0.0019		-0.0004		0.0012		0.0019					
	(-1.323)		(-0.283)		(0.912)		(1.455)					
REC.NEW		-0.0667				-0.0830						
		(-3.411)				(-4.726)						
REC.EXP		-0.0263	-0.0266			-0.0399	-0.03989					
		(-9.606)	(-9.696)			(-16.413)	(-16.393)					
REC.EXP2		0.0004	0.0004			0.0007	0.00066					
		(5.699)	(5.757)			(13.266)	(13.237)					
REC.PRIM		0.0271	0.0228			0.1076	0.1054					
		(0.407)	(0.342)			(2.637)	(2.582)					
REC.LSEC		-0.0360	-0.0429			-0.0554	-0.0574					
		(-0.547)	(-0.652)			(-1.248)	(-1.293)					
REC.USEC		-0.1997	-0.2051			-0.3512	-0.3550					
		(-2.993)	(-3.073)			(-7.503)	(-7.575)					
REC.NOND		-0.4878	-0.4888			-0.6236	-0.6247					
		(-6.471)	(-6.485)			(-10.056)	(-10.073)					
REC.MATR		-0.3129	-0.3177			-0.5488	-0.5501					
		(-4.068)	(-4.131)			(-9.219)	(-9.236)					
REC.UNIV		-0.5615	-0.5603			-0.5951	-0.6002					
		(-8.090)	(-8.075)			(-10.254)	(-10.331)					
R^2	0.2959	0.2961	0.3017	0.3017	0.3609	0.3612	0.3720	0.3720				
$\bar{R}^2$	0.2958	0.2960	0.3015	0.3015	0.3608	0.3610	0.3717	0.3717				
N	73890	73890	73890	73890	42204	42204	42204	42204				

Note: See Table 3.

Table 9 Estimated Coefficients of the Earnings Regressions, 'Summer 1991' Data Set (T-statistics in parentheses)

Dependent variable: lnY

Variable	Male			Female		
Model	(1)	(2)	(3)	(4)	(5)	(6)
Constant	7.5816 (68.991)	7.1066 (56.448)	7.1066 (57.122)	7.6937 (68.020)	7.3022 (51.367)	7.3022 (51.653)
S	0.0985 (14.275)	0.1342 (16.858)	0.1342 (17.059)	0.0761 (9.431)	0.0998 (10.232)	0.0998 (10.289)
EXP	0.0495 (7.342)	0.0531 (5.752)	0.0531 (5.820)	0.0248 (2.854)	0.0494 (3.974)	0.0494 (3.996)
EXP2	-0.0008 (-5.664)	-0.0007 (-2.773)	-0.0007 (-2.806)	-0.0005 (-1.987)	-0.0012 (-2.698)	-0.0012 (-2.713)
FOR	-0.1897 (-3.330)	1.3512 (5.395)	1.2361 (4.576)	-0.2037 (-2.948)	0.6304 (3.037)	0.3705 (1.130)
FOR.NEW	-0.3908 (-2.121)	-0.2739 (-1.551)		-0.0744 (-0.229)	0.1581 (0.492)	
FOR.S		-0.1053 (-7.736)	-0.1081 (-8.036)		-0.0609 (-3.533)	-0.0508 (-2.911)
FOR.EXP		-0.0316 (-1.937)	-0.0431 (-2.573)		-0.0482 (-2.406)	-0.0561 (-2.767)
FOR.EXP2		0.0002 (0.433)	0.0002 (0.509)		0.0012 (1.955)	0.0013 (2.236)
FOR.YSM			0.0189 (1.438)			0.0122 (0.532)
FOR.YSM2			-0.0001 (-0.421)			-0.0000 (-0.096)
R^2	0.3866	0.4666	0.4803	0.3363	0.3777	0.3867
$\bar{R}^2$	0.3794	0.4565	0.4692	0.3248	0.3603	0.3674
N	431	431	431	295	295	295

Note: See Table 3.

Table 10 Earnings Regressions with Year of Arrival Dummies, 1981 Census (T-statistics in parentheses)

Dependent variable: lnY				
Variable	Male		Female	
Model	(1)	(2)	(3)	(4)
Constant	6.4568	5.8670	6.2883	5.7470
	(1018.890)	(614.926)	(777.414)	(509.706)
S	0.0675	0.1032	0.0822	0.1165
	(157.670)	(155.225)	(139.988)	(143.101)
EXP	0.0497	0.0761	0.0254	0.0520
	(122.835)	(116.564)	(52.312)	(69.467)
EXP2	-0.0008	-0.0012	-0.0003	-0.0008
	(-103.036)	(-83.531)	(-36.073)	(-46.444)
FOR	-0.0890	0.9545	0.0874	0.9496
	(-25.241)	(71.807)	(-17.482)	(56.459)
FOR.YR1*	-0.1845	-0.2274	-0.2457	-0.2481
	(-8.682)	(-10.997)	(-8.831)	(-9.217)
FOR.YR2	-0.1651	-0.2301	-0.2473	-0.2758
	(-12.647)	(-18.028)	(-14.717)	(-16.933)
FOR.YR3	-0.1772	-0.2535	-0.2107	-0.2606
	(-24.489)	(-35.328)	(-19.565)	(-24.788)
FOR.YR4	-0.1850	-0.2782	-0.1879	-0.2676
	(-32.651)	(-48.384)	(-23.029)	(-32.903)
FOR.YR5	-0.2732	-0.3688	-0.2598	-0.3357
	(-40.333)	(-54.174)	(-27.489)	(-35.935)
FOR.YR6	-0.4621	-0.5228	-0.3878	-0.4241
	(-13.988)	(-16.264)	(-10.152)	(-11.474)
FOR.S		-0.0571		-0.0640
		(-66.948)		(-56.204)
FOR.EXP		-0.0450		-0.0444
		(-52.903)		(-43.987)
FOR.EXP2		0.0007		0.0006
		(38.528)		(31.871)
R^2	0.3009	0.3398	0.3366	0.3796
$\overline{R}^2$	0.3009	0.3397	0.3365	0.3794
N	114125	114125	64208	64208

* YR1 is a dummy variable which takes the value of one for immigrants arrived in 1976, YR2 for immigrants arrived in 1977, YR3 for immigrants arrived in 1978, YR4 for immigrants arrived in 1979, YR5 for immigrants arrived in 1980, and YR6 for immigrants arrived in 1981.

Note: See Table 1.

From the tables, the coefficient of the interactive term FOR.S is as a rule negative, indicating that the rate of return to schooling for immigrants is lower than that of their native counterparts, other things being the same. Besides, this difference is increasing in magnitude over time. For example, in 1981, the differential rate of return to schooling for male is 5.7%. It increases to around 10.8% in 1991. It has been noted in the literature on immigration that the rate of return to schooling acquired in the sending and receiving countries may be different due to the specificity of human capital.[7] But in most empirical studies, the breakdown of schooling into schooling acquired before immigration and schooling acquired after is often not possible because of the limitation of the data. This is also true for census data sets. However, for the 'Summer 1991' data set, we have a variable on the number of years of schooling acquired abroad, SOUT. From this information, we compute the number of years of schooling acquired in Hong Kong, SHK, as the difference between the total number of years of schooling and the number of years of schooling acquired abroad. The empirical results of the earnings regressions with this breakdown of schooling are shown in Table 11. From this table, it is confirmed that the rate of return to schooling of immigrants is much lower than that of the native counterparts. The rate of return to schooling acquired by immigrants outside Hong Kong is even not statistically different from zero for the male and is barely significant for female immigrants. This suggests that because of the great difference in education system between mainland China and Hong Kong, what the immigrants learned in school in China may be of very little applicability to their jobs in Hong Kong. Of course, the result may be exaggerated by the selection bias problem. Those Chinese immigrants who are of lower education but somehow manage to get into Hong Kong may be a self-selected group with higher motivation and ability, resulting in a negative relationship between ability and schooling. If the measurement of ability is not included in the list of explanatory variables, the rate of return to schooling of immigrants may be biased downwards.

Table 11 Returns to Schooling before Immigration and Schooling after Immigration, 'Summer 1991' Data Set (T-statistics in parentheses)

Regression coefficients

Dependent variable: lnY

	Male			Female		
	Natives	Immigrants		Natives	Immigrants	
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Constant	7.148976 (55.739)	8.622291 (36.118)	8.442795 (32.402)	7.325429 (51.092)	7.802726 (41.587)	7.811832 (19.586)
SHK	0.129973 (15.445)	0.025441 (2.066)	0.023311 (1.945)	0.097414 (9.715)	0.025864 (1.466)	0.029528 (1.640)
SOUT	0.162592 (8.241)	0.003196 (0.212)	0.014689 (0.978)	0.143233 (3.685)	0.029552 (1.294)	0.039436 (1.596)
EXP	0.052950 (5.781)	0.017101 (1.212)	0.003439 (0.241)	0.048353 (3.927)	0.028323 (1.476)	0.022066 (1.105)
EXP2	-0.000720 (-2.851)	-0.000502 (-1.992)	-0.000436 (-1.753)	-0.001179 (-2.665)	-0.000643 (-1.344)	-0.000541 (-1.090)
YSM			0.023095 (1.678)			-0.010636 (-0.350)
YSM2			-0.000167 (-0.699)			0.000371 (0.637)
R^2	0.5139	0.1668	0.2466	0.3326	0.0871	0.1191
$\overline{R}^2$	0.5071	0.1368	0.2077	0.3208	0.0230	0.0230
N*	290	123	123	231	62	62

Table 11 (Continued)

Means and (standard deviations)

Variable	Natives	Immigrants	Natives	Immigrants
MEARN	11231.55 (9787.15)	7402.63 (4227.05)	6636.86 (4254.84)	4098.06 (2364.11)
AGE	32.8207 (9.1020)	45.1789 (11.0506)	30.2338 (7.8229)	41.5806 (11.4728)
SHK	10.6552 (3.3405)	4.7154 (4.8545)	10.2403 (3.0740)	4.8226 (4.6940)
SOUT	0.3069 (1.3017)	3.4878 (4.1039)	0.1342 (0.7308)	2.0484 (3.5410)
EXP	13.5438 (9.1874)	25.7276 (11.8407)	10.0896 (6.7831)	14.4710 (11.2096)
YSM		25.4614 (13.7258)		24.2177 (11.6478)

* Note that the number here is less than that in Table 9 because of missing values in SOUT.

Notes: SHK = number of years of schooling acquired in Hong Kong.
SOUT = number of years of schooling acquired abroad.

One interesting observation is that for immigrants, even the rate of return to schooling acquired in Hong Kong is much lower than that of their native counterparts, the difference being around 10% for male and 7% for female. It is not obvious why this should be the case. One possible explanation is that immigrants may not be able to get into good schools in Hong Kong, and the quality of schooling acquired by them are of a lower quality than their native counterparts. Besides, what we achieve from higher grades in school depends very much on what we have achieved before. For immigrants who have their earlier years of schooling in China, the quality of schooling attained in earlier years may be of a lower quality or at least of a lower applicability to the environment of Hong Kong, and this will affect the quality of schooling achieved in Hong Kong. The result is that the return to schooling of immigrants is lower, not only for the schooling acquired outside Hong Kong, but also for schooling acquired in Hong Kong.

As in the case of return to schooling, the coefficient of the interactive term FOR.EXP is negative, indicating that the rate of return to experience is lower for immigrants. This again may also be explained by the specificity of experience to the country in which they are acquired. Since our data sets do not contain information on the amount of experience acquired outside and inside Hong Kong, we cannot confirm this directly in this study.

Another expected result is that the coefficient of the variable FOR.NEW is negative, indicating that other things being the same, new immigrants earn less than the old immigrants of the same human capital characteristics. This result is expected because when a new immigrant arrives in the receiving country, it takes time for him to adapt to the economy and acquire the country-specific human capital.

But an interesting result is that, though the coefficient of the variable FOR is negative when the rate of return to human capital is constrained to be equal for immigrants and natives, it becomes positive when the rate is allowed to be different. Since the interactive term FOR.NEW is also included in the regressions, the positive coefficient of FOR means that old immigrants earn more than their native counterparts of no schooling and experience. Besides,

the magnitude of this positive coefficient is greater than the magnitude of the negative coefficient of FOR.NEW, meaning that new immigrants with no schooling and experience also earn more than their native counterparts. An interpretation is that the innate ability of immigrants, both new and old, are higher than their native counterparts. The above results also suggest that if we specify our model incorrectly and constrain the rate of return to schooling to be the same across immigrants and natives, while they are in fact different, we may observe the statistical artifact that immigrants with no schooling and experience earn less than that of their native counterparts.

In Table 12, we break down the total earnings differential between new immigrants and natives into the difference in coefficients (the coefficient effect), the difference in average amount of human capital endowed in the two different groups (the endowment effect) and the unexplained portion. The unexplained portion here, being the difference in intercept term between new immigrants and natives, can be interpreted as the difference in earnings between new immigrants and natives with no schooling and experience. The positive sign of this term suggests that new immigrants may be of a higher ability or higher motivation than their native counterparts.

Table 12 Structure of Earnings Differential between New Immigrants and Natives, 'Summer 1991' Data Set

	1981		1986		1991	
	Male	Female	Male	Female	Male	Female
Coefficient Effect	-0.9499	-1.0352	-1.2854	-1.3583	-1.7466	-1.1305
Endowment Effect	-0.1650	-0.1218	0.1599	0.0436	0.2043	0.1735
Unexplained Portion	0.6543	0.6628	0.7325	0.8683	1.0773	0.6304
Total	-0.4606	-0.4942	-0.3930	-0.4464	-0.4650	-0.3266

We find that the magnitude of earnings disadvantage of male new immigrants decreases significantly from 0.46 in 1981 to 0.39 in 1986, but then increases from 1986 to 0.46 in 1991. The coefficient effect is negative all through, showing that the rate of return to human capital of immigrants is smaller than that of natives. Besides, the magnitude is increasing over time, indicating that the difference in rate of return to human capital of these two groups is widening. On the other hand, the endowment effect is moving in favor of new immigrants. Though the endowment effect is negative in the year 1981, showing that the average endowment of new immigrants is less than that of their native counterparts, it turns positive in 1986, indicating that the relative endowment of new immigrants actually improves over time and is better than their native counterparts in 1986. The positive endowment effect increases further from 1986 to 1991. At the same time, the positive 'unexplained portion' is increasing significantly over time from 0.65 in 1981 to 0.73 in 1986 and then to 1.08 in 1991. Since the intercept of the earnings regression for natives is actually increasing steadily over time, the increase in the 'unexplained portion' suggests that the innate ability of new immigrants is improving significantly over time.

By studying the decomposition, the change in earnings differential between periods can be explained by the following. The quality of the cohort of new immigrants immigrating into the economy has been increasing steadily over time, both in terms of their endowment in schooling and experience, and in terms of their innate ability, and this improvement is greater than that experienced by their native counterparts. This contributes to the decrease in earnings disadvantage from 1981 to 1986. However, the difference in rate of return to schooling and experience between immigrants and natives is widening at the same time, to such a large extent that from 1986 to 1991, the earnings disadvantage of new immigrants increases, even though the quality of new immigrants has improved over time.

A different pattern of change is observed for females. In this case, the earnings disadvantage of new immigrants is decreasing all through over time, with the decrease being most significant for

the period 1986 to 1991. As in the case of the males, the quality of female new immigrants is improving over time and the improvement is above that of their native counterparts. This is reflected in the increase in endowment effect and the 'unexplained portion.' Again as in the case of the males, the coefficient effect of the earnings differential is negative, indicating a lower rate of return to schooling and experience for female immigrants. However, while the male new immigrants experience a widening of the difference in the rates of return, the difference for females actually decreases from 1986 to 1991. This decrease in differential rate of return to schooling and experience, together with the increase in the amount of human capital and the quality of the new immigrants, has resulted in the observed decrease in total earnings differential between female new immigrants and natives from 1986 to 1991. From 1981 to 1986, even though the gap between the rate of return to schooling and experience is widening, the effect of the improvement in endowed human capital of new immigrants and the improvement in their innate ability have even been larger. Thus we observe a decrease in total earnings differential all through the period.

The increase in magnitude of the negative coefficient effect of the earnings differential of new immigrants can be understood in light of the change in structure of the Hong Kong economy. Traditional manufacturing industries are more labor intensive and less skill intensive than the rising service sector. What the workers are required to do in their manufacturing jobs involves general technical skills which require less country-specific human capital. On the other hand, the service sector is more skill intensive and the job nature often requires knowledge of the business, language, and social and cultural environment of Hong Kong. In the seventies and early eighties, a large proportion of the new immigrants were absorbed into the manufacturing industries, as shown in Table 13. However, with the decline of manufacturing industries over time and a fall in the percentage of working population in that sector, the percentage of new immigrants absorbed by the manufacturing sector declines and that by the service sector rises. Because of this change, the human capital of new

Table 13 Industry Distribution of Natives and New Immigrants, 1981 and 1986 Census (Percentage in parentheses)

	1981				1986			
	Natives		New Immigrants		Natives		New Immigrants	
Industry	Male	Female	Male	Female	Male	Female	Male	Female
Agriculture/Fishing	15 (0.03)	4 (0.01)	15 (0.07)	0 (0.00)	1409 (1.42)	511 (0.69)	50 (1.19)	32 (0.73)
Mining/Quarrying	40 (0.08)	7 (0.02)	16 (0.07)	1 (0.01)	10291 (10.36)	17901 (24.27)	805 (19.13)	1682 (38.60)
Manufacturing	14365 (29.20)	15211 (41.27)	10342 (46.52)	9253 (82.81)	21412 (21.56)	13591 (18.43)	1349 (32.05)	1563 (35.87)
Electricity/Gas/Water	714 (1.45)	120 (0.33)	92 (0.41)	4 (0.04)	1468 (1.48)	221 (0.30)	13 (0.31)	2 (0.05)
Construction	3864 (7.85)	487 (1.32)	5793 (26.06)	121 (1.08)	8035 (8.09)	831 (1.13)	343 (8.15)	10 (0.23)
Wholesale/Retail/Hotels	8260 (16.79)	6761 (18.34)	3854 (17.33)	1080 (9.67)	21921 (22.07)	15649 (21.22)	1106 (26.28)	675 (15.49)
Transport/Storage/ Communication	6493 (13.20)	1541 (4.18)	843 (3.79)	51 (0.46)	14806 (14.91)	3157 (4.28)	162 (3.85)	36 (0.83)
Financing/Insurance/ Business services	4887 (9.93)	4643 (12.60)	177 (0.80)	69 (0.62)	8662 (8.72)	7855 (10.65)	106 (2.52)	46 (1.06)
Services	9902 (20.13)	7718 (20.94)	892 (4.01)	498 (4.46)	10822 (10.89)	13811 (18.73)	265 (6.30)	308 (7.07)
Not classified	653 (1.33)	364 (0.99)	209 (0.94)	97 (0.87)	509 (0.51)	218 (0.30)	10 (0.24)	4 (0.09)
Total	49193 (100)	36856 (100)	22233 (100)	11174 (100)	99335 (100)	73745 (100)	4209 (100)	4358 (100)

immigrants becomes less applicable, and thus the rate of return to their human capital declines relative to that of natives, resulting in an increase in the magnitude of the coefficient effect of the earnings differential between new immigrants and natives.

VI. Rate of Assimilation of Immigrants

Here we will base our analysis mainly on the 'Summer 1991' data set as we cannot identify clearly the natives and the immigrants from the 1991 census data set. Further, we restrict our study to the rate of assimilation of male immigrants because the number of observations for female new immigrants is too small in the 'Summer 1991' data set, and the use of a proxy for the number of years of experience as required in the census data may not be adequate for female workers.[8]

From Table 9, the coefficient of the variable FOR.YSM is 0.0189, meaning that other things being the same, immigrants of one more year of duration of stay in Hong Kong earns 1.89% more than immigrants who have stayed here for one year less. This can be explained by the acquisition of more country-specific human capital with a longer duration of stay. The coefficient is statistically significant at 15% level of significance. The coefficient of the variable FOR.YSM2 is not statistically significant. The result as shown in Table 8 is similar, with the coefficient of REC.YSM of a similar order of magnitude.

To analyze how the relative earnings of immigrants and natives change over time, note that on the one hand, immigrants gain in earnings with duration of stay, since the coefficient of FOR.YSM is positive; on the other hand, the coefficient of FOR.EXP is negative and statistically significant at a value of -0.0431. Because of this differential in rate of return to experience to immigrants and natives, the earnings disadvantage of an immigrant increases over time compared to a native with the same amount of schooling and experience. Since the magnitude of this coefficient is greater than the coefficient of FOR.YSM, the overall effect is that the earnings gap between an immigrant and a native

with the same amount of schooling and experience increases at a magnitude of 0.0242 per year. It means that the earnings of an immigrant can never catch up with that of its native counterpart if it is lower than that of the latter to start with.[9]

To study whether the rate of assimilation of new immigrants is faster in 1991 than that achieved by new immigrants in 1981, we compare the results in Tables 9 and 10. From Table 10, the coefficient of the variable FOR.YR6 is -0.5228 and that for the variable FOR.YR1 is -0.2274. This implies an increase in earnings of approximately 5.9% per year, which is greater than experienced by new immigrants in the 1991 cohort. Of course, the decrease in rate of assimilation is over-estimated by this calculation since we base our calculation for the 1981 cohort of immigrants on new immigrants only, and the increase in earnings with the duration of stay may slow down over time, as indicated by the figures in Table 10. Nonetheless, the above finding seems to be consistent with our findings in Section V, and with our hypothesis that, because of the country-specific nature of human capital required in the expanding service sector, new immigrants in the nineties are expected to face more difficulties in their assimilation into the Hong Kong economy, as indicated by the lower rate of increase in earnings over time.

VII. Conclusion and Policy Implication

In this paper we study the economic assimilation of Chinese immigrants in Hong Kong and how this changes from 1981 and 1991. The year 1981 is an important year as far as immigration policy is concerned. The abolition of the touch-base policy in that year apparently resulted in the reception of a cohort of immigrants of higher quality in terms of education. It is found that the earnings ratio between male new immigrants and natives increased considerably from 59.8% in 1981 to 65.5% in 1986. However, the increase in earnings ratio slowed down from 1986 to 1991, or even decreased during that period. In the case of females, the earnings ratio increased steadily from 1981 to 1991.

By decomposing the total earnings ratio between new immigrants and natives into the coefficient effect, the endowment effect and an 'unexplained portion,' it is found that both the endowment effect and the unexplained portion move in favor of the new immigrants in the last decade, indicating that the quality of the cohort of new immigrants into the economy has been increasing steadily over time, both in terms of their endowment in schooling and experience and in terms of their innate ability. However, for the male immigrants, the rate of return to their human capital investment decreases significantly relative to that of the natives, resulting in an increase in magnitude of the negative coefficient effect. This latter effect is so large that it even offsets the effect of the improvement in quality of the new immigrants, such that the earnings ratio of new immigrants to natives may even decline from 1986 to 1991. In the case of the female immigrants, the change of coefficient effect is against the new immigrants from 1981 and 1986 but is slightly in favor of them from 1986 to 1991. In any case, the endowment effect dominates, resulting in a steady increase in earnings ratio during the entire period.

The increase in magnitude of the coefficient effect can be understood in light of the change in structure of the Hong Kong economy. As the manufacturing sector shrinks and the service sector expands, more country-specific human capital is required of the workers. A larger portion of the human capital of immigrants acquired outside Hong Kong renders no economic value in production here. The result is that the gap between the rate of return to human capital for natives and immigrants widens. If this hypothesis is correct, we can expect the gap to widen further in the near future as the economy is involved more and more in the service sector.

The large gap between the rate of return to human capital for immigrants and natives, while showing a clear economic disadvantage to immigrants, also indicates a large potential for the improvement in productivity of the local economy. If the lower productivity of the human capital of immigrants is mainly due to the lack of country-specific human capital, specially designed

training programs which are geared to providing new immigrants with information about the local business environment of Hong Kong promise to increase the productivity of these new immigrants greatly. This will help not only the new immigrants in assimilating into the local economy, but will also be beneficial to the economy in terms of the gain in productivity. The latter is becoming more important to the Hong Kong economy in face of its continual change in economic structure, and keener competition from neighboring Asian countries.

Appendix

Table A1 Estimated Coefficients of the Wage Regressions, 1981 Census (T-statistics in parentheses)

Dependent variable: log of wage

Variable	Male		Female	
Model	(1)	(2)	(3)	(4)
Constant	1.0092 (142.849)	0.3729 (34.940)	0.8589 (98.735)	0.2666 (21.952)
S	0.0797 (166.857)	0.1201 (161.387)	0.0947 (149.798)	0.1331 (151.998)
EXP	0.0477 (105.712)	0.0740 (101.427)	0.0316 (60.495)	0.0586 (72.681)
EXP2	-0.0007 (-86.192)	-0.0011 (-70.811)	-0.0004 (-45.236)	-0.0008 (-47.956)
FOR	-0.1293 (-32.844)	0.9806 (66.045)	-0.1055 (-19.583)	1.0370 (57.321)
FOR.NEW	-0.2397 (-50.210)	-0.3277 (-65.864)	-0.2704 (-41.514)	-0.3456 (-52.714)
FOR.S		-0.0648 (-67.861)		-0.0722 (-58.932)
FOR.EXP		-0.0442 (-46.516)		-0.0457 (41.955)
FOR.EXP2		0.0006 (32.954)		0.0006 (28.219)
R^2	0.3050	0.3410	0.3812	0.4224
$\bar{R}^2$	0.3049	0.3410	0.3811	0.4224
N	114125	114125	64208	64208

Note: See Table 1.

Table A2 Estimated Coefficients of the Wage Regressions, 1986 Census (T-statistics in parentheses)

Dependent variable: log of wage

Variable	Male		Female	
Model	(1)	(2)	(3)	(4)
Constant	1.1662 (184.257)	0.6054 (71.428)	1.0007 (117.765)	0.4462 (41.604)
S	0.0997 (231.398)	0.1357 (232.780)	0.1171 (192.620)	0.1532 (200.762)
EXP	0.0554 (145.169)	0.0773 (146.257)	0.0409 (87.073)	0.0644 (102.039)
EXP2	-0.0007 (-107.700)	-0.0011 (-93.762)	-0.0004 (-51.319)	-0.0008 (-57.559)
FOR	-0.2137 (-67.796)	1.0112 (73.946)	-0.2161 (-45.640)	1.1568 (62.122)
FOR.NEW	-0.2799 (-31.308)	-0.3009 (-34.103)	-0.2523 (-26.961)	-0.2685 (-29.415)
FOR.S		-0.0708 (-83.613)		-0.0849 (-69.929)
FOR.EXP		-0.0468 (-55.150)		-0.0510 (-48.052)
FOR.EXP2		0.0006 (40.146)		0.0006 (32.382)
R^2	0.2953	0.3315	0.3313	0.3710
$\bar{R}^2$	0.2953	0.3315	0.3313	0.3709
N	173480	173480	103489	103489

Note: See Table 1.

Table A3 Estimated Coefficients of the Wage Regressions, 'Summer 1991' Data Set (T-statistics in parentheses)

Dependent variable: log of wage

Variable	Male			Female		
Model	(1)	(2)	(3)	(4)	(5)	(6)
Constant	2.0920 (17.434)	1.5512 (11.321)	1.5512 (11.499)	2.2888 (20.594)	1.9032 (13.630)	1.9032 (13.762)
S	0.1139 (15.148)	0.15441 (17.817)	0.1544 (18.097)	0.0852 (10.744)	0.1088 (11.360)	0.1088 (11.470)
EXP	0.0461 (6.260)	0.0526 (5.239)	0.0526 (5.321)	0.0317 (3.716)	0.0557 (4.566)	0.0557 (4.610)
EXP2	-0.0007 (-4.633)	-0.0007 (-2.576)	-0.0007 (-2.616)	-0.0006 (-2.572)	-0.0013 (-3.057)	-0.0013 (-3.087)
FOR	-0.1631 (-2.624)	1.4763 (5.416)	1.4787 (4.809)	-0.1903 (-2.803)	0.6219 (3.050)	0.4030 (1.198)
FOR.NEW	-0.3915 (-1.949)	-0.2328 (-1.211)	-0.0553 (-0.243)	-0.2124 (-0.667)	0.0156 (0.049)	0.2360 (0.668)
FOR.S		-0.1187 (-8.011)	-0.1226 (-8.370)		-0.0620 (-3.662)	-0.0530 (-3.096)
FOR.EXP		-0.0315 (-1.769)	-0.0425 (-2.333)		-0.0445 (-2.264)	-0.0559 (-2.793)
FOR.EXP2		0.0002 (0.508)	0.0002 (0.441)		0.0011 (1.879)	0.0013 (2.227)
FOR.YSM			0.0081 (0.475)			0.0072 (0.290)
FOR.YSM2			0.0001 (0.511)			0.0001 (0.253)
R^2	0.3972	0.4779	0.4963	0.3848	0.4235	0.4385
$\bar{R}^2$	0.3901	0.4680	0.4843	0.3741	0.4074	0.4187
N	431	431	431	295	295	295

Note: See Table 3.

Table A4 Wage Regressions with Year of Arrival Dummies, 1981 Census (T-statistics in parentheses)

Dependent variable: log of wage				
Variable	Male		Female	
Model	(1)	(2)	(3)	(4)
Constant	1.0116 (143.158)	0.3729 (34.989)	0.8503 (98.442)	0.2666 (21.965)
S	0.0798 (166.875)	0.1201 (161.616)	0.0948 (149.744)	0.1332 (151.091)
EXP	0.0474 (105.141)	0.0740 (101.570)	0.0317 (60.493)	0.0586 (72.725)
EXP2	-0.0007 (-85.103)	-0.0011 (-70.911)	-0.0004 (-45.259)	-0.0008 (-47.985)
FOR	-0.1287 (-32.719)	0.9896 (66.655)	-0.1057 (-19.616)	1.0430 (57.430)
FOR.YR1	-0.1970 (-8.313)	-0.2399 (-10.385)	-0.2764 (-9.220)	-0.2809 (-9.695)
FOR.YR2	-0.1839 (-12.627)	-0.2498 (-17.518)	-0.2879 (-15.899)	-0.3221 (-18.377)
FOR.YR3	-0.1975 (24.469)	-0.2762 (-34.460)	-0.2529 (-21.793)	-0.3114 (-27.510)
FOR.YR4	-0.2172 (-34.386)	-0.3135 (-48.813)	-0.2360 (-26.846)	-0.3277 (-37.436)
FOR.YR5	-0.3208 (-42.470)	-0.4188 (-55.081)	-0.3187 (-31.296)	-0.4061 (-40.398)
FOR.YR6	-0.4815 (-13.068)	-0.5403 (-15.050)	-0.4436 (-10.777)	-0.4863 (-12.223)
FOR.S		-0.0649 (-68.029)		-0.0724 (-58.034)
FOR.EXP		-0.0448 (-47.206)		-0.0459 (42.122)
FOR.EXP2		0.0006 (33.507)		0.0006 (28.338)
R^2	0.3065	0.3429	0.3819	0.4232
$\overline{R}^2$	0.3065	0.3428	0.3818	0.4231
N	114125	114125	64208	64208

Note: See Table 10.

Notes

1. Representative works in the U.S. include Chiswick (1978a, 1978b). The effect of guest-workers program in Europe has also been studied widely, e.g. Bohning (1979).
2. These figures were estimated by the authors from the micro-data of the 1981 and 1986 censuses respectively and were based on a sample of individuals aged between 15 and 64.
3. In 1971, the percentage of working population in the manufacturing sector was 47%. It was reduced to 41.3% in 1981. In 1991, it was further reduced to 28.2%.
4. Under the touch-base policy, illegal immigrants who managed to reach the urban area of Hong Kong could apply for the right of abode in Hong Kong.
5. For the census data sets, EXP is computed as AGE – S – 6. For the 'Summer 1991' data set, EXP is the actual number of years of full time experience.
6. Variables included in the vector X are the following dummy variables for various schooling categories as well as the interactive terms between the variable REC and these dummy variables: PRIM for those who have primary school education, LOWSEC for those who have lower secondary school education, UPPSEC for those who have upper secondary school education, MATRIC for those who have matriculation education, NONDEG for those who have studied post-secondary courses but without a university degree, and UNIV for those who have university education. The reference group is those with no schooling.
7. In Chiswick (1978a), an attempt was made to decompose schooling into that acquired before and after immigration, by making use of the information on year of immigration. However, the decomposition may not be accurate because it has to make the assumption that the schooling investment of an individual has no interruption, even in the transition period of immigration. Besides, in case where only period of immigration is available and not single years, the approximation may be more inadequate. In any case, Chiswick found that the rate of return to the computed schooling before immigration and that of schooling after immigration is not statistically different.

8. The proxy for experience as computed by (Age – Schooling – 6) is not accurate for females because of the higher probability of interruption in labor market participation for them.
9. The earnings of immigrants with no or very little schooling can be higher than that of their native counterparts because of their higher ability of motivation as indicated by the positive coefficient of FOR in column (3) of Table 9.

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比較十年前香港之移民是否更易同化

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（中文摘要）

本研究利用人口普查數據分析來自中國之新移民和土生香港人之間收入差異的變化。研究結果顯示自一九八一年取消「抵壘」政策之後，香港男性新移民之質素，無論以教育水平、工作經驗或天生能力量度，均穩定上升。然而，移民與土生香港人之教育及經驗回報率的差距卻愈趨擴濶，以致從一九八六至一九九一年，新移民相對土生香港人之收入下跌。男性移民之人力資本投資回報率相對土生香港人下跌，是由於八十年代香港經濟急速轉型。擴張中的服務業提供了大部份就業機會，其生產較衰落中的製造業需要較多有國家特效性質之人力資本。移民加入服務業工作，導致其在國內積累之人力資本大部份報廢。故此在九十年代，新移民將更難融入香港的經濟。