Box 5.1

Labour force participation and educational attainment in Hong Kong

Labour force participation at the macro level, typically expressed in terms of labour force participation rate (LFPR), is determined by a nexus of social and policy factors (e.g. cultural perception and work arrangement practices) on the one hand, and economic and structural factors (e.g. labour market conditions and demographic composition) on the other. In particular, educational attainment is often regarded as a key economic factor determining LFPR. It comes into the decision to work in two ways. First, higher educational attainment is often associated with higher wages, which in turn suggests that the opportunity cost of not working is higher for the more educated ones. Second, those who have received more education tend to be more versatile and adaptable to changes in the labour market, essentially meaning a higher chance of getting employed. They are thus less prone to long term unemployment or to become discouraged workers. A detailed analysis of LFPR[1] of those aged 25 – 64 over the last two decades, who accounted for almost 90% of our labour force in 2013, indeed demonstrated that educational attainment plays an important role in determining Hong Kong's labour force participation.

More educated, more willing to work?

Charts 1(a) and (b) show the LFPR of persons aged 25 – 54 ("prime working age persons") and those aged 55 – 64 by gender and educational attainment respectively from 1993 to 2013. In general, in terms of level, more educated persons had higher LFPR. Regardless of age and gender, persons with post-secondary education had the highest LFPR among the three educational attainment groups.

In terms of trend, the LFPR of men in prime working age saw a slight secular downtrend[2], more noticeably among those with lower secondary or below education (down by 5 percentage points over twenty years). As for men aged 55 – 64, the LFPR across all educational attainment groups showed decreasing trends in the 1990s but started to increase again upon entering the new millennium. The pick-up in LFPR for those with lower secondary or below education was more apparent. Meanwhile, the LFPR of women with lower secondary or below education also saw visible increases, up by 14.0 and 16.5 percentage points for those aged 25 – 54 and 55 – 64 respectively from 1993 to 2013.

One should also note the gaps in LFPR across educational attainment levels. The gaps in LFPR were notably wider among prime working age women with different educational attainment vis-à-vis their male counterparts. Among women aged 25 – 54, LFPR of those with post-secondary education was 13.3 and 28.5 percentage points higher than that of those with upper secondary education only and with lower secondary or below education respectively in 2013; while the corresponding gaps in LFPR were less than 5 percentage points for men in the same age group. Similar variations were also observed for persons aged 55 – 64, yet such gender difference was less pronounced.
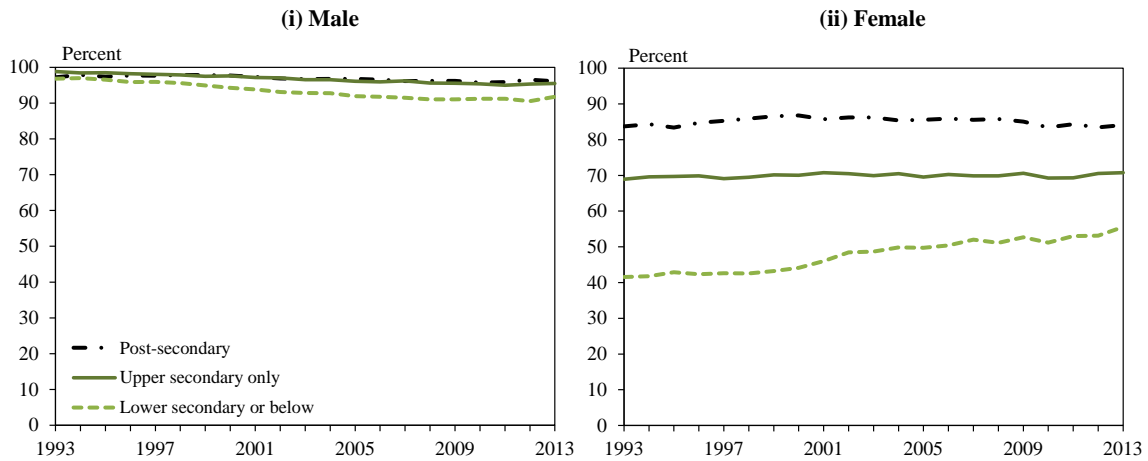
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(1) In this article, LFPR figures come from the General Household Survey (GHS) of the Census and Statistics Department (C&SD). In GHS, LFPR is calculated as the proportion of labour force in total land-based non-institutional population aged 15 and over. All statistics exclude foreign domestic helpers.

(2) Some studies suggested that the LFPR of men, albeit not necessarily limited to those with less schooling, showed secular downtrend over a long period of time due to the combined effects of substitution from female workforce, development of services sectors that skewed towards female employment, fall in physically demanding jobs and the increased prevalence of male homemakers etc. While it may be interesting to investigate whether these factors are applicable to the case of Hong Kong, it is beyond the scope of this article and left for future research.
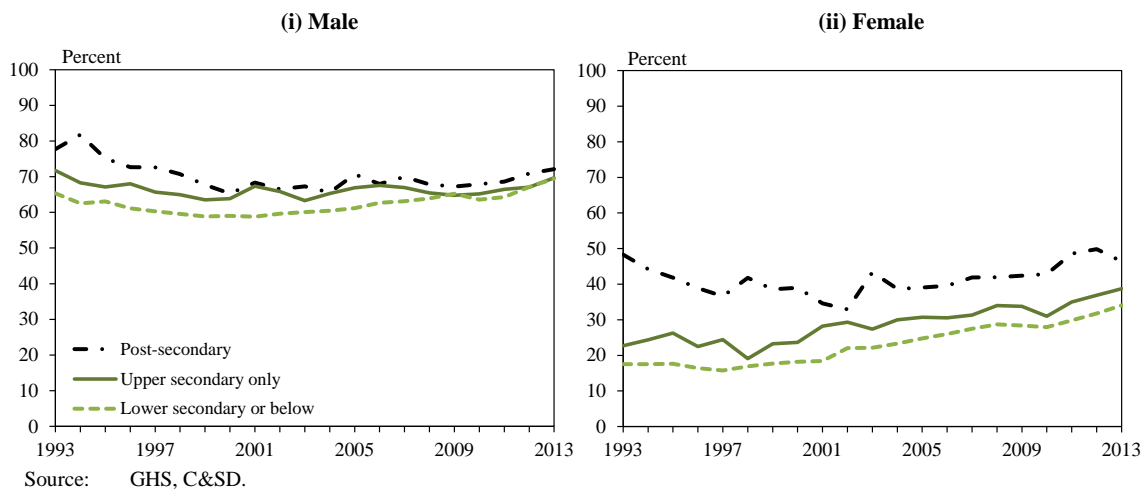
Box 5.1 (Cont'd)

Chart 1: Labour force participation rates by gender and educational attainment

(a) Persons aged 25 – 54

(i) Male   **(ii) Female**

(b) Persons aged 55 – 64

(i) Male   **(ii) Female**

Source: GHS, C&SD.

Intuitively, these observations suggest that the impact of educational attainment on LFPR is considerably greater for women than for men, especially for those in their prime working age. Indeed, traditionally perceived as breadwinners, men usually have higher LFPR (at above 90% for those in their prime working age), which hinges to a lesser extent on their educational attainment levels.   In contrast, female labour supply is often more elastic, particularly for those married women in their prime working age who may wish to shoulder greater household responsibilities (e.g. taking care of their children) and choose to be homemakers[3].

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(3) Please see Box 5.1 in the Half-yearly Economic Report 2014 for a related discussion.

Box 5.1 (Cont'd)

With other determinants interplayed, does educational attainment still matter?

Conceivably, apart from educational attainment, there could be some other factors in place that determine labour force participation.   To analyse the effect of educational attainment on LFPR upon controlling for the effects of time trend and other possible socio-economic changes, regressions[4] of annual LFPR figures spanning from 1993 to 2013 on educational attainment level were performed separately for different age-gender cohorts.

The regression results presented in ***Table 1*** show that, similar to the observations above, more educated groups had higher LFPR in general, except for men in prime working age whose educational attainment was shown to have no direct statistically significant effect on LFPR (*regression [i]*).   Besides, among prime working age women, the gaps in LFPR across different educational attainment groups were larger for those ever-married than for those never-married (*regression [ii]*), indicating that marital status had a significant bearing on women's decision to work.

The direct impact of educational attainment on LFPR was also quite significant for those aged 55 – 64.   To illustrate, LFPR of women with lower secondary or below education and with upper secondary education only were, on average, 18.6 and 17.7 percentage points less than that of women with post-secondary education from the same age group in 1993, holding other factors constant (*regression [iv]*).   The corresponding differences in LFPR for their male counterparts, albeit slightly smaller, were 10.9 and 9.8 percentage points respectively (*regression [iii]*).   On the other hand, as for persons with lower secondary or below education, a noteworthy point is that the implementation of Statutory Minimum Wage (SMW) in 2011 might have a boosting effect on their LFPR, more specifically for women aged 45 – 54 and 60 – 64, and men aged 55 – 64.

Concluding remarks

The above analysis suggests that since more educated persons tend to have higher LFPR, a generally more educated population could help boost the overall LFPR and mitigate the dampening impact of ageing population on labour force participation.   Indeed, the percentage of persons aged 25 – 54 attaining post-secondary education went up significantly over the past two decades, from 14.0% in 1993 to 36.9% in 2013, likewise for those aged 55 – 64 (up from 5.8% to 12.5% over the same period).   Undoubtedly, this percentage is expected to rise even further down the road in view of the increased availability of education and training opportunities for the prevailing prime working age population and youngsters vis-à-vis our older generations.   With Hong Kong's labour force projected to start a secular decline from 2018 amid an ageing population, continuous upgrading our workforce in terms of investment in education and training will not only have significant impact on our workforce from the "quality" angle; from the "quantity" angle, it would also help to entice individuals to stay economically active.   Challenges remain ahead, however.   Issues like how to effectively tap into the skills and knowledge of the older workers to meet the changing needs of the Hong Kong economy without jeopardising the career progression opportunities for the younger generation still call for considerable efforts from the whole community.

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(4) Linear regression models were constructed with reference to the methodology adopted in projecting economically active population in other economies.   See International Labour Organization (2011), "*Projections of Economically Active Population – A Review of National and International Methodologies*" for details.   However, for more precise estimation, logistic regression may be considered in future research, as the normality assumption of linear regression may be violated if the LFPR is close 100%, as in the case for men aged 25 – 54.

Box 5.1 (Cont'd)

Table 1: Regression analysis results of LFPR

(a) Persons aged 25 – 54

Dependent variable: annual LFPR by age, gender, marital status (for female only) and educational attainment	[i] Male		[ii] Female	
	coefficient	s.e.	coefficient	s.e.
Intercept	97.87 **	(0.31)	97.09 **	(1.40)
Ever-married[#]	—		-19.05 **	(1.87)
Lower secondary or below^	0.05	(0.39)	-5.55 **	(1.88)
Upper secondary only^	0.51	(0.39)	-0.61	(1.87)
Lower secondary or below^ * ever-married[#]	—		-35.33 **	(2.65)
Upper secondary only^ * ever-married[#]	—		-20.30 **	(2.65)
Log(trend) (1993 = 1)	-0.66 **	(0.12)	-0.50	(0.57)
Log(trend) * lower secondary or below^	-1.42 **	(0.17)	-3.34 **	(0.82)
Log(trend) * upper secondary only^	-0.34 **	(0.17)	-0.67	(0.81)
Log(trend) * ever-married[#]	—		1.20	(0.81)
Log(trend) * lower secondary or below^ * ever-married[#]	—		6.00 **	(1.15)
Log(trend) * upper secondary only^ * ever-married[#]	—		2.76 **	(1.15)
SMW dummy * lower secondary or below * aged 40 – 44	-0.18	(0.65)	3.88	(2.21)
SMW dummy * lower secondary or below * aged 45 – 49	0.10	(0.65)	6.52 **	(2.21)
SMW dummy * lower secondary or below * aged 50 – 54	0.88	(0.65)	9.02 **	(2.21)
Real wage growth *(lagged one year)*	0.08 **	(0.04)	0.10	(0.12)
Age dummies@	Included		Included	
Adjusted R-square	85.5%		92.8%	
Number of observations	378		756	

(b) Persons aged 55 – 64

Dependent variable: annual LFPR by age, gender, marital status (for female only) and educational attainment	[iii] Male		[iv] Female	
	coefficient	s.e.	coefficient	s.e.
Intercept	89.46 **	(1.24)	68.63 **	(2.90)
Ever-married[#]	—		-18.81 **	(1.10)
Lower secondary or below^	-10.86 **	(1.72)	-18.56 **	(3.97)
Upper secondary only^	-9.76 **	(1.69)	-17.68 **	(3.89)
Log(trend) (1993 = 1)	-3.56 **	(0.52)	-1.06	(1.19)
Log(trend) * lower secondary or below^	1.84 **	(0.77)	2.90	(1.78)
Log(trend) * upper secondary only^	2.65 **	(0.73)	3.13	(1.69)
SMW dummy * lower secondary or below * aged 55 – 59	5.40 **	(1.73)	4.43	(3.97)
SMW dummy * lower secondary or below * aged 60 – 64	8.23 **	(1.73)	8.02 **	(3.97)
Real wage growth *(lagged one year)*	0.10	(0.16)	0.13	(0.37)
Age dummies@	Included		Included	
Adjusted R-square	96.7%		77.8%	
Number of observations	126		252	

Notes: ** denotes statistical significance at 5% significance level.

\# denotes a dummy variable for marital status which takes a value of one for ever-married and zero otherwise.

^ denotes a set of dummy variables for educational attainment level, with one dummy variable taking a value of one for lower secondary or below education and zero otherwise; and another taking a value of one for upper secondary education only and zero otherwise.

@ A set of dummy variables for age groups: 30 – 34, 35 – 39, …, 50 – 54 for regressions [i] and [ii]; and 60 – 64 for regressions [iii] and [iv] was incorporated.

Regression models were estimated using ordinary least squares.   Dummy variables and their interactions controlling for marital status (ever-married versus never-married), educational attainment level (lower secondary or below, upper secondary only, and post-secondary), age groups, and the implementation of SMW (pre-2011 versus post-2011) were included in the models where appropriate, depending on the models' goodness of fit.