

Hong Kong Innovation Project

Report No. 4

Human Resources: Hong Kong's Challenges and Opportunities

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¹ The authors thank Savantas Policy Institute and Douglas Fuller for their support and assistance; the persons interviewed for their insights and cooperation; the Immigration Department, University Grants Council, and Census and Statistics Department for supplying data; and Kevin Au, Erik Baark, John Ma, Naubahar Sharif, Eugene Wong, Xiaogang Wu, and David Zweig for their aid and ideas.

People: The Key to the Knowledge-Based and Innovation-Oriented Economy

Hong Kong's recent economic history is a remarkable story of accomplishment. There is no time, however, for the SAR to bask in the warm glow of its success. It will continue to face a complex and dynamic strategic environment that poses hard choices as well as offering enormous opportunities. Some of the most important choices that Hong Kong must make in order to sustain its economic dynamism involve human resource development. If it is true that knowledge is the most valuable asset in the twenty-first economy, then educated and creative people are the economy's most essential inputs.

The Paper in Brief

This paper analyzes Hong Kong's talent pool. We describe stocks and flows of several key human resource indicators, both general and specialized to science and technology. We find that Hong Kong has been moving fairly rapidly in the direction of becoming a knowledge-based and, to a lesser degree, innovation-oriented economy. We also describe potential policy options for accelerating the expansion of Hong Kong's human capital base, should policy-makers conclude that the present pace of change is not fast enough.

Measuring Human Resources: The Basics

Human resources are intrinsically difficult to measure. The concept encompasses skills and knowledge, both formal and tacit. There are two ways to acquire skills and knowledge: education and experience. We therefore use two kinds of indicators, looking first at educational attainment and then at occupational status. For each of these

indicators, we first consider all fields of activity and then science and technology (S&T) fields in particular. This multiple indicator approach allows us to paint a fuller picture than any single indicator would. But it is important to stress that these indicators are only imperfect proxies for such complex and elusive qualities as talent and creativity. We do not attempt to assess, for instance, the quality of education that degree-holders have received. We seek to understand the demand for as well as the supply of human resources. As we argue later, a supply-push policy in the absence of attention to demand may well fail.

Indicator #1: Undergraduate Degree Holders, All Fields

Although there is no firm cut-off for entry into knowledge-based work (indeed, accomplished teenage computer hackers are far from unheard of), a university education is a reasonable prerequisite for most such work. Undergraduate education provides advanced competencies in specific disciplines. The high level of knowledge and the degree of specialization are both important in fostering autonomous judgment and creativity, which are the hallmarks of the knowledge-based economy. The higher education system sorts students in addition to training them and signals employers about their potential economic contributions.

Undergraduate Degree Holders, All Fields - Supply

The number of Hong Kong workers who hold an undergraduate degree has risen rapidly in recent years.² As Figure 1 shows, the total went up by about 70% between

² Unless otherwise noted, the data in this section are drawn from the Hong Kong By-Census (including a special tabulation provided by the Census and Statistics Department on November 10, 2008).and refer to holders of a three or four year degree granted by a college or university. As Olsen and Burges (2007) note, Hong Kong data sometimes fail to distinguish between attendance in a degree program, receipt of a subdegree, and completion of an undergraduate degree.

1996 and 2006, an annualized growth rate of 5.5%. Since the working population of the SAR has grown by only about 1% per year during this period, the proportion of this population holding an undergraduate degree has grown substantially, from an estimated 12.1% to 18.6%.³

Figure 1: Undergraduate Degree Holders as a Share of Working Population

Education Attainment	1996	2001	2006
Degree holders in working population	368000 (est.)	494560	627140
Working population	3043698	3252706	3365736
Share	12.1%	15.2%	18.6%

Source: Hong Kong By-Census, 1996-2006.

The sources of this growth, a positive net flow into the working population of some 26,000 undergraduate degree holders per year, are complex. The UGC-funded programs of Hong Kong's most prestigious universities have made a steady contribution to educating the traditional university-age cohort, producing about 15,000 undergraduate degrees per year since 1997. The growth rate has been less than 1% per year.⁴ Undergraduate degrees not funded by UGC have grown very rapidly. They now amount to some 5,000 annually, up from about 2000 ten years ago.⁵ The institutions granting these degrees include the self-financing arms of UGC-funded institutions and four others that receive no UGC support.

The second component of the inflow is comprised of immigrants and temporary residents. The General Employment Policy (GEP) for in-migration for the purpose of

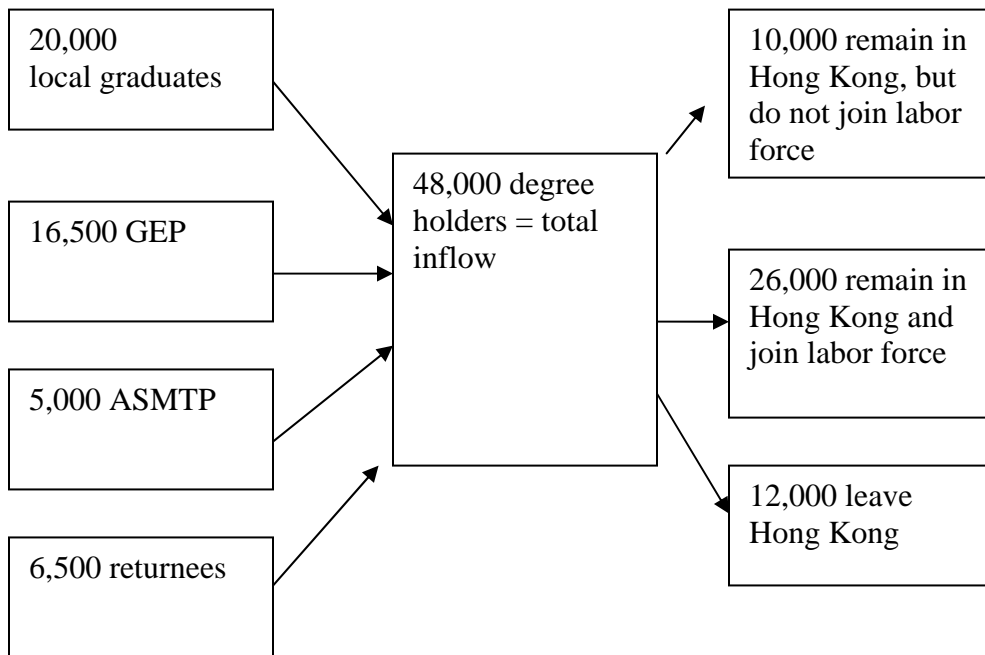
³ The 1996 by-census did not report a figure for degree holders. Averaging the figures from the 2001 and 2006 by-censuses, we estimate that 90.7% of those in the working population who were reported as attending degree programs in 1996 ultimately received a degree. We use this figure in the text whenever degree holding in the 1996 population is discussed.

⁴ UGC degree figures were provided by Ms. Jenny Yip of UGC on November 10, 2008.

⁵ This estimate is calculated from the UGC figures referenced above and *Hong Kong as a Knowledge-Based Economy* (Census and Statistics Department, 2007), P51.

high-skill work has grown by about 50% in recent years, from about 15,000 annually in the late 1990s to almost 22,000 in 2006.⁶ About three-quarters of these workers are in occupations that are highly likely to require a university education. High-skill immigration from mainland China is handled through the Admission Scheme for Mainland Talents and Professionals (ASMTP), which was initiated in 2003. In 2006, about 5000 mainlanders were admitted under this program, virtually all of whom hold an undergraduate degree.⁷

Figure 2: Estimated Flows of Undergraduate Degree Holders in 2006



⁶ These figures were provided by the Immigration Department on October 29, 2008. The 2007 figure was well over 26,000, and arrivals in 2008 through September were on pace to surpass that figure by several thousand.

⁷ As we discuss below, Hong Kong recently instituted a program that will permit mainland-born graduates of Hong Kong universities access to the Hong Kong labor market. This channel was too small to be accounted for in the text, but may grow rapidly in the future.

We can calculate only indirectly, and very roughly, the third element of the inflow, those who leave Hong Kong to get a university degree and then later return. As Figure 2 shows, we estimate that about 6,500 such individuals returned each year between 2001 and 2006. Something like 12,000 degree holders depart each year.⁸

Undergraduate Degree Holders, All Fields - Demand

Will Hong Kong residents continue to invest in undergraduate education? Standard economic theory suggests that the answer depends in part on the payoffs to such investments. Demand indicators suggest that that they will.⁹ Employment of undergraduate degree holders, for example, has grown steadily each year in recent years. Unemployment amongst this group has trended down and, as of the end of 2007, was about 2%. Cross-sectional income data from the census show that the gap between those who have attended university degree courses and those who have not widened considerably between 1996 and 2006.¹⁰ Time-series income data, on the other hand, inject a note of caution on this issue. Although the earned incomes of the highly-educated went up in the 1990s, some of those who did the best in this period may be worse off today than they were in 2001.

Undergraduate Degree Holders, All Fields – International Comparisons

⁸ Some of the local undergraduate degree recipients and returnees may go to graduate school, be unemployed, work without pay in the home, or be retired. However, those admitted under the GEP and ASMTP are expected to be working as a condition of their admission. The *Hong Kong Yearbook* estimates emigration, including all levels of education, to be about 10,000 per year. However, recent graduates who go abroad, presumably temporarily, may not be included in this figure.

⁹ Data on income, employment, and unemployment in this paragraph are drawn from the General Household Survey. Similar data in later sub-sections also rely on this source.

¹⁰ The survey does not distinguish between those who attended degree programs and those who ultimately received a degree.

International comparisons provide another lens through which to view Hong Kong's position. To be sure, such comparisons are rough, due to differences among statistical authorities in their classification schemes and data collection methods. Still, allowing a substantial cushion for error, these comparisons suggest that Hong Kong would need to sustain and perhaps accelerate its human capital accumulation process if it were to seek to match other "global cities" and other small, rapidly-growing "tiger" economies.

For instance, among large cities in the Asia-Pacific region and global financial centers, Hong Kong's share of tertiary-educated population lies in the same tier (10-15%) as Beijing, Shanghai, and Singapore. It lags significantly behind Vancouver and Tokyo (20-25%) and far behind Taipei, New York, San Francisco, and London (30-35%). Hong Kong also seems to be a few years behind the economies of Taiwan and Ireland in this respect. About 30% of those economies' adult populations have some tertiary education, although the share of undergraduate degree holders is smaller than that. Investors may be interested in the size of the talent pool as well as its composition. Viewed this way, Hong Kong is comparable to Taipei and more attractive than Singapore.¹¹

Undergraduate Degree Holders, All Fields - Conclusion

We can conclude that Hong Kong has accumulated general human capital, as measured by its university-educated population, steadily and rapidly over the past decade, and that the incentives for continuing this incentive remain reasonably strong. It has been made possible by the SAR's liberal immigration policy, the willingness of its residents to

¹¹These figures should be treated with caution. In particular, we would stress that the degree to which they capture economic regions of differing sizes and compositions as well as variations in definitions and methods. Some observers also suggest that data on degree holders in mainland China are inflated.

travel (and pay) for higher education abroad, and the emergence of self-financing degree-granting institutions. However, as we discuss below, demographic, institutional and political constraints may force policy-makers to confront difficult trade-offs in the future.

Indicator #2: Undergraduate Degree Holders, S&T Fields

Science and technology (S&T) are important elements of the innovation-oriented economy. Specialized knowledge and skills are required to generate discoveries, inventions, and new products and processes. To an important degree, such knowledge and skills are also necessary to effectively use S&T generated elsewhere. Advanced training in S&T fields creates a pool of talent that can participate in these tasks.

Undergraduate Degree Holders, S&T Fields - Supply

The number of Hong Kong workers with undergraduate degrees in S&T fields grew at roughly the same rate as that of the broader tertiary-educated working population. We estimate that the total rose by about 62% between 1996 and 2006, an annualized growth rate of about 5% (compared with 5.5% for degrees in all fields).¹² As Figure 3 shows, the share of S&T undergraduate degree holders in the working population rose over this period from 4.9% to 7.2%. Census data do not confirm the oft-expressed concern that recent graduates are less inclined to select S&T fields than in the past. If anything, younger people who have received an undergraduate degree are slightly more likely to hold it in an S&T field than their older counterparts.

Figure 3: S&T degree holders and share in working population

Education Attainment	1996	2001	2006
S&T degree holders in	148500 (est.)	198720	241114

¹² The ratio of degree holders to degree attendees in the 2001 and 2006 censuses is slightly higher for S&T degrees (about 93%) than for all degrees (91%). We use this figure to estimate the 1996 population of degree holders, which was not included in that year's by-census.

working population			
Working population	3043698	3252706	3365736
Share (S&T / working population)	4.9%	6.1%	7.2%

Source: Hong Kong By-Census, 1996-2006.

Undergraduate Degree Holders, S&T Fields - Demand

Labor market data are somewhat less encouraging for graduates of S&T fields than for undergraduate degree holders in general. The share of S&T degree holders among all degree holders in the working population declined slightly between 1996 and 2006, from 40.4% to 38.4%, which means that their employment growth was less rapid. Salaries, at least since 2000, have not kept up, according to UGC and census figures. Starting salaries for graduates of UGC undergraduate programs across all S&T fields peaked in that year. As of 2006, they still stood about 10% below the peak and lagged behind other fields. Of course, these short-run data are imperfect proxies for the perceptions of opportunities of the entire lifecycle that human capital theory suggests drive students' decisions about their major field. Perhaps more importantly, these data aggregate across a wide range of fields. Faculty members and employers interviewed for this project suggest that there may be shortages in specific sub-disciplines of engineering.

Undergraduate Degree Holders, S&T Fields – International Comparisons

International comparisons for this indicator are limited to only two other cities and must be taken only as suggestive, due to definitional differences and varying dates of data collection. Measured as a share of the population, Hong Kong's S&T talent pool is about the same as Singapore's, but it lags far behind Vancouver's. However, in absolute

size – which may be important to investors concerned about recruiting an S&T workforce -- Hong Kong's pool of S&T undergraduate degree holders is significantly larger than Singapore's.

Undergraduate Degree Holders, S&T Fields -Conclusion

Our analysis of the data on S&T degree recipients varies slightly from our analysis of higher education as a whole. Both supply and demand in S&T fields have lagged slightly behind all fields combined, with demand a bit weaker than supply. These findings suggest that any concerted effort to expand S&T enrollments among undergraduates should be undertaken carefully. The occupational payoff from such an educational investment might be limited unless S&T graduates' salaries grow faster as well, since those trained in these fields may choose other fields upon graduation. As one interviewee put it, many such graduates already go into financial services and “never look back.”

Indicator #3: Professional and Managerial Occupations

While tertiary education may prepare people to engage in knowledge-based and innovation-oriented work, they may choose not to undertake such work or be unable to find it. At the same time, some of those whose occupations involve considerable autonomous judgment and creativity have gained these skills through their work and life experiences, rather than through formal schooling. Thus, although there is overlap between them, occupational status data provide a perspective complementary to that of educational attainment data.

Professional and Managerial Occupations - Supply

We focus in this sub-section on high occupational status (HOS), which includes all jobs classified as managers and administrators, professionals, and associate professionals. About 1.1 million Hong Kong residents held such positions in 2006, accounting for about a third of all workers. (See Figure 4) The growth rate of these occupations over the past ten years was about 2.2% per year, somewhat faster than that of the labor force as a whole, but much slower than that of the tertiary-educated population. However, the bulk of the growth in HOS positions over the past decade – almost 80% of it – has been among associate professionals. The number of managers and administrators, as measured by the census, actually shrank during that period.¹³

Figure 4: High Occupational Status (HOS)

Year	Total HOS	Total employment	Share
1996	890046	3043698	29.2%
2001	1028133	3252706	31.6%
2006	1109635	3365736	33.0%

Source: Hong Kong By-Census, 1996-2006.

Growth in the HOS population is not even over time. In the year of its most rapid expansion (according to the General Household Survey), it added about 85,000 Hong Kong residents, while in lean times, it shrank. Although the average net inflow between 1996 and 2006 was 20-25 thousand per year, the short-term fluctuations make it difficult to account for the flows into and out of HOS positions with much precision. We can say with some confidence that the cumulative growth is almost entirely among the Hong

¹³ The General Household Survey shows more balanced growth among the three components of HOS. Since 2001, the population of managers and administrators as measured by the GHS has grown by more than 100,000, whereas the census shows a growth of only about 12,000.

Kong-born. The data suggest that Hong Kong is effectively attracting back to these positions students who go abroad for university.

Professional and Managerial Occupations - Demand

The HOS population is therefore much more elastic than the population holding an undergraduate degree, and it responds more quickly and directly to economic incentives. Salaries for HOS positions have risen fairly steadily over the past decade or so, particularly if one looks at career paths, rather than at starting salaries.¹⁴ However, a closer look within this population (using census data) shows that the incomes of managers and administrators rose more than those of professionals and associate professionals, and they sustained their gains through the recession of the early 2000s. This difference may indicate a shortage of managers and administrators, especially in light of the fact that the size of this group shrank slightly during these years. Unemployment is also extraordinarily low (1% or below) for these occupations.

Professional and Managerial Occupations - International Comparisons

International comparisons using occupational data are somewhat more favorable to Hong Kong than those using educational data. Relative to other Asia-Pacific and “global cities,” the share of Hong Kong’s labor force that holds HOS positions is quite a bit larger than Beijing’s and on a par with Singapore’s. It is about half the size of London, New York, and San Francisco. It is also roughly the same share as those of Taiwan, Ireland, and Israel, economies which have become centers of high-technology industry in recent years.

¹⁴ *Hong Kong Social and Economic Trends, 2001-2007; 2007 Report of Salaries and Employee Benefits.*

Professional and Managerial Occupations - Conclusion

Data on high occupational status show that Hong Kong employers have been able to fill most HOS positions, even though the pool of degree-holding workers is not that large relative to their needs. Although the overall trend for HOS employment is positive, employers reduce HOS headcount with alacrity when the Hong Kong economy slows. This pattern seems to characterize associate professionals especially, who comprise most of the HOS group. We would expect it to continue, since the degree-holding population continues to grow quite rapidly. Managers and administrators, particularly at the top level, have been harder to find and may be a constraint on growth.

Indicator #4: S&T-Related Occupations

The SAR gathers data on two occupational groups that are important components of the knowledge-based and innovation-oriented economy. Research and development (R&D) personnel perform the functions of discovering new scientific knowledge, improving production processes, and generating new products. It is important to note that other workers who are *not* accounted for in R&D may also perform these functions, especially in the service sector. The figures reported in this section should be seen as indicative, rather than definitive. A similar caveat applies to the high-skill IT workforce, which is the second indicator that we focus on here. Many workers other than those whose job title places them in this category may modify or improve IT systems.¹⁵

¹⁵ High skill information technology (IT) workers cover personnel working in areas of IT/software development; IT sales; telecommunications and networking; IT education and training; general IT management; field support; systems programming; database; and IT security.

S&T-Related Occupations - Supply

Hong Kong's R&D workforce has been growing very rapidly and steadily, especially since 2000. Between 1998 and 2006, it grew by 154%, a growth rate of about 12% per year, to about 23,000.¹⁶ The R&D workforce employed by Hong Kong businesses (as opposed to government or higher education) accounted for the lion's share of this growth. From less than half the size of the academic R&D workforce in 1998, the business R&D workforce grew at a rate of more than 20% annually and by 2006 was about a quarter larger.¹⁷ These impressive growth rates must be understood in the context of a low base period. As a share of the total working population, R&D workers grew from about .3% to about .7%.

The high-skill IT workforce grew by almost 70% between 1996 and 2000, but it has declined a bit in the years since then, to about 52,000 in 2006. These occupations represented 1.1% of the labor force in 1996 and 1.5% a decade later, after a peak in 2000 at 1.7%.¹⁸

We have relatively little data about the flows into and out of these two workforces. The research-intensive universities of Hong Kong awarded 1351 research-based graduate degrees in S&T fields in 2007, more than twice the 640 awarded in 1997. The late 1990s IT boom seems to have prompted a large number of Hong Kong residents – more than 60,000 – to acquire some advanced training, although not necessarily a degree, in the IT/computing field. This figure is far greater than the growth in the high-skill IT work

¹⁶ Census and Statistics Department, *Research and Development Statistics of Hong Kong*, various years. Data before 1998 are not publicly available. From 2000 to 2006, the growth rate was over 15% per year.

¹⁷ Between 2000 and 2006, the rate of growth in business R&D personnel was about 30% per year.

¹⁸ Census and Statistics Department, *Hong Kong as a Knowledge-Based Economy* (2007).

force, which was less than 20,000. The vast majority of positions in the R&D and high-skill IT workforces are filled by Hong Kong-born permanent residents.¹⁹

S&T-Related Occupations - Demand

We have limited data on the demand for R&D and high-skill IT workers. Annual surveys suggest that the market for R&D talent is fairly tight. In 2004, about 20-25% of Hong Kong establishments identified lack of qualified personnel as an important barrier to innovation, although this number declined to 10-15% in 2006.²⁰ R&D jobs also pay quite well, with 40% of workers in the field reporting incomes of over HK\$40,000 in 2001. However, this share shrank to just under 30% in 2006. IT workers also suffered income declines in the 2001-2006 time frame, as one might anticipate given the decline in employment.

S&T-Related Occupations – International Comparisons

Looking forward, if the growth rate from 1998 to 2006 were to be maintained until 2012, Hong Kong's R&D workforce would double. Assuming that the overall working population of Hong Kong continues to grow at the same rate as in the past (1%), R&D's share would grow to almost 1.3%. This figure approximately matches the 2005 R&D share of the working populations of Beijing and Singapore and is slightly less than Taiwan's 1.5%. We have no internationally comparable figures for the high-skill IT workforce.

¹⁹ It is very important to note that the definition that we provided to the Census for R&D workforce data cover "Physical, Mathematical and Engineering Science Professionals" only. We therefore use only proportions and urge caution in interpreting these data.

²⁰ *Annual Survey of Innovation Activities in the Business Sector, 2001-2006*

S&T-Related Occupations – Conclusion

Data on the R&D and high-skill IT workforces tell different stories about the Hong Kong economy. The former has grown very strongly in the past few years, while the latter has stagnated. There may be a shortage of workers in the R&D field, whereas the IT high-skill labor market, as measured by official data, seems to have excess supply.

The Data - Overall Conclusions

Our review of the data reveals that Hong Kong has been accumulating human capital, both general and specialized to science and technology, at a relatively rapid rate in the past decade. The demand for this talent kept pace reasonably well overall, although income data suggest some softness in recent years. There is evidence of a talent shortage only in a few specific categories, notably (in our review) for managerial, executive and R&D positions and (anecdotally) for certain engineering specialties (which our data are too coarse to confirm).

Expanding the Pool: Policy Options

Hong Kong's policy-makers have paid a good deal of attention to human resource issues in recent years. Although the trends point in the right direction and the gap seems to be closing, the dynamic nature of international competition and the aspirations of the Hong Kong population suggest that policy-makers ought to continue to focus on this agenda. Merely maintaining the momentum of the past decade will present challenges, and these challenges would be heightened if the government seeks to accelerate the human capital formation process.

We discuss in this section a variety of options that the government might employ to bolster higher education and high-skill immigration. We want to be quite clear that our endorsement of any specific proposals, much less a full-fledged “supply push” approach, would depend on their being embedded in a coherent broader package that incorporates demand considerations as well. Particularly for specialized fields, an intensive supply push would be risky without an equally intensive commitment to complementary policies that would facilitate job creation in these fields. A systematic approach of this sort requires careful policy coordination.

Policy Options: Traditional Higher Education

The facilities and faculties of universities, especially for science and technology fields, comprise expensive, long-lived commitments. They cannot be easily shed when historical patterns change, so decisions about them must be taken carefully and with the long view. Hong Kong’s demographics complicate these decisions. The number of high school graduates in 2020 is projected to be just half that of today. (Olsen and Burges 2007)

The prestige of universities in research and teaching is also a valuable asset. Hong Kong is right to be worried about diluting the quality of its top universities, especially the four that rank in the global top 200 list compiled by the *Times*. But such concern can easily lead to excessive conservatism in a dynamic environment that calls for continual change.

Option 1: Expanding the Graduating Classes of UGC-Funded Institutions

As we noted in the previous section, the number of graduates from UGC institutions has not grown very much in the recent past. We recognize that they face “a daunting task,” in the words of UGC deputy secretary-general Kesson Lee, with the impending shift from a three year to a four year undergraduate degree. Nonetheless, despite the numerous additional challenges it would create, we suggest that an expansion of the graduating class be given careful consideration. An additional 4000 graduates per year would require the growth rate to roughly triple for a ten year period.

Option 1a: Recruiting More Heavily from the Mainland

If such a program were to be carried out by 2020, UGC institutions would need to reach beyond Hong Kong to maintain the quality of their undergraduates. Students from the mainland are an obvious target. They currently make up about 8% of UGC undergraduates, a figure which might need to triple or quadruple under this scenario. That would mean raising or eliminating the 20% quota on non-local enrollment.

Option 1b: Linking Subsidies for Mainland Students to Post-Graduate Employment

Hong Kong government subsidies to mainland students might be required to encourage their recruitment; these could be linked to post-graduation work in Hong Kong. Hong Kong has begun to permit non-local graduates of its accredited universities to stay for up to a year after finishing their degrees to look for a job. If they remain employed, they can stay on indefinitely. Using the university system as a mechanism to facilitate

skilled migration seems to be an effective policy for Australia and (less explicitly) the U.S. This strategy allows potential immigrants to become socialized, and it provides a screening tool for the receiving country as well.

Option 1c: Recruiting More Heavily from the Rest of the World

Some 2% of the undergraduate population of UGC-funded institutions currently comes from outside Hong Kong and China. Although this group may be more difficult to recruit and to induce to work in Hong Kong after graduation, it has other attributes that may justify a more aggressive outreach effort. To the extent that Hong Kong's economic advantage lies in linking China to the rest of the world, and vice-versa, these students may contribute by creating long-lasting social connections with their local and mainland colleagues. These students also strengthen the cosmopolitan outlook and enhance the educational process of Hong Kong's great universities, which is essential in an age of internationalized higher education and research.

Option 2: Facilitate Expansion of Capacity for Self-Financed Undergraduate Degrees

Much of the growth in the provision of undergraduate education in the past decade has occurred without UGC funding, although the providers are often arms of UGC-funded institutions. Self-financed sub-degrees, in particular, have experienced been "phenomenal" growth. (Education and Manpower Bureau 2006) What seem to be in short supply are so-called "top up" programs that allow individuals with some undergraduate education, including non-traditional students, to complete their degrees. It seems sensible to permit Hong Kong's universities to expand their capacity to meet this

emerging, self-financed demand. The government (or appropriate educational organizations) may need to articulate the regulatory framework that governs such matters as accreditation, transfer of credits, and experiential learning.

Policy Options: Immigration

Immigration is the second major source of human resources that Hong Kong might draw upon. Siu *et al.* (2005) note the city's historical dependence upon this source, originating as a "space of flow" with porous boundaries. They also stress that "global cities" like New York and London rely on "continuous circulation" of population to remain economically vibrant. Like these cities, Hong Kong has long been relatively open to long-distance migration from the rest of the world. Circulation between Hong Kong and its nearby hinterland on the mainland, by contrast, was disrupted for many decades and has only recently begun to bear a faint resemblance to that of, say, London's to the rest of England. The more aggressively Hong Kong seeks to build up its human capital base, the more rapidly the balance of flows from China on the one hand, and from the rest of the world on the other, is likely to tip toward China. This shift will test popular attitudes about immigration.

Option 3: Reach Out to the Hong Kong Diaspora

One potential source of human capital inflows that has often been ignored is the Hong Kong diaspora. As we have shown, thousands of highly-educated Hong Kong leave the SAR each year. Although many return, nearly 300,000 Hong Kong expatriates with some college education reside in OECD countries. (Docquier and Marfouk 2004)

Perhaps some of this do or could be enticed to. To our knowledge, the SAR government has no policy toward the diaspora and very little information about it.

Option 4: Continue to Expand the ASMTP for Immigrants from the Mainland

The idea that human capital considerations ought to shape immigration policy toward the mainland is relatively new. The historic focus of the Immigration Department toward the mainland has been exclusion. This began to change in the late 1990s and early 2000s. In 2003, the SAR government consolidated small provisional programs which aimed to attract talent to a few select occupations and sectors, into the ASMTP, which is not restricted by occupation or sector. The ASMTP has grown steadily in the intervening years and is now about a quarter the size of GEP.²¹

ASMTP is a demand-driven approach. A Hong Kong employer who wishes to hire a mainlander under the scheme must demonstrate that the new hire's skills, knowledge, or experience are not readily available in the Hong Kong labor market. The compensation package must be commensurate with local norms. (The new program for non-local graduates of Hong Kong universities has a similar design.) The design is a good one for general human capital development, facilitating access to the large mainland talent pool without crowding Hong Kong residents out of opportunities. However, it is possible that demand to immigrate is somewhat suppressed, as a result of the history of exclusion. A continued incremental expansion of the scheme seems sensible.

²¹ An additional 200-300 mainland passport holders who have been living abroad for at least a year are admitted annually under the "Relaxed Scheme," which adheres to the same conditions as ASMTP. And, about the same number are admitted under a similar policy that applies to mainland graduates of Hong Kong universities who left Hong Kong after graduation. (CSD 26 January 2007, 8)

Option 5: Revise and Extend the QMAS “Point System” for Immigrants

The Hong Kong government added a modest supply-push component to skilled immigration policy in 2006, the Qualified Migrant Admission Scheme. Like comparable programs in Canada, Australia, and elsewhere, individual applicants earn “points” toward admission on the basis of attributes such as age, education, work experience, and language. The initial response to this opportunity was far below the quota, in part because of perception that only Nobel prize-winners and Olympic medalists could qualify.

Another potential deterrent for applicants under QMAS is the discretionary nature of the decision. In “point” systems abroad, surpassing a set threshold earns admission. In Hong Kong, the Immigration Department and any expert advisors that it chooses to engage decide each case individually. A more transparent selection system might enhance the attractiveness of the program.

Option 6: Expand Recruitment for GEP Applicants

The GEP is a demand-driven immigration policy that applies to skilled immigrants from other countries. The structure of the program is similar to that of the ASMTP. Although admissions under this policy have generally grown over time, they declined in 2002 and 2003, suggesting that applications do indeed reflect demand. Some interviewees expressed concern that broad quality of life considerations, such as education for school-age children and environmental pollution, deterrent potential in-migrants. They suggested that the government should make a greater effort to promote Hong Kong opportunities in the world’s talent centers, rather than “sit and wait.” Such

an effort may well be worthwhile. The major responsibility for it should be vested in Invest HK or another agency charged with outreach, rather than the Immigration Department, where it would be in tension with the Department's central mission.

Option 7: Strengthen Central Administration of Government Human Resource Functions

Our final option responds to the complexity of carrying out human resource development policy effectively. If Hong Kong departs further from its tradition of “positive non-intervention” by pursuing a knowledge- and innovation-oriented economic strategy, the policy coordination challenge will be heightened. Matching future human capital supply, produced by higher education institutions and immigration policies, to future demand, produced by investments in R&D and the like, may require the government's central administration to be strengthened.

Conclusion

Hong Kong has made impressive strides in building up its talent base over the past decade. Growth in both general and specialized human capital, as measured by undergraduate degree holders in all fields and in S&T fields, has been strong, and the expansion of the R&D working population has been exceptional. The SAR fares reasonably well in international comparisons. A sound basis has been laid for continued movement into the knowledge-based and innovation-oriented economy.

Demand for highly-skilled people has, if anything, lagged a bit behind supply, especially in the past few years. We would therefore caution against moving forward on

an aggressive stand-alone “supply-push” policy. However, accelerating the human capital formation process may well be a crucial component of a broader economic development strategy.

Hong Kong would face both challenges and opportunities in pursuing this objective. Demographic forces seem likely to constrain the domestic supply, although the coming decline in the number of eighteen-year olds will let some in this group who would not have been able to do so in previous generations receive the benefit of higher education. Hong Kong will probably need to find ways to reach out more assertively to the rest of the world for talent, especially to mainland China. Its excellent higher education system ought to be a valuable resource in this effort, and it can build on its nascent achievements in immigration policy toward trained professionals as well.

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