

Demographic Trend of the NEET Aged 15 - 24

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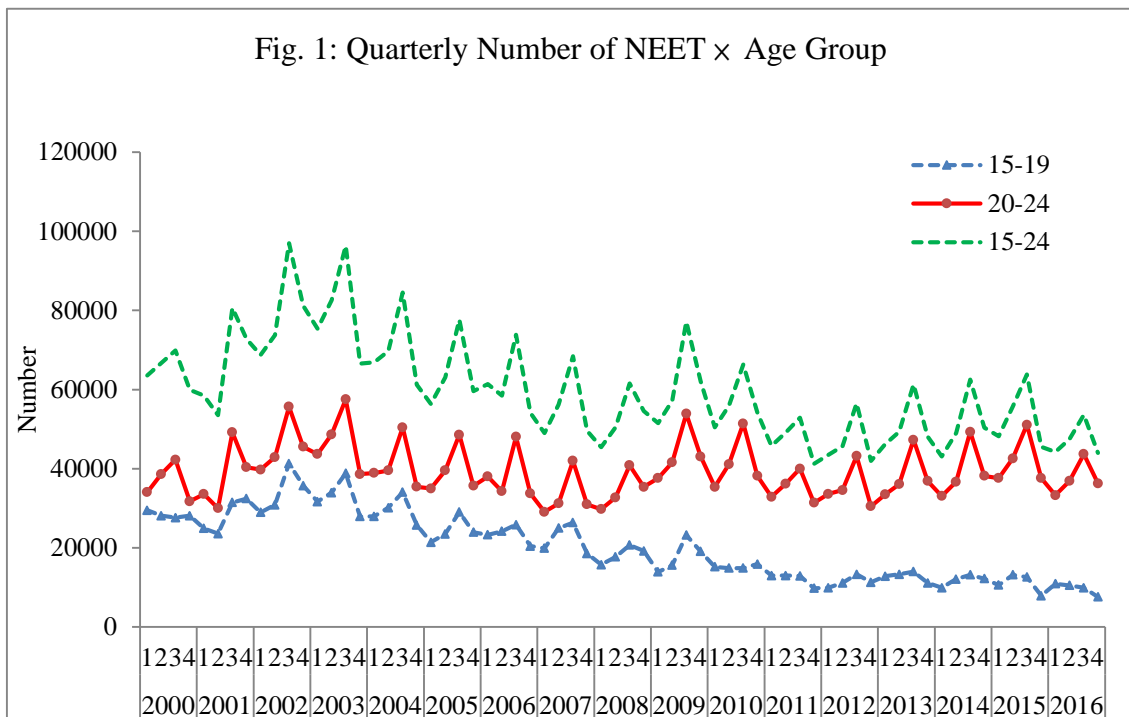
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1. Introduction

NEET is a short form for the youths “Not in Employment, Education or Training”. To reflect the current and future situations of the NEET in Hong Kong, the Hong Kong College of Technology (HKCT) has been conducting a research aiming at forecasting the number of NEET in the four quarters of 2017. Such forecasts may indicate if the NEET could do better or worse in terms of employment and education in Hong Kong. The Census & Statistics Department (C&SD) regularly provides us with the data generated from the quarterly General Household Surveys (GHS). In this study, a total of 68 quarters is involved starting from Q1, 2000 and ending at Q4, 2016.

2. Forecasting

Time-series forecasting method is used to build a model that relates the past values of a time series. The forecasts may go wrong if unexpected events taking place within the forecasting period, such as a change of government policy, catastrophes, sudden booming or recession. Our time-series data are quarterly collected from the C&SD. Fig. 1 below shows the quarterly totals of NEET aged 15–19, 20–24, and 15–24.



Source: Q1, 2000 – Q4, 2016, GHS, C&SD.

As seen from Fig. 1, an obvious seasonality of four quarters per cycle (year) is detected for the three age groups. The two groups aged 15-24 and 20-24 are found to have their sizes getting smaller after the occurrence of the SARS in 2003 till 2007 and then stopped being so thereafter, while the trend of the 15-19 group declined continuously. The financial tsunami in 2008 marked the increase of NEET aged 20-24. The numbers of NEETs in this group and the group aged 15-24 remained high in 2008 and the following year.

It should be noted that the outburst events SARS in 2003 and financial tsunami in 2008, definitely affected the performance of forecasting. A set of indicator variables is thus introduced into the model with '1' indicates a time point where an event is thought to have an effect, and '0' denotes no effect. The affected quarters may include Q2–Q4, 2003, Q4, 2008, and Q1–Q4, 2009. These intervention events will be taken into account when modeling and forecasting are made. Forecasting is performed via the statistical package IBM SPSS 22. The observations and forecasts for age groups 15–19, 20–24, and 15–24 are illustrated in Table 1 below:

Table 1: Observations and Forecasts for the Numbers of NEET*

Year	Quarter	15-19		20-24		15-24	
		Observation	Forecast	Observation	Forecast	Observation	Forecast
2000	1	29,500	-	34,100	-	63,500	-
	2	28,100	-	38,600	-	66,800	-
	3	27,600	-	42,300	-	69,900	-
	4	28,100	-	31,800	-	59,900	-
2001	1	24,900	-	33,600	-	58,500	-
	2	23,600	-	30,000	-	53,600	-
	3	31,500	-	49,200	-	80,700	-
	4	32,400	-	40,400	-	72,800	-
2002	1	29,000	-	39,800	-	68,700	-
	2	30,900	-	42,900	-	73,800	-
	3	41,300	-	55,600	-	97,000	-
	4	35,700	-	45,500	-	81,200	-
2003	1	31,700	-	43,700	-	75,400	-
	2	33,900	-	48,700	-	82,600	-
	3	38,900	-	57,500	-	96,400	-
	4	27,900	-	38,600	-	66,600	-
2004	1	28,000	-	38,900	-	66,900	-
	2	30,200	-	39,600	-	69,700	-
	3	34,100	-	50,500	-	84,500	-
	4	25,800	-	35,400	-	61,200	-
2005	1	21,400	-	35,000	-	56,400	-

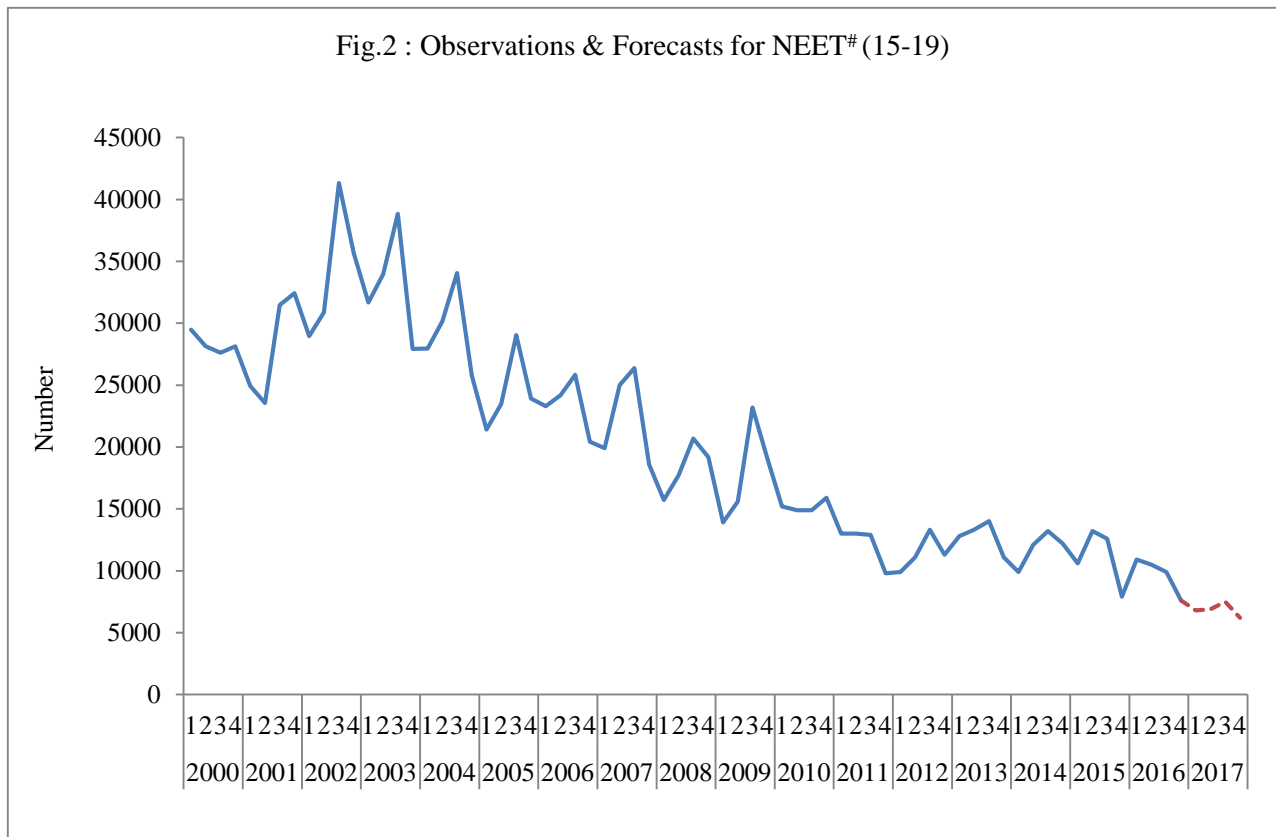
	2	23,500	-	39,600	-	63,000	-
	3	29,000	-	48,600	-	77,600	-
	4	23,900	-	35,700	-	59,600	-
2006	1	23,300	-	38,000	-	61,400	-
	2	24,200	-	34,300	-	58,500	-
	3	25,800	-	48,000	-	73,900	-
	4	20,400	-	33,700	-	54,100	-
2007	1	19,900	-	29,100	-	49,000	-
	2	25,000	-	31,200	-	56,200	-
	3	26,400	-	42,000	-	68,400	-
	4	18,600	-	31,000	-	49,500	-
2008	1	15,700	-	29,800	-	45,500	-
	2	17,700	-	32,700	-	50,400	-
	3	20,700	-	40,900	-	61,600	-
	4	19,200	-	35,400	-	54,600	-
2009	1	13,900	-	37,600	-	51,500	-
	2	15,600	-	41,600	-	57,200	-
	3	23,200	-	53,900	-	77,200	-
	4	19,100	-	43,100	-	62,000	-
2010	1	15,200	-	35,400	-	50,500	-
	2	14,900	-	41,100	-	55,900	-
	3	14,900	-	51,400	-	66,300	-
	4	15,900	-	38,200	-	54,200	-
2011	1	13,000	-	32,900	-	45,800	-
	2	13,000	-	36,200	-	49,200	-
	3	12,900	-	40,000	-	52,900	-
	4	9,800	-	31,400	-	41,200	-
2012	1	9,900	-	33,600	-	43,500	-
	2	11,100	-	34,600	-	45,700	-
	3	13,300	-	43,200	-	56,500	-
	4	11,300	-	30,500	-	42,000	-
2013	1	12,800	-	33,500	-	46,200	-
	2	13,300	-	36,100	-	49,300	-
	3	14,000	-	47,300	-	61,300	-
	4	11,100	-	36,900	-	48,100	-
2014	1	9,900	-	33,100	-	43,100	-
	2	12,100	-	36,700	-	49,000	-
	3	13,200	-	49,300	-	62,500	-

	4	12,200	-	38,200	-	50,400	-
2015	1	10,600	-	37,600	-	48,200	-
	2	13,200	-	42,600	-	55,700	-
	3	12,600	-	51,100	-	63,800	-
	4	7,900	-	37,600	-	45,500	-
2016	1	10,900	-	33,300	-	44,200	-
	2	10,500	-	36,900	-	47,500	-
	3	9,900	-	43,700	-	53,600	-
	4	7,600	-	36,300	-	44,000	-
2017	1	-	6,800	-	32,300	-	41,400
	2	-	6,900	-	36,300	-	44,100
	3	-	7,500	-	43,000	-	53,500
	4	-	6,200	-	35,900	-	42,200

Source: The observations are based on the data of Q1, 2000 – Q4, 2016, GHS, C&SD.

- *Notes: 1. Data above are rounded to the nearest hundred.
2. Observations and forecasts are not seasonally adjusted.

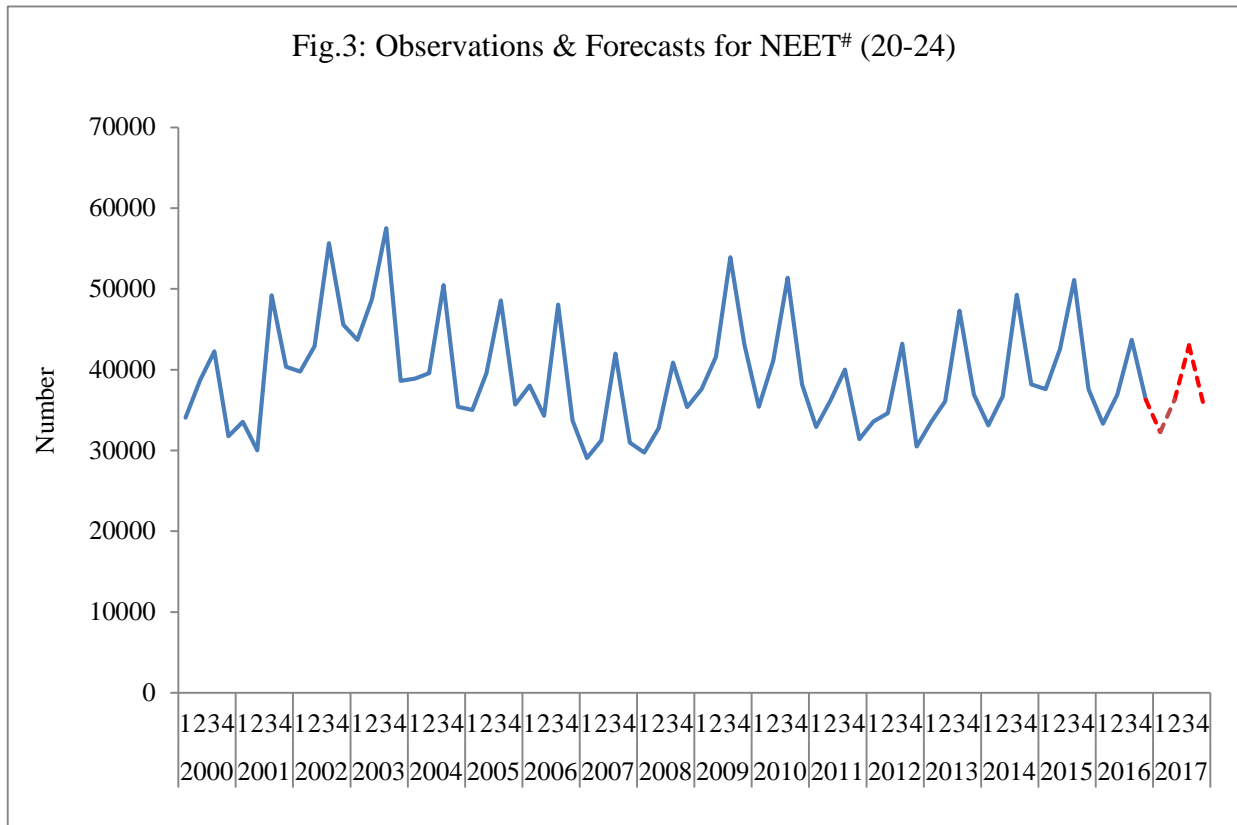
Fig. 2 below shows the observations and forecasts for NEETs aged 15–19:



Source: The observations are based on the data of Q1, 2000 – Q4, 2016, GHS, C&SD.

The observations and forecasts are not seasonally adjusted.

The observations and forecasts for NEET aged 15–19 are shown in Fig. 2 above. We can see that, except occasionally high values in 2003, 2008 and 2009, there is a downward trend in the series. The number of NEET has been decreasing from 29,500 in Q1, 2000 to 6,200 in Q4, 2017 with a decrease of about 79%, as forecasted. The seriousness of the social exclusion of the NEET aged 15-19 in Hong Kong has been eased.

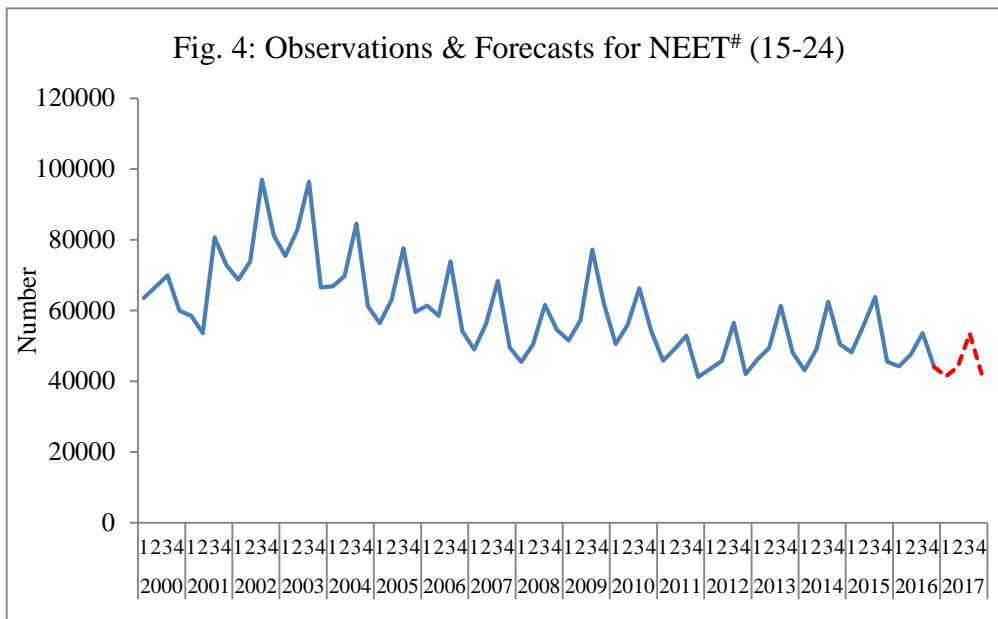


Source: Observations are from Q1, 2000 – Q4, 2016, GHS, C&SD.

The observations and forecasts are not seasonally adjusted.

The time series for 20-24 does not indicate an obvious upward or downward trend as shown in Fig. 3 above in the presence of the unforeseen events occurred in 2003 and 2008. The quarterly forecasts for 2016 and 2017 are not significantly different from each other either. The number of NEET in Q1, 2000 and Q4, 2017 are 34,100 and 35,900 respectively, indicating a growth of about 5% for the latter quarter. However, the average of quarterly numbers of NEET remains at a high value of about 39,000 for the whole span of time from 2000 to 2017. During 2012 to 2015, it seems that there is an upward trend for the population of NEET aged 20-24, showing that the social exclusion of the NEET population was getting worse during that period for some unknown and unexpected causes.

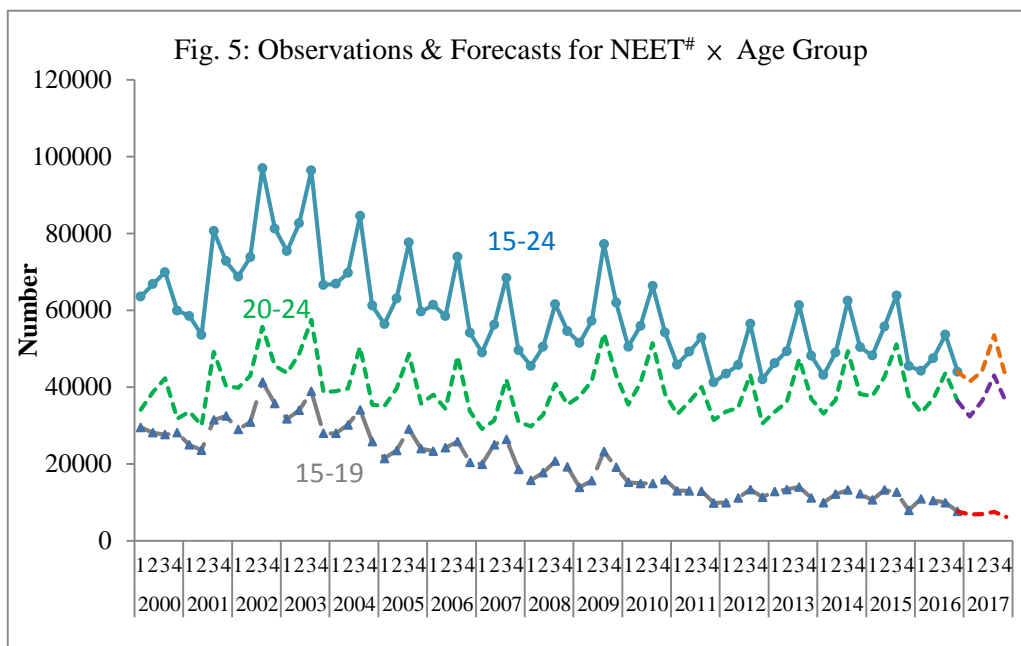
Figure 4 illustrates the combined series of the two age groups 15–19 and 20–24 which form the index series of 15–24.



Source: Observations are based on the data of Q1, 2000 – Q4, 2016, GHS, C&SD.

The observations and forecasts are not seasonally adjusted.

As seen from Fig. 5, the rising and falling patterns of the age groups 15-19 and 15-24 are a bit similar to each other before 2011. The downward trend effect of 15-19 no longer dominates the combined series after 2010: the two age groups of 20-24 and 15-24 have a mild upward trend instead starting in 2012. The number of NEET for the combined age group in Q1, 2000 is 63,500, whereas the forecast in Q4, 2017 is 42,200. An obvious decrease of about 34% is noted during the whole study period from Q1, 2000 to Q4, 2017.



Source: Observations are based on the data of Q1, 2000 – Q4, 2016, GHS, C&SD.

The observations and forecasts are not seasonally adjusted.