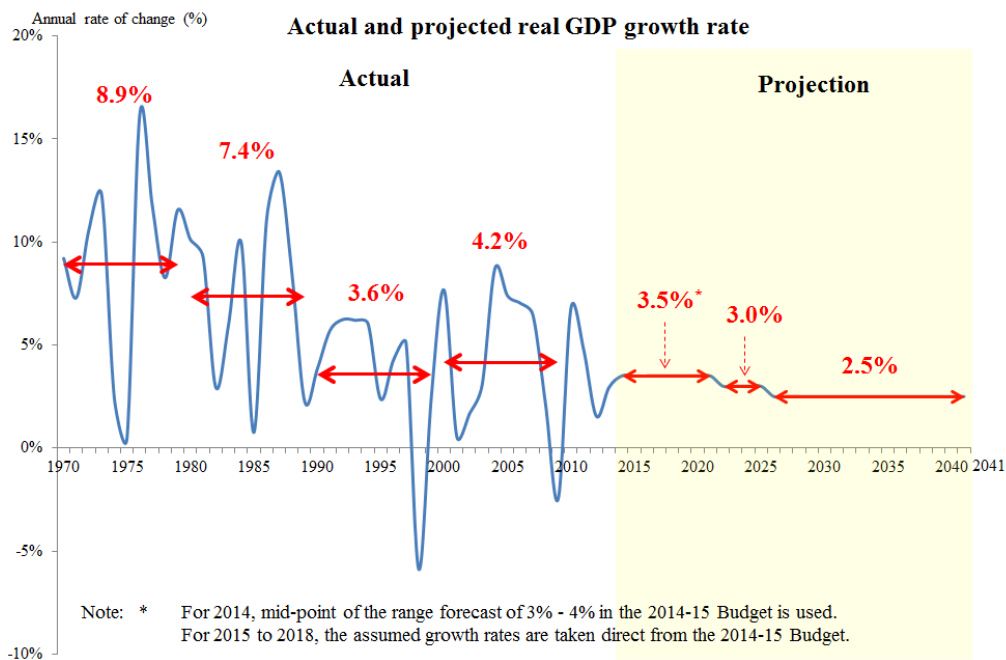


Chapter 2 – Macroeconomic Assumptions

Overview

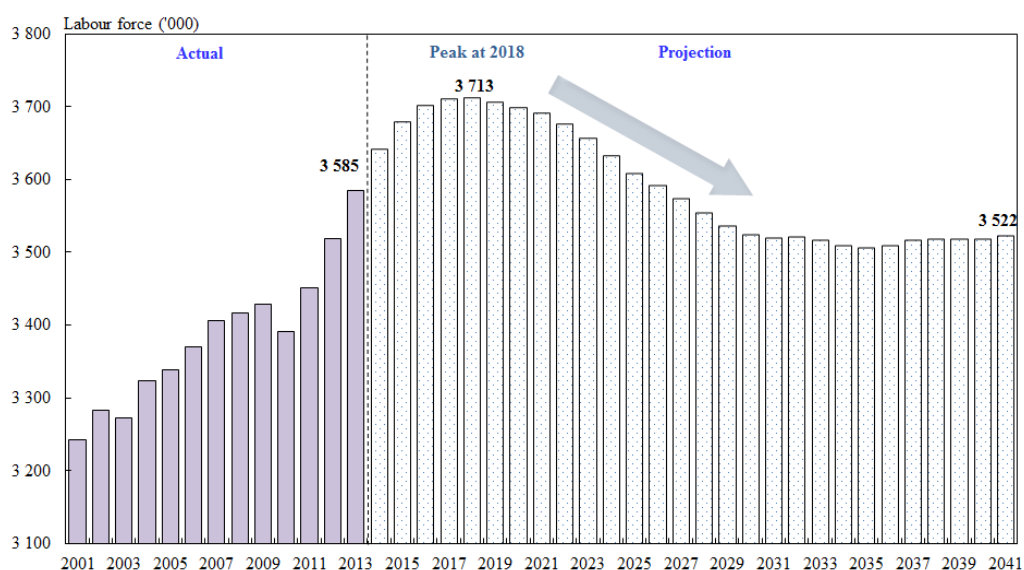
- 2.1 The Working Group is tasked to review long-term projections on the state of public finances up to 2041. As with all long-term fiscal projections, a natural starting point lies in the macroeconomic assumptions on economic growth and various price movements.
- 2.2 Over the past decades, while Hong Kong has successfully transformed into an advanced service-based economy, growth has been decelerating as the economy successively climbed up the value chain. Analysed by the 10-year growth trend, GDP growth has trended down from 8.9% per annum in the 1970s, to 7.4% per annum in the 1980s, and 5.0% per annum in the mid-1990s. Trend growth averaged at 3.4% per annum in the post-1997 era.

Chart 2.1 – Hong Kong economy has been decelerating in the past four decades; growth is expected to settle at a slower pace in the coming three decades or so



2.3 Looking further ahead, under the existing population policies, with local labour force expected to peak by 2018 and then embark on a secular decline until the early 2030s, Hong Kong’s long-term growth prospect in the coming three decades will unavoidably be constrained, even assuming that the productivity growth in our workforce can keep in pace with the vibrant performance in the past.

Chart 2.2 – Labour force is expected to decline after 2018, only to stabilise in the 2030s



Notes : Figure for 2013 is provisional.
 The projections from 2014 onwards are based on *Updated Hong Kong Labour Force Projections for 2013 to 2041, Hong Kong Monthly Digest of Statistics, the Census and Statistics Department (C&SD) (September 2013)*.

- 2.4 The Working Group has adopted a **Base Case** (regarded as the best estimate) that assumes that real GDP growth would stay at **3.5%** per annum from 2014 to 2021 and gradually decelerate to **3%** for 2022 to 2025, and then further to **2.5%** from 2026 to 2041. The macro-economic assumptions for the short to medium term (2014 to 2018) follow those in the 2014-15 Budget and are accepted by the Working Group as given. The Base Case assumptions from 2014 to 2041 imply **an average projected real GDP growth rate of 2.8% per annum**, lower than the historical trend growth rate of 3.4% since 1997-98.
- 2.5 For sensitivity analysis purpose, two more Cases have been examined. They are a **High Case** and a **Low Case** which are respectively **0.5 percentage point higher and lower** than the assumed real GDP growth rates under the Base Case from 2019 onwards.
- 2.6 On top of these Cases, a hypothetical **Shock Case** has also been constructed, assuming an abrupt five-year downturn as from 2015. The Shock Case is included purely for sensitivity testing to reflect the vulnerability of Hong Kong should severe external shocks occur. It does not represent the Government's view on the economy from 2015 onwards (see paragraph 2.16(c)).
- 2.7 The Working Group has also adopted a set of price assumptions that are relevant to this fiscal projection exercise, making references to the historical trends as well as the global, regional and local economic developments. Detailed considerations behind the key macroeconomic assumptions under the Base Case are set out in **Annex B**.

2.8 A summary of the core macroeconomic assumptions for the **Base Case** is set out below –

Base Case (Annual rate of change)

Period	Real GDP	GDP deflator	CCPI* (Underlying)	Public construction output price	Private sector wages
2014 [@]	3.5%	1%	3.7%	6%	5%
2015 – 2018 [@]	3.5%	2%	3.5%	6%	5%
2019 – 2021	3.5%	1.5%	3%	5%	4%
2022 – 2025	3%	1.5%	3%	4.5%	4%
2026 – 2041	2.5%	1.5%	3%	4%	4%
2015 – 2041 (27 years)	2.8%	1.6%	3.1%	4.5%	4.1%

Notes: * Unless otherwise specified, the underlying Social Security Assistance Index of Prices is assumed to be the same as that in the underlying CCPI.

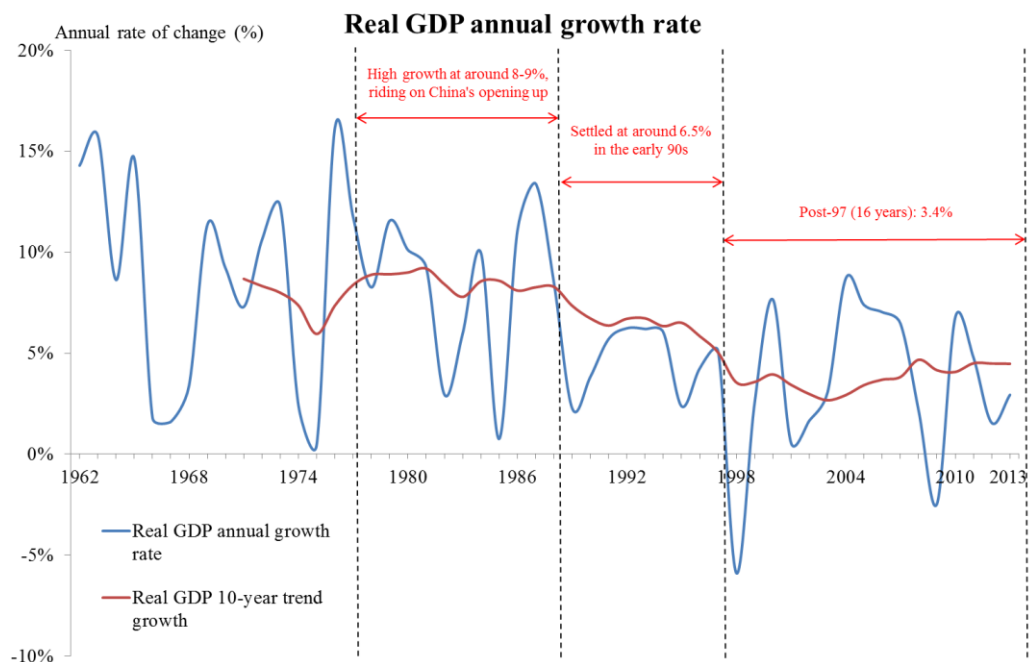
[@] The assumptions for real GDP, GDP deflator and CCPI for 2014 to 2018 follow those in the 2014-15 Budget Speech. For real GDP growth in 2014, the mid-point of the range forecast of 3 – 4% is used.

Real GDP assumptions under the Base Case

Analysing past economic growth trend

- 2.9 As a small and open economy subject to the influences of the global economy, Hong Kong experienced many ups and downs over the past 50 years.
- 2.10 Yet after smoothing out the economic cycles, it is also evident from *Chart 2.3* that in terms of the 10-year trend growth, Hong Kong's economic growth has steadily decelerated over time, epitomizing the evolution from a developing economy marked by high growth to an advanced economy with lower growth. Analysed by phases of development, our average trend growth rate hovered at around 8 – 9% per annum for most of the 1980s, riding on the Mainland's opening up since 1978 and our ensuing economic restructuring into a service-based economy serving as China's business hub and financial centre. Hong Kong's trend economic growth then settled at around 6.5% per annum in the early 1990s, as the economic restructuring towards more service- and knowledge-based activities continued, followed by an average growth rate of 3.4% per annum in the 16-year period after 1997.

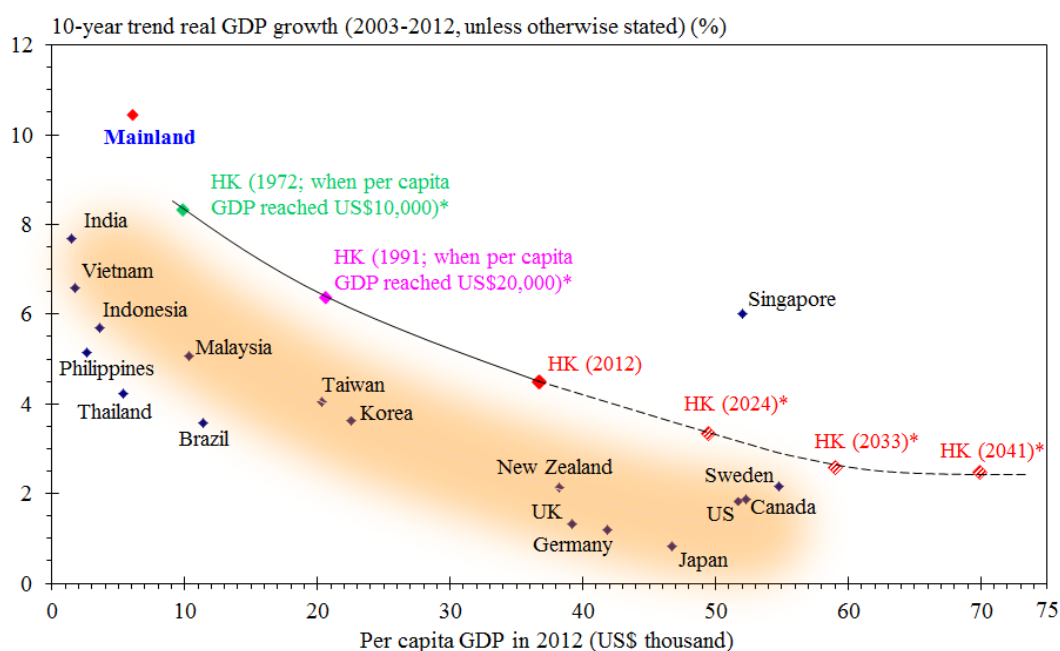
Chart 2.3 – Cyclicalty aside, economic growth trend is decelerating, as HK advanced into higher income economy



2.11 Such deceleration in our trend economic growth can be attributed to several factors. On the supply side, the two key factors of production, labour and capital, have both seen decelerating growth over time (See *Charts 2.5* and *2.6* for the historical trends on labour force and capital stock). From the perspective of labour productivity, Hong Kong was the beneficiary from several waves of economic restructuring. In particular, during the 1980s and early 1990s, Hong Kong’s transformation into a service-based economy unleashed a new round of labour productivity growth. Yet, as the transformation has been largely completed by around the mid-1990s, the incremental bonus from such sectoral shifts has diminished over time.

2.12 From a broader perspective looking at the global-wide experience, one common phenomenon is that the trend economic growth will generally go lower as an economy becomes increasingly mature (*Chart 2.4*).

Chart 2.4 – Economic growth bound to go lower as the economy becomes more mature



Notes: * Per capita GDP figures for these data points are in 2012 constant dollar terms, i.e. they have been adjusted for change in prices over time for more meaningful comparisons. The figures beyond 2013 are projected figures derived from the macroeconomic assumptions under the Base Case and C&SD's population projection.

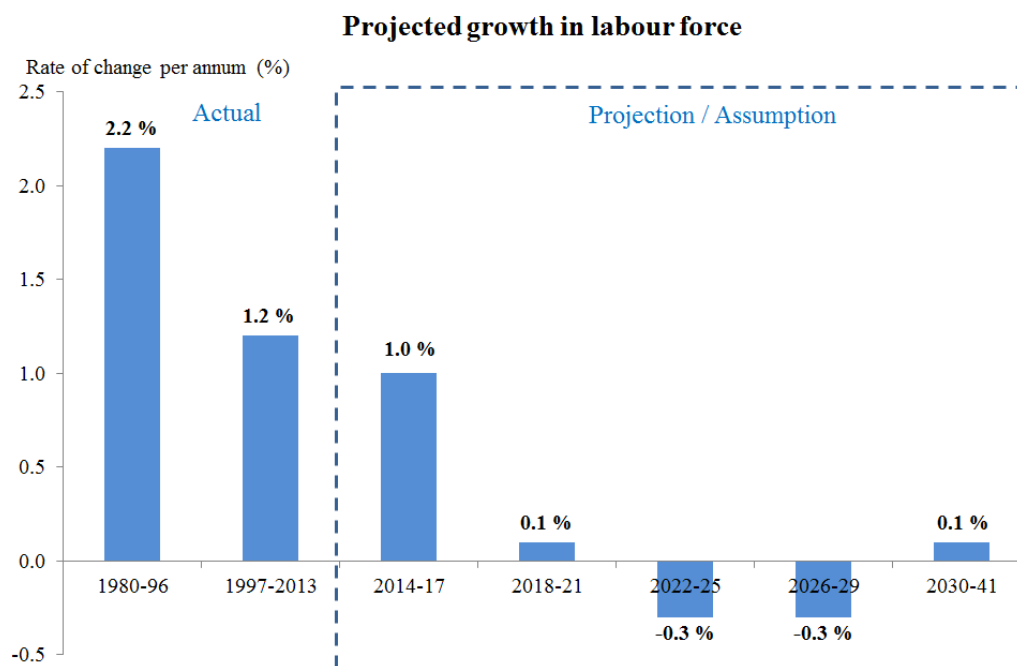
Economic growth potential set to slow under population ageing

2.13 The most immediate and direct challenge brought about by population ageing is the shrinkage of our labour force. According to the projections by the Census and Statistics Department released in September 2013, under the existing population policy, labour force is expected to stagnate in the late 2010s and then decline persistently throughout the 2020s. If foreign domestic helpers are excluded, **labour force would start to decline after 2018** (see *Chart 2.2*). It will only turn steadier in 2030s under the assumption that some of the Type II babies¹ born in the earlier years will come back to Hong Kong and gradually enter the labour force.

¹ Type II babies refer to babies born in Hong Kong whose mothers are Mainland women and whose fathers are not Hong Kong Permanent Residents. There will be negligible Type II babies from 2013 onwards, due to new measures introduced.

2.14 With such a labour force profile in the coming three decades, the implication for long-term economic growth prospect is that the GDP growth potential will inevitably be affected in the period beyond the medium term (*Chart 2.5*).

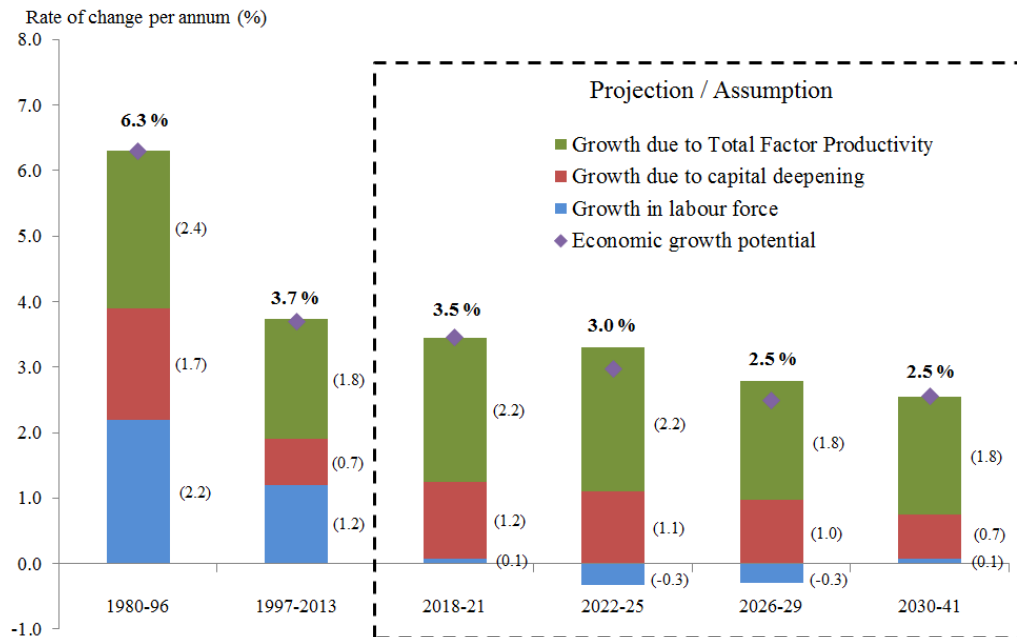
Chart 2.5 – Economic growth will inevitably be constrained as labour force stagnates after 2018



Note : The projections from 2014 onwards are based on *Updated Hong Kong Labour Force Projections for 2013 to 2041, Hong Kong Monthly Digest of Statistics, the Census and Statistics Department (September 2013)*, after adding back the projected number of foreign domestic helpers.

2.15 Thus, even with capital intensification and sustained growth in Total Factor Productivity (see **Annex B** for the analytical framework), Hong Kong's economic growth potential still looks set to slow as the labour force stagnates after 2018. *Chart 2.6* provides a breakdown on the economic growth potential assumptions under the Base Case beyond the medium term.

Chart 2.6 – Economic growth potential looks set to decelerate over the long term as labour force starts to stagnate



Notes : () Contribution to the economic growth potential in percentage point.

Economic growth potential refers to the **potential output** growth under full employment and normal intensity of usage of other factors of production. As such, the growth rates presented here for 1980-1996 and 1997-2013 differ slightly from the **actual GDP** growth rates.

See **Annex B** for the methodology of the analytical framework and the rationale underlying the growth projection.

Macroeconomic assumptions under the High Case, Low Case and Shock Case

2.16 The macroeconomic assumptions under the **Base Case** are important to this fiscal projection exercise, but the use of assumptions over such a long time horizon into the distant future also means that the extent of uncertainty involved is inevitably huge. To ensure the robustness of the fiscal projection results, three more cases of GDP and price assumptions have been worked out for sensitivity testing purpose –

- (a) **High Case:** Faster growth and higher inflation than the Base Case from 2019 onwards, by 0.5 percentage point per annum.
- (b) **Low Case:** Slower growth and lower inflation than the Base Case from 2019 onwards, by 0.5 percentage point per annum.
- (c) **Shock Case:** Being a small and open economy, Hong Kong is susceptible to adverse shocks in the global economy. The 1997-98 Asian Financial Crisis and the 2008-09 Global Financial Tsunami are two examples of severe shocks that had hit Hong Kong hard, causing economic recession and a concurrent plunge in government revenue. For the purpose of scenario testing, the Working Group has constructed a hypothetical case that assumes the Hong Kong economy to dip into a recession in 2015 and 2016, followed by a sluggish recovery in 2017 to 2019 (see **Annex C** for the specifications of the Shock Case). Although the economy is assumed to return to the growth path as that in the Base Case from 2020 onwards, the nominal GDP level in this Shock Case would still be permanently lower than that in the Base Case by 33% from 2020 till 2041 (*Chart 2.8*).

2.17 A summary of the assumptions on the real GDP under the four Cases are as follows –

Assumptions on real GDP (Annual rate of change)

	Base Case	High Case	Low Case	Shock Case
2014	3.5%	3.5%	3.5%	3.5%
2015	3.5% p.a.	3.5% p.a.	3.5% p.a.	-4.5%
2016				-3.5%
2017				0.5%
2018				1.5%
2019	3.5% p.a.	4% p.a.	3% p.a.	2.5%
2020				3.5%
2021				3.5%
2022 – 2025	3% p.a.	3.5% p.a.	2.5% p.a.	3% p.a.
2026 – 2029	2.5% p.a.	3% p.a.	2% p.a.	2.5% p.a.
2030 – 2041	2.5% p.a.	3% p.a.	2% p.a.	2.5% p.a.
2015 – 2041 (27 years)	2.8% p.a.	3.3% p.a.	2.4% p.a.	2.0% p.a.

Note : The GDP forecast for 2014 is based on the mid-point of the range forecast of 3 – 4% as announced in the 2014-15 Budget. The assumptions for 2015 to 2018 also follow those in the 2014-15 Budget.

Chart 2.7 – Real GDP 10-year trend growth rates under the four Cases

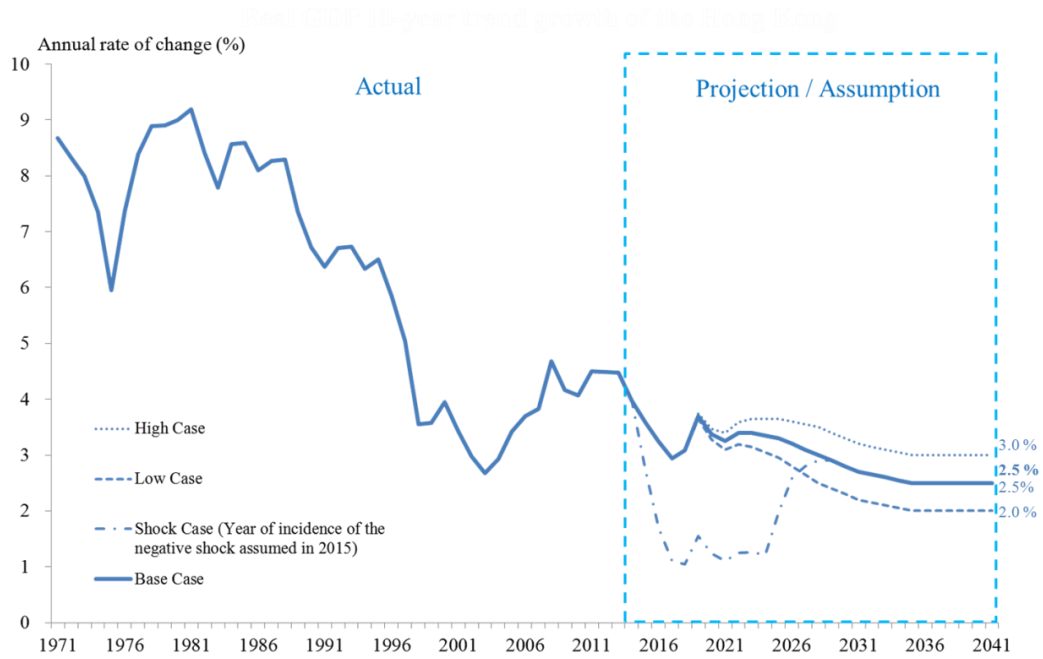
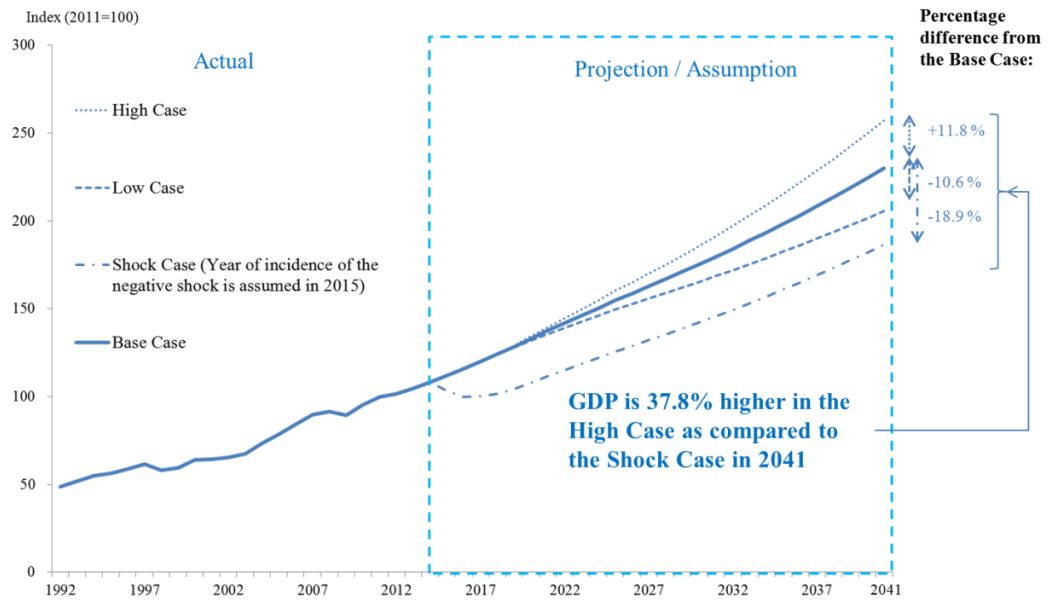


Chart 2.8 – Real GDP cumulative growth under the four Cases



2.18 The CCPI assumptions under the four Cases are as follows –

Assumptions on underlying CCPI (Annual rate of change)

	Base Case	High Case	Low Case	Shock Case
2014	3.7%	3.7%	3.7%	3.7%
2015	3.5% p.a.	3.5% p.a.	3.5% p.a.	-2.5%
2016				-2.5%
2017				-0.5%
2018				1.5%
2019	3% p.a.	3.5% p.a.	2.5% p.a.	2%
2020				3%
2021				3%
2022 - 2025	3% p.a.	3.5% p.a.	2.5% p.a.	3% p.a.
2026 - 2029	3% p.a.	3.5% p.a.	2.5% p.a.	3% p.a.
2030 - 2041	3% p.a.	3.5% p.a.	2.5% p.a.	3% p.a.
2015 - 2041 (27 years)	3.1% p.a.	3.5% p.a.	2.6% p.a.	2.4% p.a.

Note : The assumptions for 2014 to 2018 are taken direct from the 2014-15 Budget.

Chart 2.9 – Consumer price inflation (as measured by CCPI) 10-year trend rates of change under the four Cases

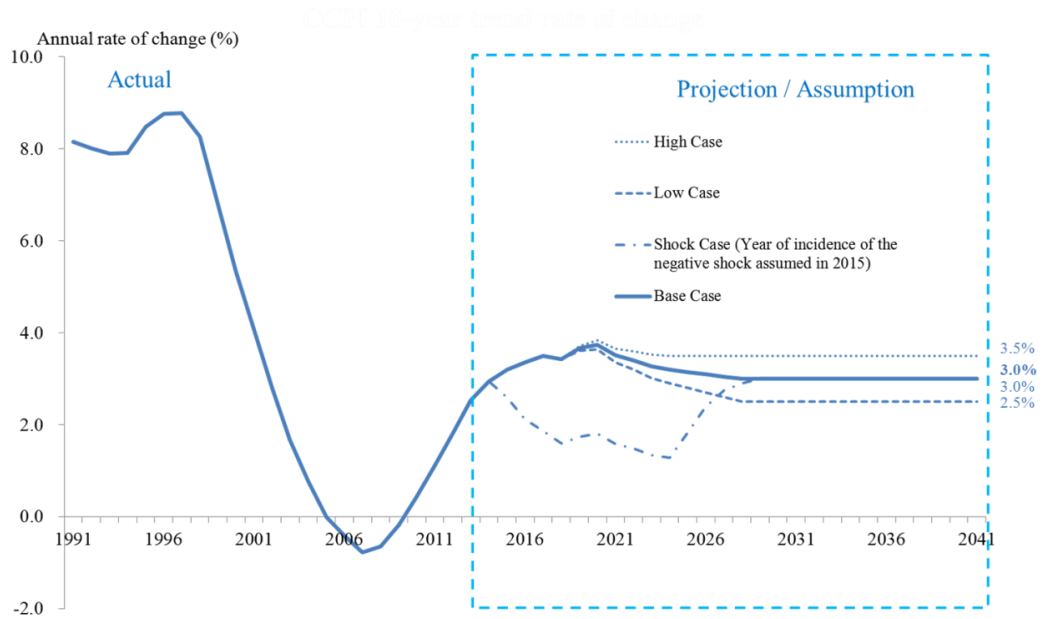
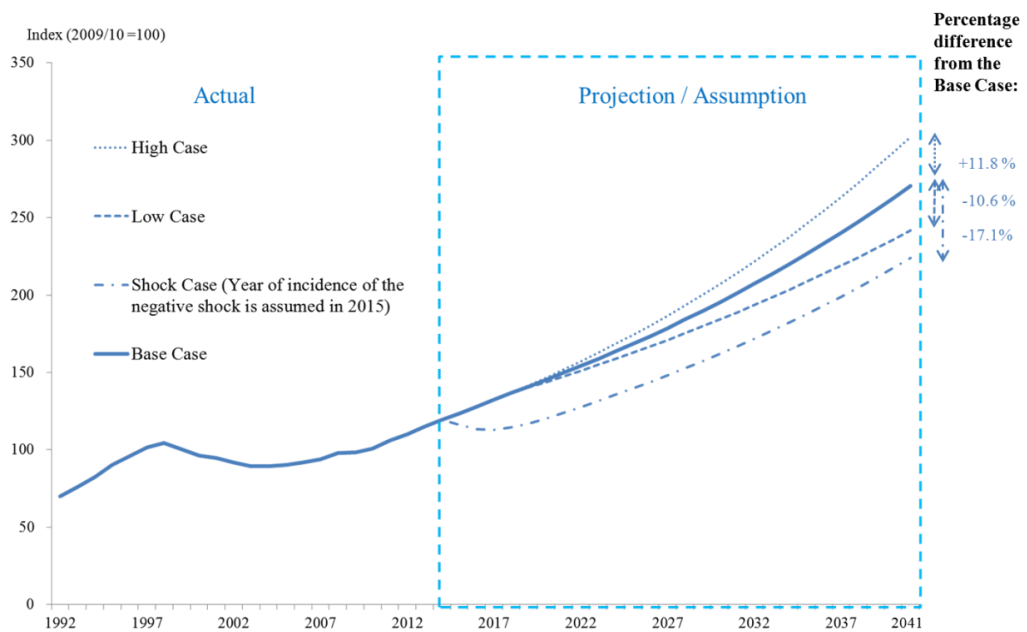


Chart 2.10 – Consumer price inflation (as measured by CCPI) cumulative rates of change under the four Cases



2.19 The nominal GDP assumptions under the four Cases are as follows –

Assumptions on nominal GDP (Annual rate of change)

	Base Case	High Case	Low Case	Shock Case
2014	4.5%	4.5%	4.5%	4.5%
2015	5.5% p.a.	5.5% p.a.	5.5% p.a.	-8.5%
2016				-7.5%
2017				-1.5%
2018				1.5%
2019	5% p.a.	6% p.a.	4% p.a.	3%
2020				5%
2021				5%
2022 – 2025	4.5% p.a.	5.5% p.a.	3.5% p.a.	4.5% p.a.
2026 – 2029	4% p.a.	5% p.a.	3% p.a.	4% p.a.
2030 – 2041	4% p.a.	5% p.a.	3% p.a.	4% p.a.
2015 – 2041 (27 years)	4.4% p.a.	5.3% p.a.	3.6% p.a.	2.9% p.a.

Note : The assumptions for 2015 to 2018 are taken direct from the 2014-15 Budget. For 2014, the mid-point of the range forecast of 4 – 5% is used.

Chart 2.11 – Nominal GDP 10-year trend growth rates under the four Cases

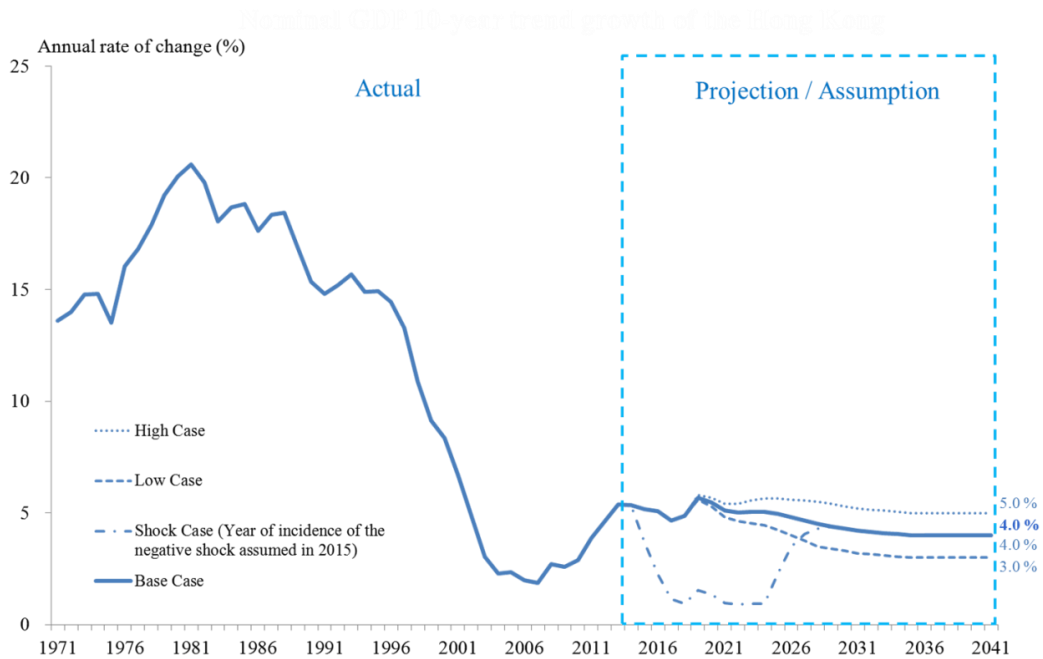
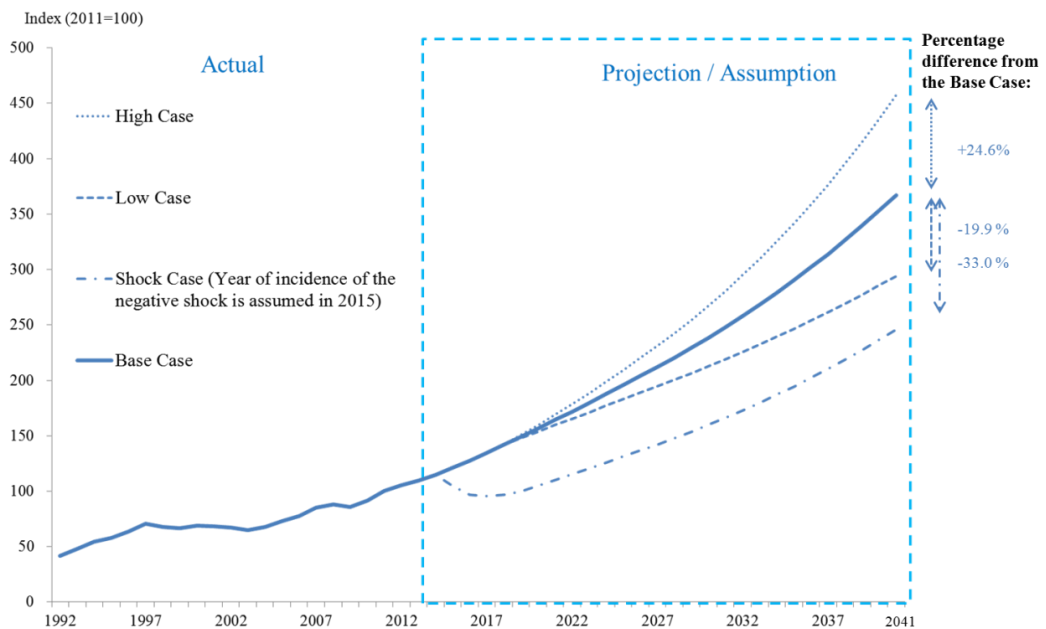


Chart 2.12 – Nominal GDP cumulative growth under the four Cases



2.20 Other price indicators have also been adjusted accordingly in these three extra Cases, based on the assumed deviations in the assumed changes in CCPI from the Base Case.

Limitations of the assumptions

2.21 The macroeconomic and price assumptions are solely for the purpose of the long-term projection by the Working Group. Given such a long time horizon of near 30 years, the extent of uncertainty is unavoidably very large. As such, these parameters should **not** be treated as economic forecasts.

