

Annex 3. Estimating Hong Kong's Potential Growth: Is Hong Kong's Financial Competitiveness Strengthening its Growth Potential?¹⁹

1. Estimating potential growth is important in assessing an economy's sustainable growth capacity. It provides a benchmark for how fast an economy can expand without generating inflationary or financial imbalances, thereby informing medium-term fiscal planning, structural reform priorities, and the calibration of macroprudential policies. Over the medium term, potential growth reflects the economy's productive capacity through its key components—labor, capital, and total factor productivity. In this regard, trends in potential growth can provide important guidance on whether structural reforms are needed and, if so, what areas should be prioritized. In Hong Kong, there has been limited follow-up research on potential growth since the Hong Kong Monetary Authority (HKMA) published its study in 2011. Given rapidly evolving global economic conditions, it is important to reassess recent trends in Hong Kong's potential growth.

2. This Selected Issue aims to provide a fresh estimate of Hong Kong's potential growth and to assess the extent to which its status as a global financial hub contributes to that potential. The key questions addressed are how Hong Kong's potential growth has evolved in recent years and what factors have been driving these changes. By focusing on Hong Kong's unique role as a global financial center, this Selected Issue seeks to offer new insights into these issues, representing a novel approach relative to existing studies on potential growth.

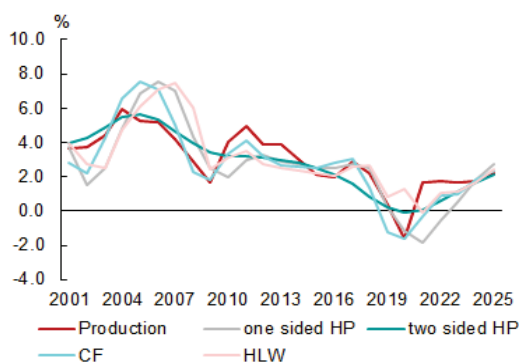
3. Hong Kong's potential growth is estimated using multiple approaches, recognizing that results may vary depending on the methodology applied. To ensure robustness, five models are employed: one-sided Hodrick–Prescott (HP) filtering, two-sided HP filtering, Christiano–Fitzgerald (CF) filtering, a production function approach, and the semi-structural model proposed by Holston, Laubach, and Williams (HLW, 2023). The sample period spans from 2000 to 2025. The HP and CF filtering methods estimate potential growth directly from the historical time-series dynamics of the data. In contrast, the production function approach provides additional insights by decomposing potential growth into contributions from capital, labor, and total factor productivity. Finally, the HLW model estimates potential growth as an unobserved variable within a semi-structural framework—comprising elements such as the IS curve and the Phillips curve—using a Kalman filter approach.

4. Next, the note assesses the extent to which Hong Kong's characteristics as a financial hub contribute to total factor productivity (TFP), as estimated under the production function approach. To this end, a principal component analysis (PCA) is first conducted using a set of indicators that capture Hong Kong's role as a financial center. These include growth in assets under management (AUM), total fundraising, cross-border banking assets and liabilities reported by the BIS, and exports of financial services. The extracted principal component (PC1) is then used as a proxy for Hong Kong's competitiveness as a financial hub. Subsequently, the contribution of this financial hub factor to Hong Kong's TFP is analyzed using a state-space model, following Kim and Nelson (1999), in which TFP is specified as the dependent variable and the financial hub proxy as the explanatory variable. An advantage of this approach is that, unlike linear models with fixed parameters, it allows the impact of the explanatory variable to vary over time, thereby capturing potential structural changes in the relationship. The analytical framework discussed above can be summarized in three steps, as presented in Appendix A3.1.

¹⁹ Prepared by Jungsung Kim, Senior Economist.

5. Hong Kong's potential growth is estimated to lie in the range of 2.2–2.7 percent and averaging 2.5 percent. Having reached around 8 percent in the early 2000s, potential growth has gradually declined over time and is now assessed to be between 2.2 percent and 2.7 percent, depending on the estimation methodology (Figure A3.1). This trend is consistent with patterns observed in advanced economies, where potential growth tends to moderate as economies mature. As in other regional economies, Hong Kong's potential growth was temporarily affected by the pandemic but has since recovered. Accordingly, the output gap is estimated to have turned positive at around 0.2 percent in 2025 (Figure A3.2). Historically, negative output gaps were observed during the Global Financial Crisis and the pandemic, in line with experiences in other economies.

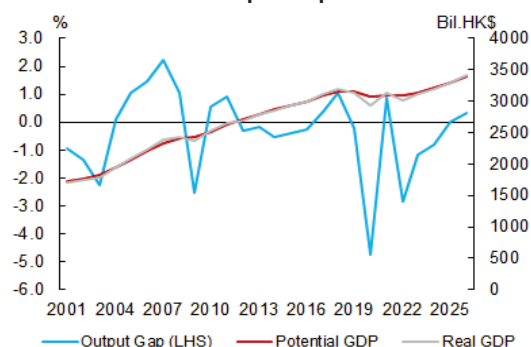
Figure A3.1. Hong Kong's Estimated Potential Growth



Source: AMRO staff estimates

Note: Production = Production Function approach; HP = Hodrick–Prescott filtering; CF = Christiano–Fitzgerald filtering; HLW = Holston, Laubach, and Williams approach.

Figure A3.2. Hong Kong's Potential Growth and Output Gap



Source: AMRO staff estimates

Note: Potential GDP is the average of five different approaches.

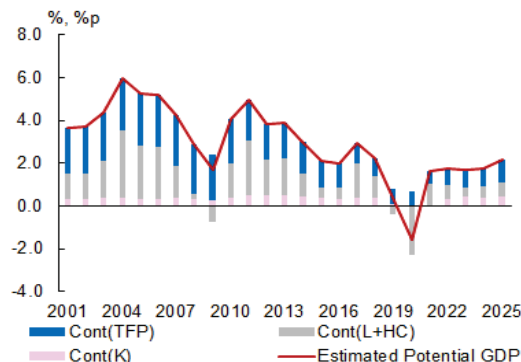
6. A key finding of this Selected Issue is that the contribution of TFP to Hong Kong's potential growth has been increasing. Based on the production function approach, which decomposes potential growth into contributions from labor, capital, and TFP, the results indicate that TFP has been the main driver of Hong Kong's potential growth (Figure A3.3). While there is some variation over time, TFP accounted for around 45 percent of potential growth on average during 2000–2019. In the 2020s, excluding the pandemic period, its contribution has remained elevated at around 48 percent. These findings highlight two distinguishing features of Hong Kong's growth dynamics. First, TFP has consistently played a dominant role in driving potential growth. Second, the post-pandemic recovery in growth has been largely led by TFP. In contrast, the contribution of labor input has shown a declining trend, reflecting the impact of population aging.

7. The analysis finds that Hong Kong's strengths as a global financial hub are key drivers of its TFP. To quantify this relationship, a principal component capturing Hong Kong's financial hub characteristics (PC1) is constructed and its explanatory power for TFP is estimated. The results indicate that PC1 explains, on average, around 55 percent of Hong Kong's TFP during the period 2000–2019 (Figure A3.4). In the 2020s, excluding the pandemic period, its contribution remains broadly stable at around 53 percent. Furthermore, incorporating recent developments in the fintech sector, an alternative principal component (PC2²⁰) is constructed to better capture the evolving nature of Hong Kong's financial hub identity. Estimation results show that, since the start of the 2020s, this enhanced financial hub

²⁰ PC2 is constructed by augmenting the dataset used for PC1 with the fintech index published by The University of Hong Kong, thereby capturing a broader representation of Hong Kong's financial hub characteristics. For the period after 2022, the fintech index is extended by incorporating changes in the number of fintech firms in Hong Kong.

factor explains around 62 percent of TFP. Taken together, these findings suggest that Hong Kong's identity as a financial hub constitutes a critical pillar of its economic performance.

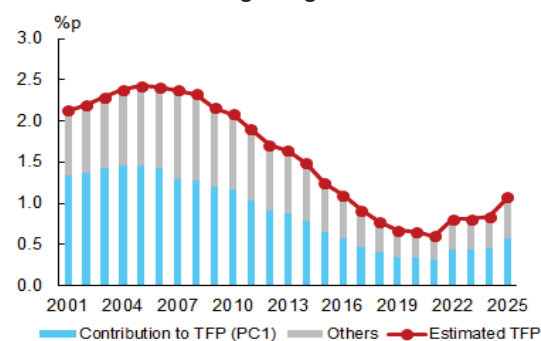
Figure A3.3. Decomposition of Hong Kong's Potential Growth



Source: AMRO staff estimates

Note: Potential GDP growth is based on the production function approach; L and HC represent labor input and human capital respectively.

Figure A3.4. Contribution of Financial Hub Status to Hong Kong's TFP



Source: AMRO staff estimates

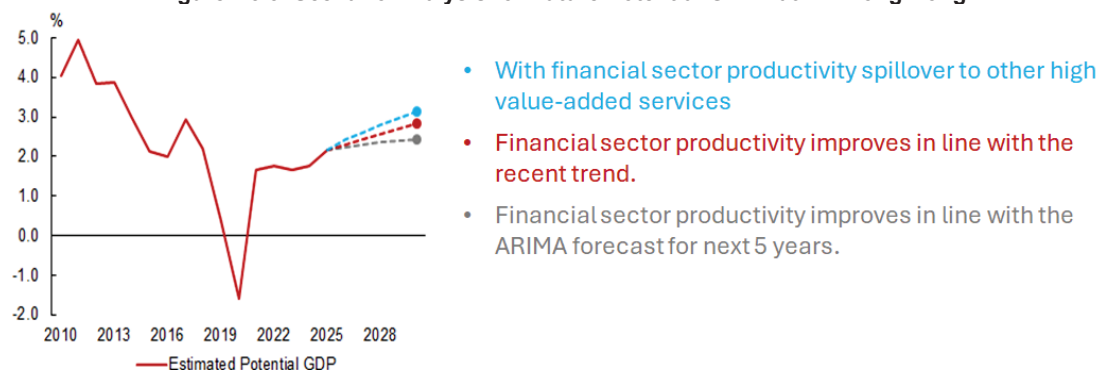
Note: PC1 captures Hong Kong's role as a financial center.

8. Hong Kong's sustainable development rests on reinforcing its strengths as a global financial hub and enhancing the competitiveness of other high value-added service sectors. The findings of this Selected Issue suggest that Hong Kong's economy over the past two decades can be characterized by TFP-led growth in potential output. More importantly, variations in TFP have been largely driven by Hong Kong's role as a financial hub—an important distinguishing feature relative to other ASEAN+3 economies. It is therefore essential to ensure that the financial services sector continues to serve as a key engine of growth, while also facilitating spillovers to other high value-added services. To this end, the authorities could consider the following measures:

- Identifying new growth drivers:** The analysis suggests that while the financial sector remains a key contributor to Hong Kong's potential growth, other sectors also play a meaningful role. This implies that if the competitiveness of the financial sector can generate spillovers to other high value-added services, potential growth could rise further. Scenario analysis of future TFP paths indicates that outcomes will depend on whether Hong Kong can sustain its position as a financial hub while developing new engines of growth in other high value-added services (Figure A3.5). If financial sector innovation slows and past trends persist, Hong Kong's potential growth is likely to stagnate. In contrast, if innovation—particularly in areas such as fintech—accelerates and the financial sector maintains its recent strong growth momentum, potential growth could increase. Moreover, if gains in the financial sector diffuse to other high value-added services, the increase in potential growth could be even more pronounced.²¹

²¹ When financial and professional services become more competitive and efficient—reducing the cost and improving the quality of services they supply as intermediate inputs—downstream sectors benefit from lower production costs and higher aggregate productivity. The amplification effect is substantial because services are pervasive inputs used across virtually all other economic activities. (Fernández Corugedo, E. and Pérez Ruiz, E., 2014. "The EU Services Directive: Gains from Further Liberalization." IMF Working Paper No. 14/113. International Monetary Fund.)

Figure A3.5. Scenario Analysis for Future Potential GDP Path in Hong Kong



Source: AMRO staff estimates

Note: Potential GDP is the average of estimation from five different models.

- **Serving as an incubator for global financial innovation:** Advancing into new areas requires a willingness to take risks. For instance, while discussions on stablecoins have been active across many economies, tangible progress has remained limited. To capture first-mover advantages, Hong Kong needs to embrace financial innovation while demonstrating its ability to effectively manage associated risks. Establishing itself as a trusted testing ground for emerging financial technologies will further strengthen its position as a leading international financial center.
- **Bridging the Chinese Mainland and the rest of the world:** Hong Kong's identity as a financial hub is reinforced by its role as a gateway for global firms seeking access to the Chinese Mainland, as well as for Chinese Mainland enterprises expanding into international markets. This bridging function is likely to become even more prominent in an increasingly fragmented global environment. In this context, further efforts to promote RMB internationalization and to deepen Chinese Mainland-related markets—such as the dim sum bond market—will be important in sustaining and strengthening Hong Kong's competitive edge.

Appendix A3.1: Estimate Potential GDP using Multi-Model approach**<Step 1>****<1. Production Function>**

$$Y_t = A_t K_t^\alpha (h_t L_t)^{1-\alpha},$$

$$\Delta \ln Y_t \approx \alpha \Delta \ln K_t + (1 - \alpha) [\Delta \ln L_t + \Delta \ln h_t] + \Delta \ln A_t$$

where, Y_t , A_t , K_t , L_t , h_t , and α are potential GDP, Total Factor Productivity, Capital input, Labor input, Human capital, and output elasticity of capital respectively.

<2. Semi-Structure Model>

$$\begin{aligned} \text{(IS equation): } \hat{Y}_t &= a_{y,1} \hat{Y}_{t-1} + a_{y,2} \hat{Y}_{t-2} + \frac{a_r}{2} \sum_{j=1}^2 (r_{t-j} - r_{t-j}^*) + \varepsilon_{\hat{y},t} \\ \text{(Phillips curve): } \pi_t &= b_\pi \pi_{t-1} + (1 - b_\pi) \sum_{k=2}^4 \frac{\pi_{t-k}}{3} + b_Y \hat{Y}_{t-1} + \varepsilon_{\pi,t} \\ \text{(NRI): } r_t^* &= c * g_t + z_t \\ \text{(Potential Output): } Y_t^* &= Y_{t-1}^* + g_{t-1} + \varepsilon_{Y^*,t} \end{aligned}$$

where, Y_t denote the output, Y_t^* is the potential output, $\hat{Y}_t$ is the output gap, and r_t and r_t^* are the actual and natural real interest rates respectively.

<3~5. One-sided and Two-sided HP filtering, CF filtering>

The HP filter applies a quarterly smoothing parameter of 1,600, while the CF filter utilizes full-sample data with trend components. For further details, refer to Hodrick and Prescott (1997) and Christiano and Fitzgerald (2003).

<Step 2> Principal Component Analysis capturing financial hub factors

$$\begin{aligned} \text{(Covariance matrix): } \Sigma &= \frac{1}{n-1} X^T X \\ \text{(Eigen decomposition): } \Sigma v &= \lambda v \\ \text{(Project data onto principal components): } Z &= XV \end{aligned}$$

where, X denote the data matrix with n rows. V is matrix of eigenvector (principal component)

<Step 3> Analysis estimating the contribution of financial hub factors to TFP

From equation 1 and 2, A (TFP) and financial hub factor (V) are estimated. Then space state model to drive time-varying coefficients can be set up as follows.

$$\text{(Measurement equation): } A_t = [V_t \dots x_{kt}] \begin{bmatrix} \beta_{1t} \\ \vdots \\ \beta_{kt} \end{bmatrix} + e_t$$

$$\text{(Transition equation): } \begin{bmatrix} \beta_{1t} \\ \vdots \\ \beta_{kt} \end{bmatrix} = \begin{bmatrix} \delta_1 \\ \vdots \\ \delta_k \end{bmatrix} + \begin{bmatrix} \phi_1 & 0 & \dots & 0 \\ 0 & \phi_2 & \dots & 0 \\ \dots & \dots & \ddots & \dots \\ 0 & \dots & \dots & \phi_k \end{bmatrix} \begin{bmatrix} \beta_{1,t-1} \\ \vdots \\ \beta_{k,t-1} \end{bmatrix} + \begin{bmatrix} v_{1,t} \\ \vdots \\ v_{k,t} \end{bmatrix}$$

where, β denotes coefficients and e, v are representing shocks of each equation.

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