

2 The Singapore Economy

- Singapore's economic growth eased sequentially in Q1 2024 after gathering pace in the latter half of 2023. There were two opposing transitory impulses at play during the quarter. While the tourism-related industries received some boost from an unprecedented influx of concerts, the economy was dampened by a pullback in the manufacturing sector following an electronics-led surge late last year.
 - These two factors influencing the Q1 outcome—the tourism industry pick up and manufacturing sector pullback—are likely temporary in nature and should dissipate in the coming quarters. A generally benign global backdrop, with broad alignment of the macroeconomic, tech and interest rate cycles, should enable the Singapore economy to attain growth of 1 – 3% in 2024, following the 1.1% expansion in 2023.
 - For the year as a whole, growth in the trade-related and modern services clusters are expected to improve from 2023, while that in the travel-related and domestic-oriented clusters will continue to moderate but stay above trend. Manufacturing and trade activity in Singapore should continue to benefit from the ongoing recovery in the global electronics industry, especially in the memory chip segment. Further, the projected peaking of global policy interest rates is expected to lead to some rebalancing of investment portfolios, which will in turn bolster financial sector activity. Meanwhile, growth in the tourism-related industries should taper from the concert-driven boost in Q1. Nonetheless, growth will still be underpinned by upcoming events of a smaller scale, as well as the continued recovery of Chinese tourists following the removal of remaining travel frictions.
 - This chapter also includes an analysis of Singapore's long-term growth path amid business cost developments. While Singapore has managed to achieve strong economic growth without commensurate cost increases over the years, it will become increasingly challenging to stay on this benign course, as the operating environment becomes more supply-constrained in the coming years. Some within-sector consolidation is expected in response to the resulting cost increases, but Singapore can remain globally competitive through continued technological progress and total factor productivity growth.
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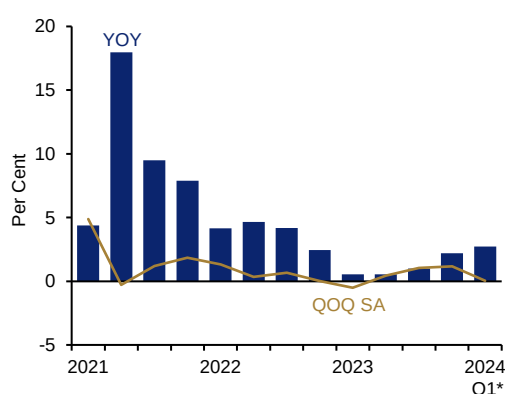
2.1 Recent Economic Developments

The Singapore economy saw a shift in sectoral performances at the start of 2024, impacted by two transitory forces

The soft patch experienced by the Singapore economy in 2023 turned out to be relatively brief and shallow, lasting only about two quarters in the first half of the year. Growth in the economy gathered pace towards the end of 2023, amid a pickup in external demand. Overall GDP expanded by 1.2% q-o-q SA in Q4, a slight acceleration from the 1.0% growth in Q3 (**Chart 2.1**). On a y-o-y basis, the pace doubled to 2.2%. The strong Q4 outturn was driven by the manufacturing and financial sectors, enabling the broader trade-related and modern services sectors to recoup recent output losses.

Chart 2.1 Growth in the Singapore economy eased sequentially in Q1 this year...

Singapore's GDP growth

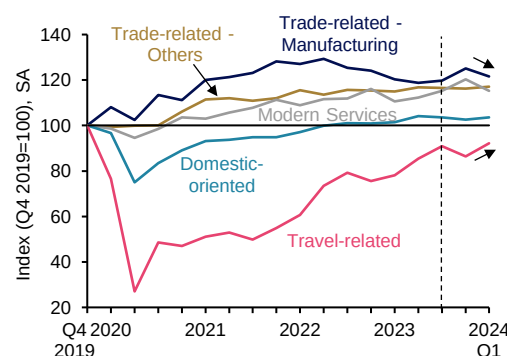


Source: DOS

* Advance estimates

Chart 2.2 ...with a switch in performance among the broad clusters of activity

GDP of broad clusters



Source: EPG, MAS estimates

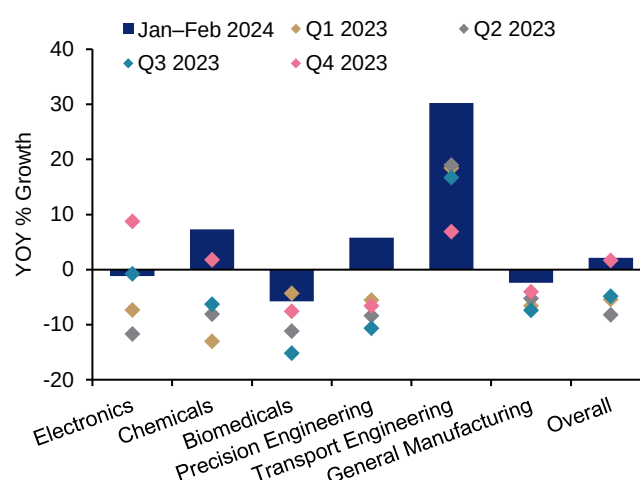
However, Q1 2024 witnessed some easing in the momentum, with GDP growth slowing down to 0.1% q-o-q SA based on the *Advance Estimates*, even as it picked up to 2.7% in y-o-y terms on account of the low base in Q1 last year (**Chart 2.1**). There was a switch of fortunes among the broad clusters of activity: the trade-related and modern services clusters recorded sequential contractions in Q1 after growing in Q4, while the domestic-oriented and travel-related clusters expanded in Q1, reversing the declines in the previous quarter (**Chart 2.2**). Two opposing, and likely transitory, impulses were at play. On one hand, there was some correction in the manufacturing sector following an electronics-led surge at the end of 2023. On the other hand, Singapore benefited from an unprecedented concert bonanza, which provided a boost to the tourism-related industries (i.e., the travel-related cluster as well as the consumer-facing segments within the domestic-oriented cluster).

There was a pullback in manufacturing activity in Q1, weighed down by the electronics and biomedical clusters

The manufacturing sector contracted in Q1 2024 based on the *Advance Estimates*, reversing the 4.5% expansion in the previous quarter. On a y-o-y basis, the Index of Industrial Production (IIP) expanded by 2.1% in Jan–Feb, driven by the transport engineering and chemicals clusters (**Chart 2.3**). However, the biomedical and electronics clusters posted weak growth. Output in the biomedical cluster was weighed down by a decline in pharmaceutical production, on account of a different mix of active ingredients being produced. Meanwhile, electronics output contracted in Jan–Feb in both y-o-y terms as well as relative to Q4, due to a pullback in semiconductor production. The correction in the first two months of the year likely reflected some short-term fluctuations in output, as the underlying improvement in the global tech cycle remains broadly intact.

Chart 2.3 Slowing activity in the electronics and biomedical clusters weighed on the manufacturing sector

Index of industrial production

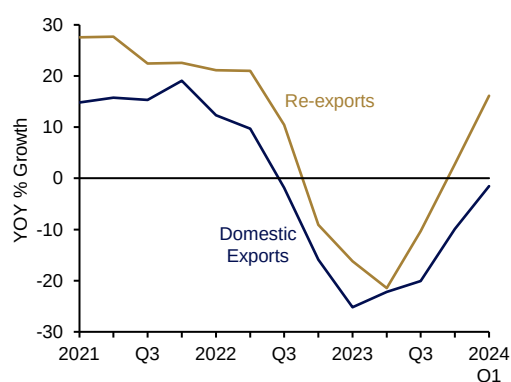


Source: EDB

Relatedly, nominal domestic exports of electronics contracted at a slower pace of 1.5% y-o-y in Q1 this year, compared to the double-digit fall recorded in 2023 (**Chart 2.4**). Apart from production, Singapore is also an important node facilitating semiconductor trade flows. Nominal re-exports of electronics rose by 16.1% y-o-y in Q1, extending the 2.8% increase in Q4 last year, driven by strong demand for integrated circuits (**Chart 2.5**).

Chart 2.4 Domestic electronics exports contracted at a slower pace in Q1

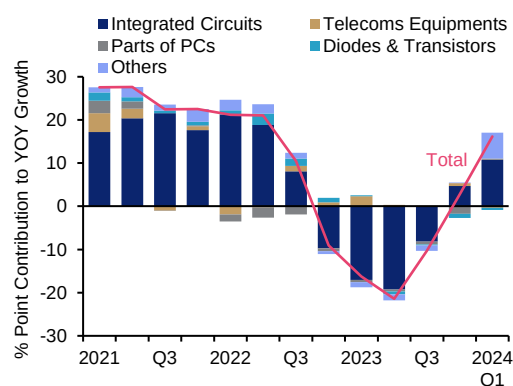
Electronics domestic exports and re-exports



Source: ESG

Chart 2.5 Re-exports of electronics, particularly integrated circuits, saw firm growth

Re-exports of electronic products



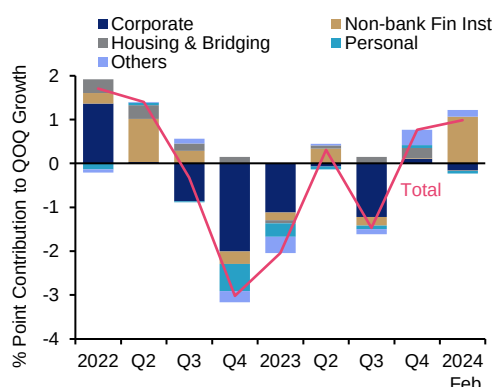
Source: ESG

Activity in the modern services cluster was primarily dampened by the finance and insurance sector

The modern services cluster contracted by 4.2% q-o-q SA in Q1 2024, partly reversing the 4.4% expansion in the previous quarter, with weaker performances across finance & insurance, professional services and information & communications. On a y-o-y basis, growth was positive across all three sectors, but there was some moderation for financial services. The slowdown stemmed from the insurance segment; specifically general insurers reported a decline in net premiums compared to the strong gain in Q4. Payments processing activity also fell as households brought forward spending to the last quarter of 2023 before the GST rate hike. In comparison, the banking segment grew strongly from a surge in net commissions and fee incomes, as transaction volumes across most asset classes picked up at the start of the year. There was also some improvement in credit intermediation activity even as interest rates remained elevated. Overall loans to residents expanded by 1.0% in February relative to end-Q4, picking up from the 0.8% growth in Q3. Loans to non-residents, however, were weak and fell sequentially by 0.6% in February, extending the decline in the previous two quarters, dragged down by contractions in lending to the Americas and East Asia regions (**Charts 2.6 and 2.7**).

Chart 2.6 Loans to residents picked up, underpinned by lending to NBFIs

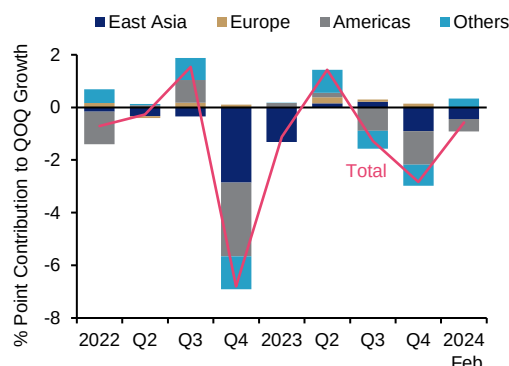
Loans to residents



Source: MAS

Chart 2.7 Loans to non-residents were weighed down by the Americas region

Loans to non-residents



Source: MAS

Large-scale concerts helped bolster the tourism-related industries

While the economy was weighed down by the manufacturing and financial sectors in Q1, it benefited from a surge in tourism activity associated with concerts held by internationally renowned artists Coldplay (in January) and Taylor Swift (in March). These concerts took place over twelve days in total, with more than half the audience likely coming from abroad. Indeed, international visitor arrivals rose by 26% in Q1 this year compared to the previous quarter, and were up a significant 50% compared to the same period last year.

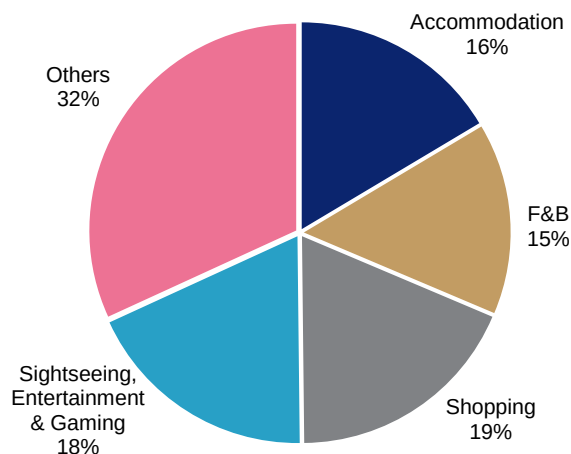
Private sector analysts have estimated the tourism receipts generated by the recent large-scale concerts in Singapore to range between \$350–450 million, depending on the assumptions made, such as the proportion of foreign visitors among the concertgoers and the length of stay in Singapore. This represents a 6% injection above the average quarterly tourism receipts recorded in Q1–Q3 last year, and would have provided a fillip to the travel-related and domestic-oriented industries such as air transport, accommodation, arts, entertainment & recreation, retail and F&B. Based on the 2023 tourism receipts data, accommodation, sightseeing, entertainment & gaming, F&B and shopping each accounted for about 15–20% of total receipts (**Chart 2.8**).

Higher-frequency data showed that these large-scale concerts led to some pickup in activity in the travel-related and consumer-facing industries. Hotel occupancies rose to 80% in Jan–Feb this year, compared to 77% in the previous quarter (**Chart 2.9**). In March, Singapore hotels and airlines reportedly saw a 30% spike in regional demand around the dates of Swift's concerts.¹ Retail and F&B sales also increased by 2.1% and 1.1%, respectively in Jan–Feb relative to Q4, and are expected to have risen further in March, a turnaround from the contractions recorded in the previous quarter (**Chart 2.10**).

¹ "Taylor Swift effect: Singapore hotels, airlines see up to 30% spike in regional demand for 6 sell-out shows", *CNA*, 23 Feb 2024.

Chart 2.8 Accommodation, sightseeing, entertainment & gaming, F&B and shopping each accounted for about 15–20% of total tourism receipts

Tourism receipts by major components (Jan–Sep 2023)

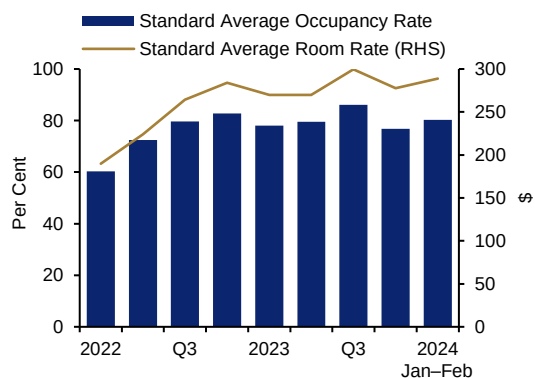


Source: STB

Note: "Others" include expenditure on air fares on Singapore-based carriers, port taxes, local transportation, business, medical and education.

Chart 2.9 Hotel occupancy and room rates rose amid higher visitor arrivals

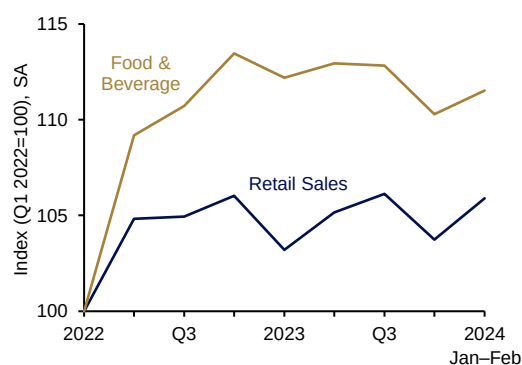
Hotel occupancy and room rate



Source: STB

Chart 2.10 Retail and F&B sales picked up in Q1

Retail and F&B sales



Source: DOS

2.2 DOMESTIC OUTLOOK

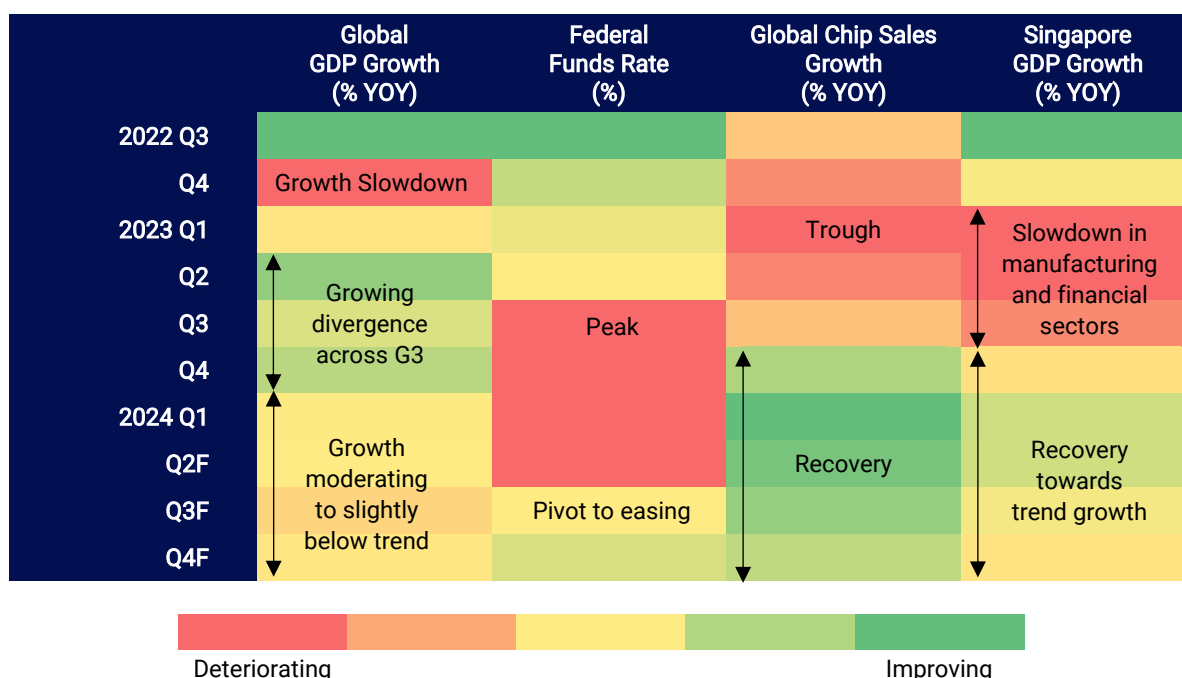
Singapore's economic growth should continue apace for the rest of 2024, against generally supportive global demand

In the coming quarters, the dual factors acting on the Singapore economy in Q1 are likely to dissipate. Electronics production should be supported by the continued upturn in the global tech cycle, while tourism-related activity normalises after the concert-induced windfall. For the rest of the year, the Singapore economy will likely be driven by a broad alignment of the global macroeconomic, tech and interest rate cycles (**Chart 2.11**). The global economy has continued to display a higher-than-expected resilience and appears to be headed for a "soft landing". In the absence of a discernible pullback in economic activity among its major trading partners, Singapore's short-term prospects will be underpinned by the upturn in the global tech cycle, which is expected to be supported by both cyclical and structural demand. To a lesser extent, the expected start of the reversal of global monetary policy tightening will also provide a fillip to the domestic economy.

Overall, Singapore's GDP growth is projected to come in at 1–3% in 2024, following the 1.1% growth last year, with the main clusters of the economy converging towards their pre-pandemic growth rates. Growth in the trade-related and modern services clusters are expected to improve from last year, while that in the travel-related and domestic-oriented clusters will continue to moderate but stay above trend.

Chart 2.11 Singapore's GDP growth in 2024 would be supported by benign global macroeconomic conditions, and improvements in the tech and interest rate cycles

Macro cycle heatmap and Singapore's GDP growth



Source: EPG, MAS estimates

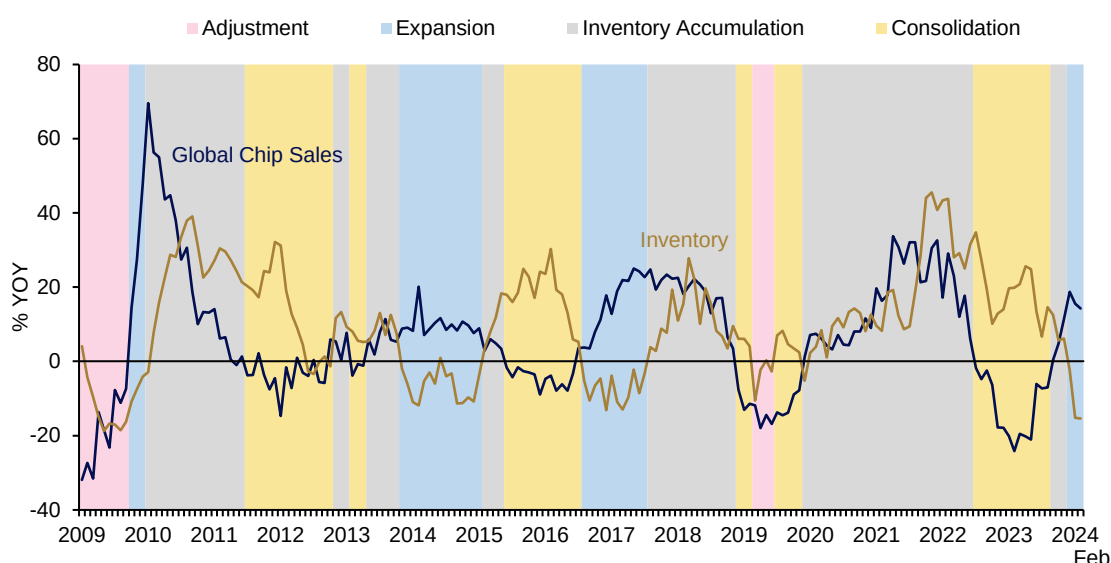
Note: Each coloured cell in the heatmap corresponds to the indicated macroeconomic outcome in the quarter. The colour scale depicts the relative ranking of outcomes over the period Q3 2022 to Q4 2024. For Q1 2024, Singapore's GDP growth is based on *Advance Estimates*, while that of global GDP growth and global chip sales are forecasts by EPG, MAS.

The global electronics and tech cycle upturn should lend support to the trade-related cluster

Singapore's trade-related sectors should continue to benefit from the improved global trade outlook this year. The WTO forecasts global merchandise trade to expand by 3.3% in 2024, up from 0.8% in 2023. In tandem, ESG expects Singapore's nominal non-oil domestic exports to increase by 4.0–6.0% in 2024, a turnaround from the 13.1% contraction last year. The recovery in global goods trade this year will be buttressed by the cyclical upturn in the global tech sector. Global chip sales (GCS) rose by 14.9% y-o-y in Jan–Feb, extending the 11.6% expansion in Q4 2023 (**Chart 2.12**), and marking the sixth consecutive month of y-o-y gains. Firms in the memory and fabless segments saw higher revenues in Q4, supported by a nascent pickup in the PC and smartphone end markets, alongside sustained strength in AI-related demand (**Chart 2.13**). The industry is now on the cusp of an "expansion" phase (**Chart 2.12**), characterised by positive chip sales growth and a fall in chip inventory. In particular, the inventory glut which plagued the industry from H2 2022 to H1 2023 has generally eased, with sporadic chip shortages seen in some end markets facing stronger demand (e.g., AI and automotive). Since the latter half of 2023, memory chip prices have picked up alongside gradual inventory restocking (**Chart 2.14**).

Chart 2.12 The global semiconductor industry is now on the cusp of an "expansion" phase, characterised by positive chip sales growth and a fall in chip inventory

Global chip sales and inventory growth

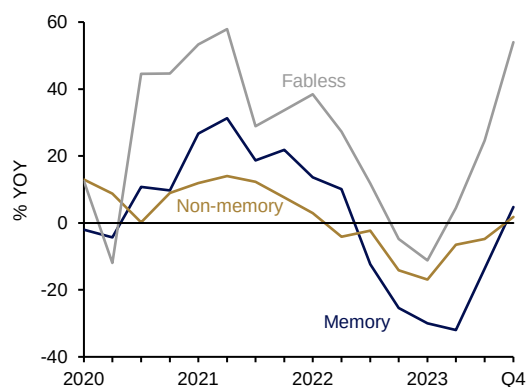


Source: World Semiconductor Trade Statistics (WSTS) and Haver Analytics

Note: The global electronics cycle comprises four phases: (i) expansion (+ve GCS growth, -ve chip inventory growth), (ii) inventory accumulation (+ve GCS growth, +ve chip inventory growth), (iii) consolidation (-ve GCS growth, +ve chip inventory growth), (iv) adjustment (-ve GCS growth, -ve chip inventory growth). Global inventory is proxied by the average levels of chip inventory in the US, South Korea and Taiwan, weighted by their export shares in 2022.

Chart 2.13 Revenues of chipmakers have picked up...

Revenue growth of major global chipmakers

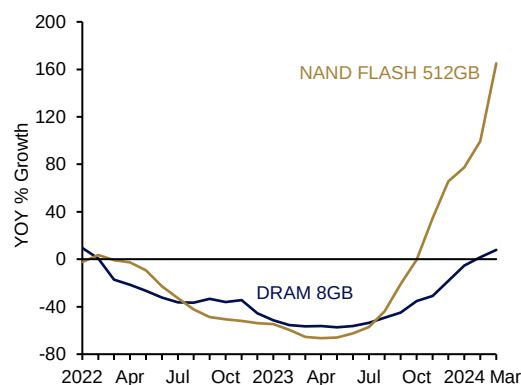


Source: Bloomberg and EPG, MAS estimates

Note: Revenues are in US\$. The sample of firms is based on the top global listed semiconductor firms covered by Bloomberg. To avoid potential double counting of final sales, contract manufacturers such as foundries and outsourced assembly & testing companies (OSATs) are excluded.

Chart 2.14 ...amid the recovery in memory chip prices since H2 2023

Global memory chip prices



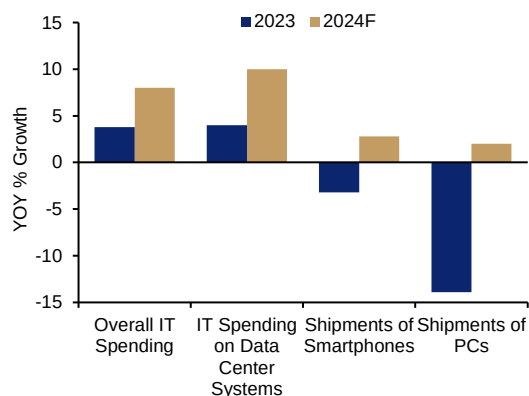
Source: Bloomberg

In the coming quarters, the industry's recovery will be supported by both cyclical and structural factors. The cyclical upturn is projected to continue, with industry association World Semiconductor Trade Statistics (WSTS) forecasting 44.8% growth for memory and 6.5% growth for non-memory chip sales this year. Market intelligence firms are expecting resilient corporate spending on data centre systems and a modest rise in unit shipments of smartphones and PCs in 2024, buoyed by new tech refresh cycles of consumers and enterprises (**Chart 2.15**). These demand drivers are likely to spur the rebuilding of chip inventory by original equipment manufacturers (OEMs), thereby supporting global chip demand.

Additionally, structural demand from generative AI (GenAI)-related applications is expected to broaden from AI servers to consumer end devices, with Gartner projecting 22% of global PC and smartphone shipments to be equipped with AI capabilities this year, up from 10% and 1%, respectively in 2023 (**Chart 2.16**). Growing demand for graphic processing units (GPUs) that are used in GenAI applications will not only support fabless chip designers and their foundry partners, but will also benefit the memory chip segment, as the high-bandwidth memory (HBM) content per GPU increases. In comparison, automotive and industrial chipmakers, which saw resilient demand last year, could see more subdued growth in 2024. The automotive industry is facing some market saturation this year, as end demand for electric vehicles is likely to taper after a strong surge in 2023. All in, research houses generally expect double-digit growth for global chip sales in 2024, barring renewed shocks to the global economy or from geopolitical tensions.

Chart 2.15 The cyclical upturn in corporate IT spending, shipments of smartphones and PCs...

Worldwide IT spending and shipments forecast

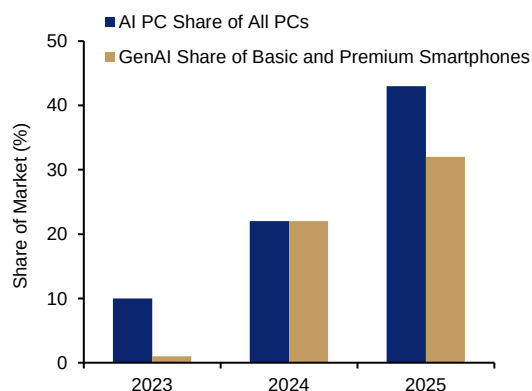


Source: Gartner, International Data Corporation (IDC)

Note: Data on IT spending and shipments are from Gartner and IDC, respectively.

Chart 2.16 ...and the structural broadening of AI applications to consumer end devices should support global chip demand

AI penetration in PCs and smartphones

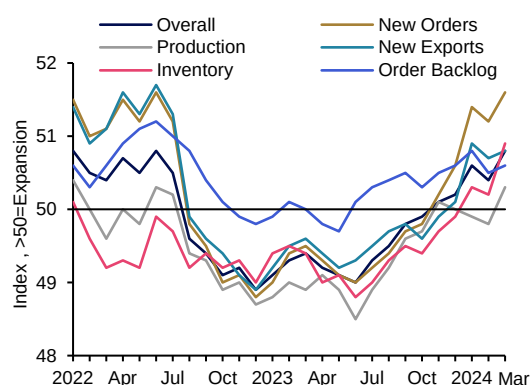


Source: Gartner

On the domestic front, sentiment has been improving among electronics firms. The overall electronics PMI expanded (i.e., above 50) for the fifth consecutive month in March, led by the new orders and new exports sub-indices (**Chart 2.17**). Meanwhile, EDB's business expectations survey showed that electronics firms are the most optimistic among all manufacturing clusters, with a net weighted balance of 16% of firms projecting improved business prospects for the period Jan–Jun 2024, compared to the fourth quarter of 2023 (**Chart 2.18**). The outlook for the upstream precision engineering cluster has also turned positive. Some firms expect their customers in the semiconductor industry to gradually increase capital expenditure this year, with industry association SEMI anticipating fab utilisation rates to trend upwards.

Chart 2.17 The electronics PMI has expanded for the fifth consecutive month...

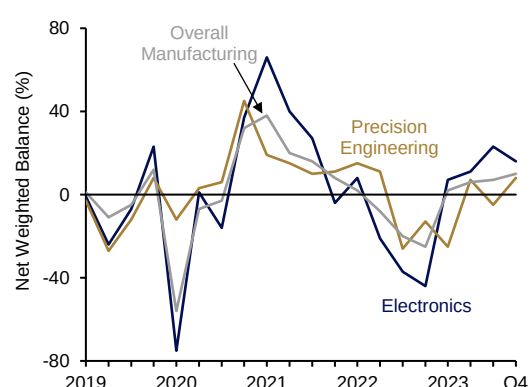
Electronics PMI for Singapore



Source: SIPMM

Chart 2.18 ...with improving sentiment in the electronics and precision engineering clusters

General business outlook for next six months



Source: EDB

Note: Net weighted balance refers to the difference in the weighted percentages of positive and negative responses. It is commonly used to reflect the direction and extent of business sentiments.

As global interest rates ease gradually, the financial sector should continue its recovery

Major central banks are expected to begin cutting interest rates in H2 2024, although the exact timing and pace of rate cuts remain uncertain. Based on the Federal Reserve's current median projections as of March 2024, the Federal funds rate should moderate to 4.6% by end-2024 from 5.3% in end-2023. Similarly, the S\$ Singapore Overnight Rate Average (SORA) is likely to average around 3.3% in 2024, down from 3.7% in end-2023 (**Chart 2.19**).²

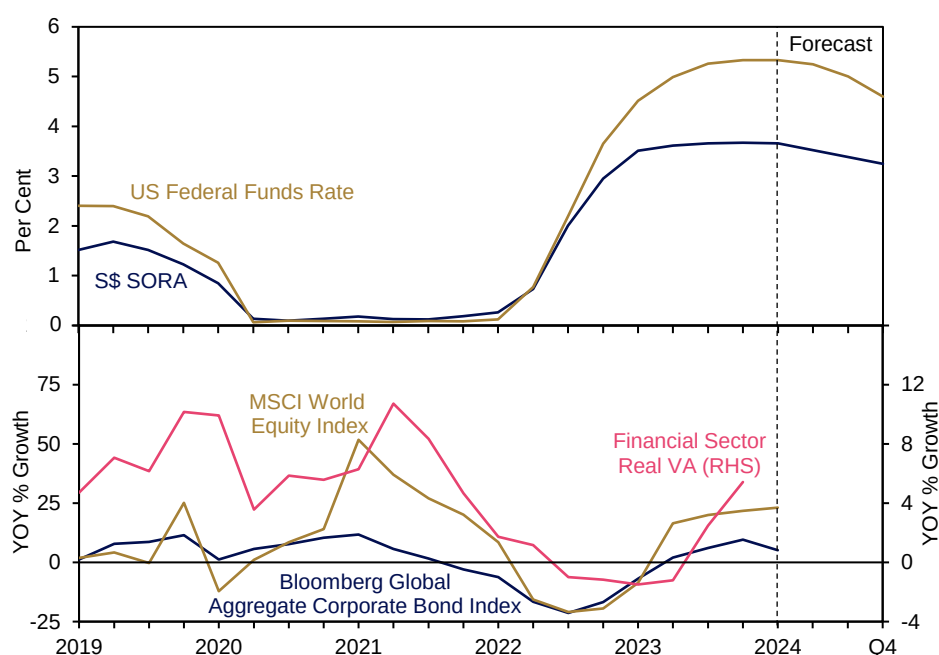
Easing financial conditions should lead to some shift in investor portfolios, with a rotation from "value-centric" investment strategies to a "growth-focused" approach. During this growth-focused phase, investment portfolios are typically rebalanced towards stocks and bonds as opposed to less risky cash-equivalent assets. Indeed, the MSCI World Equity Index and the Bloomberg Global Aggregate Corporate Bond Index have continued to post firm growth in the first quarter of the year, reflecting the improved sentiment and economic outlook.

As positive sentiment is expected to be broadly sustained in 2024, the bank and insurance segments should benefit from higher net commissions and fees. Banks' net incomes are set to gain from greater retail franchising of their card and wealth businesses, thus expanding their consumer base. Meanwhile, fund managers should continue to see AUMs grow strongly, as Singapore intermediates international capital flows through Asia, as a regional wealth management hub. The payments segment will also grow apace in tandem with the broader pickup in tourist and discretionary spending.

² The SORA forecast for 2024 is based on the median projections of private sector analysts from MAS' Survey of Professional Forecasters in March 2024.

Chart 2.19 The rebalancing of investment portfolios should spur growth in the financial sector

Interest rates, global equity and global corporate bond indices, and financial sector VA



Source: FRED, MAS, Bloomberg and DOS

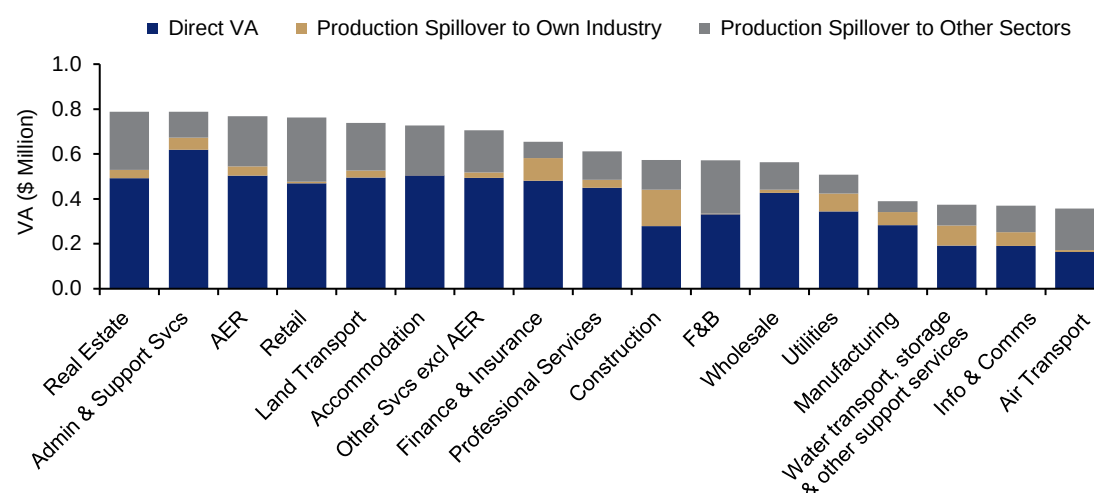
The tourism-related industries will continue to benefit from the removal of travel restrictions in China and upcoming lifestyle events

The high-revenue generating concerts seen in Q1 are unlikely to recur given the rare scale of the Taylor Swift and Coldplay concerts. Nevertheless, the calendar for the remainder of the year still promises a strong lineup of concerts and other lifestyle events that will contribute to firm growth in inbound tourism. This will continue to have positive spillovers to the consumer-facing sectors such as retail and F&B, which will help mitigate the impact of residents' diversion of spending overseas. Based on the Input-Output Tables, the VA multipliers of the tourism-related industries, such as arts, entertainment & recreation and accommodation, are higher than the multipliers for the trade-related and modern services sectors, as they are predominantly domestic-facing, and have stronger linkages with other sectors within the economy (**Chart 2.20**).

In addition, the return of Chinese travellers, who constituted about 20% of visitor arrivals to Singapore before the pandemic, will lend support to the tourism-related industries. While travel demand from China will be dampened by subdued consumer sentiment in the country, the implementation of a bilateral visa-free travel agreement between Singapore and China since early February this year is expected to provide some uplift. In Q1 2024, Chinese visitor arrivals rebounded, reaching 87% of pre-pandemic levels from 39% in Q4 last year (**Chart 2.21**). The recovery of tourists visiting Singapore from China has surpassed that from the US and the regional economies (**Chart 2.22**).

Chart 2.20 The tourism-related industries have significant VA spillovers to the economy

VA spillovers per \$1 million of final demand by industry, 2021

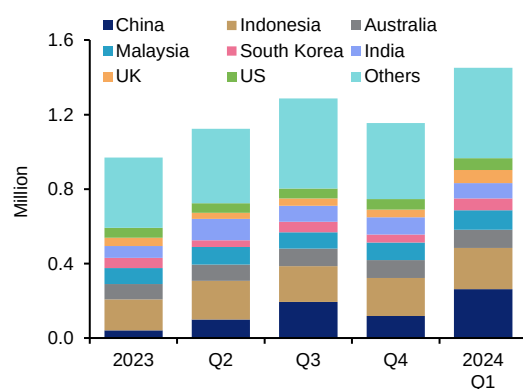


Source: Singapore Input-Output Tables 2021 and EPG, MAS estimates

Note: The VA multipliers are estimated using DOS' 2021 Input-Output Tables. Direct VA refers to the VA generated from producing the output to meet the initial \$1 million of final demand.

Chart 2.21 Singapore's visitor arrivals from China rebounded in Q1...

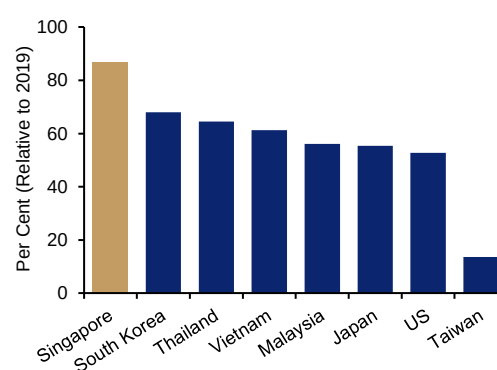
Singapore's average monthly visitor arrivals by economy



Source: STB

Chart 2.22 ...with the recovery surpassing that from the regional economies

Monthly visitor arrivals from China by economy



Source: STB and Haver Analytics

Note: Chinese arrivals to Singapore, Vietnam, Japan, and the US are as at Q1 2024. South Korea and Thailand's arrivals are the average of January and February. Taiwan and Malaysia's arrivals are as at Jan 2024 and Q4 2023, respectively.

2.3 Transiting to Singapore's Long-term Growth Path

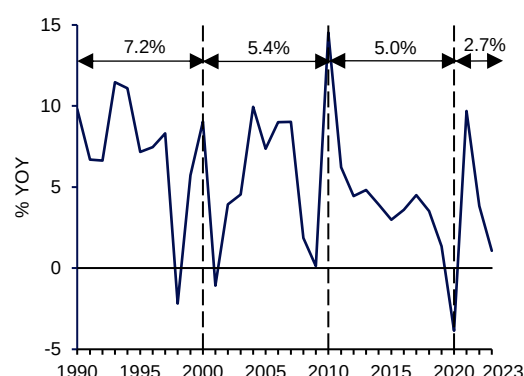
As resource constraints and cost increases become more binding in the years to come, Singapore will likely have to confront the eventuality of its slower long-run growth path. This section focuses on how the Singapore economy can adapt to this transition, including the challenges of rising costs.

Singapore has overcome factor constraints to grow strongly over the years

Singapore's economic journey has been characterised by stellar growth and development over the past few decades, notwithstanding the constraints on labour and natural resources. **(Chart 2.23)**. Over the period from 1990 to 2023, GDP growth averaged 5.5%, which was in the top 10% of the global growth distribution. This is despite the economy contending with multiple shocks, such as the Asian Financial Crisis in 1998, Global IT Downturn in 2001, Global Financial Crisis in 2009 and the more recent COVID-19 pandemic. Singapore's real GDP per capita performed similarly well, rising steadily and significantly exceeding that of many developed countries **(Chart 2.24)**.

Chart 2.23 Singapore's GDP growth has held up despite factor constraints,...

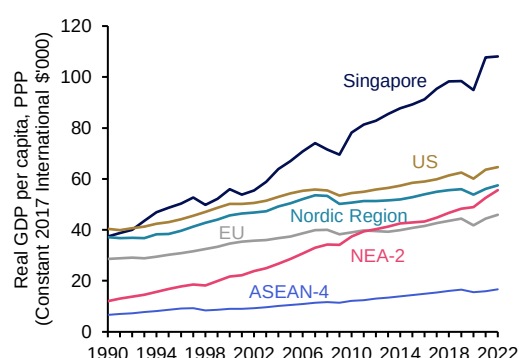
GDP growth



Source: DOS

Chart 2.24 ...surpassing many developed countries on a per capita basis

Real GDP per capita



Source: World Bank and EPG, MAS estimates

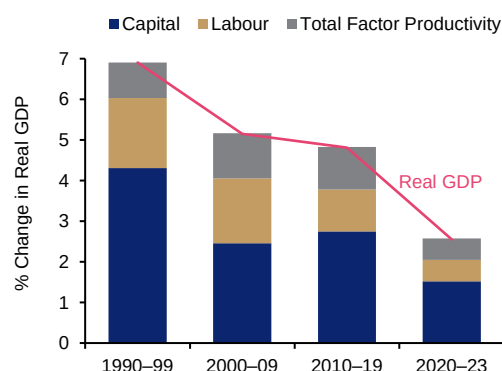
Note: ASEAN-4 comprises Indonesia, Malaysia, Philippines and Thailand, while the Nordic Region consists of Denmark, Finland, Iceland, Norway and Sweden.

Singapore has managed to achieve an exceptional pace of growth through a combination of strong capital accumulation and to a lesser extent, total factor productivity (TFP) gains **(Chart 2.25 and 2.26)**. On the former, there has been a shift in the profile of Singapore's capital stock towards information and communications technology (ICT) capital assets since 2010. Notably, ICT capital contributed almost 50% to Singapore's real GDP growth in 2020–23, double the global average and broadly comparable to other advanced economies like the US **(Chart 2.27)**. The accumulation of ICT capital was most evident in the modern services cluster, accounting for 41% of its VA in 2022 **(Chart 2.28)**. While the contribution of ICT capital was relatively lower in the trade-related cluster at 11%, its growth rate was the fastest among the three broad clusters.

At the same time, a steady improvement in labour quality has supported Singapore's TFP growth. The share of the resident labour force with a degree or diploma increased steadily from 46% in 2010 to 63% in 2023, while the proportion of PMET workers also rose by 10% points to 63% over the same period (**Chart 2.29**). This enabled labour quality to contribute almost a quarter to Singapore's real GDP growth in 2020–23, double that of the global average (**Chart 2.30**).

Chart 2.25 Singapore's firm pace of GDP growth over the past decade...

GDP growth decomposition

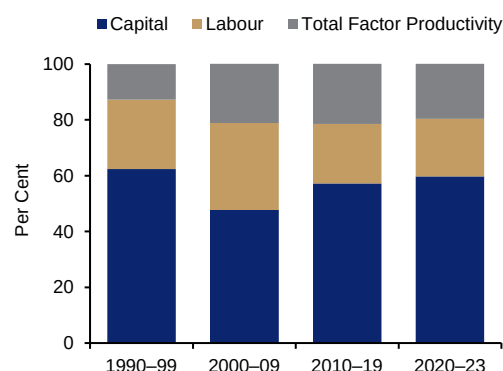


Source: DOS

Note: Growth rates are expressed in log terms.

Chart 2.26 ...stemmed from strong capital accumulation and TFP gains

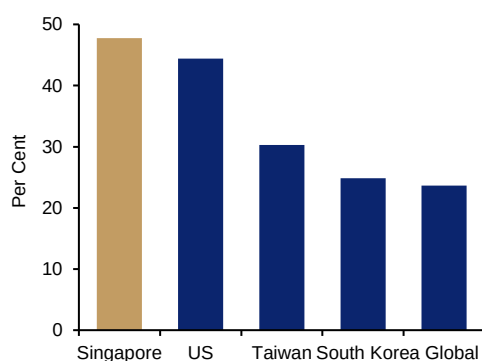
Share contribution to GDP growth



Source: DOS

Chart 2.27 The contribution of ICT capital to real GDP growth was double the global average...

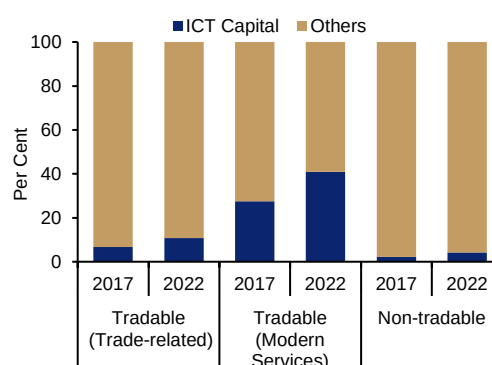
Share of real GDP growth contributed by ICT capital (2020–23 average)



Source: The Conference Board

Chart 2.28 ...with the modern services and trade-related clusters leading the way

Share of VA contributed by ICT capital by sector

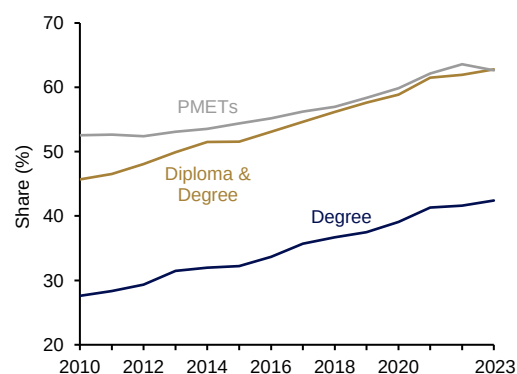


Source: IMDA-LKYSPP Singapore Digital Economy Report 2023 and EPG, MAS estimates

Note: "Others" refer to non-ICT capital (e.g., buildings, transport, machinery & equipment, R&D), labour and TFP.

Chart 2.29 The improvement in labour quality has also supported Singapore's growth...

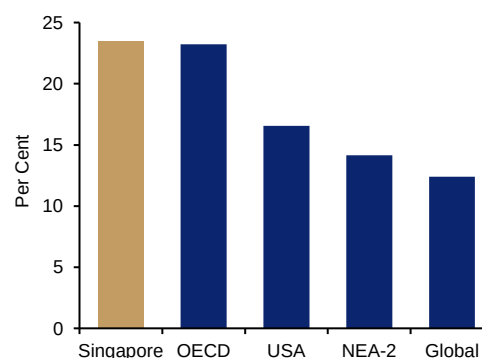
Quality of resident labour force



Source: MRSD, MOM

Chart 2.30 ...with its contribution almost twice the global average

Share of real GDP growth contributed by labour quality (2020–23 average)



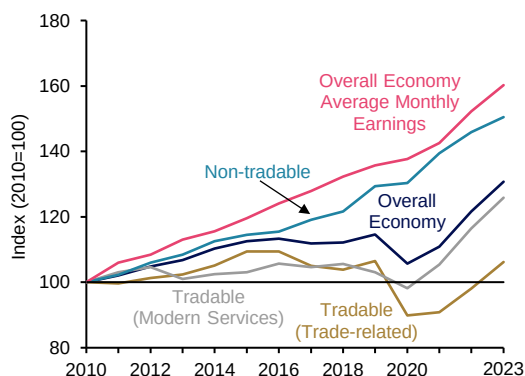
Source: The Conference Board

The firm pace of GDP growth in Singapore has so far taken place alongside a measured increase in business costs. Since 2010, overall average monthly earnings have risen by close to 60% (**Chart 2.31**). However, the improvement in labour productivity has partially mitigated the rise in wage costs, with unit labour cost (ULC) growing at half the pace at 30%. This was especially the case in the trade-related and modern services sectors, which saw more moderate ULC increases compared to the non-tradable sector. Meanwhile, the unit business cost (UBC) for the overall economy, was estimated to have risen by a larger 65% over the past decade (**Chart 2.32**). The modern services and trade-related clusters recorded stronger increases of 55% and 75% in UBC respectively, compared to 25% in the non-tradable sector.

It is likely that these cost increases were not directly associated with domestic factor constraints but reflected, in part, the rise in international prices. For instance, freight and transport charges drove the increase in costs in the trade-related sector. During the COVID-19 pandemic, supply chain disruptions significantly impacted the shipping industry, with lockdowns, container shortages and port congestions adding to freight costs.

Chart 2.31 ULC has risen at half the pace of wage costs, due to improvements in labour productivity...

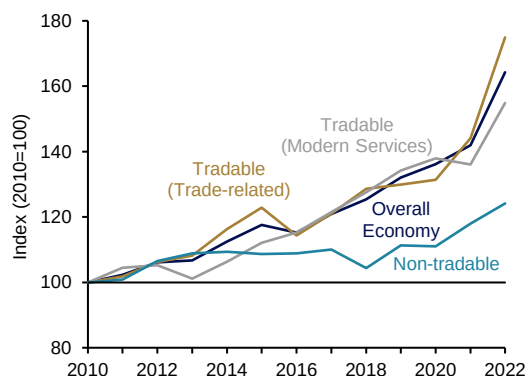
Average monthly earnings for overall economy and ULC



Source: DOS and EPG, MAS estimates

Chart 2.32 ...while UBC has grown by a larger extent, driven mostly by non-domestic factor constraints

Unit business cost



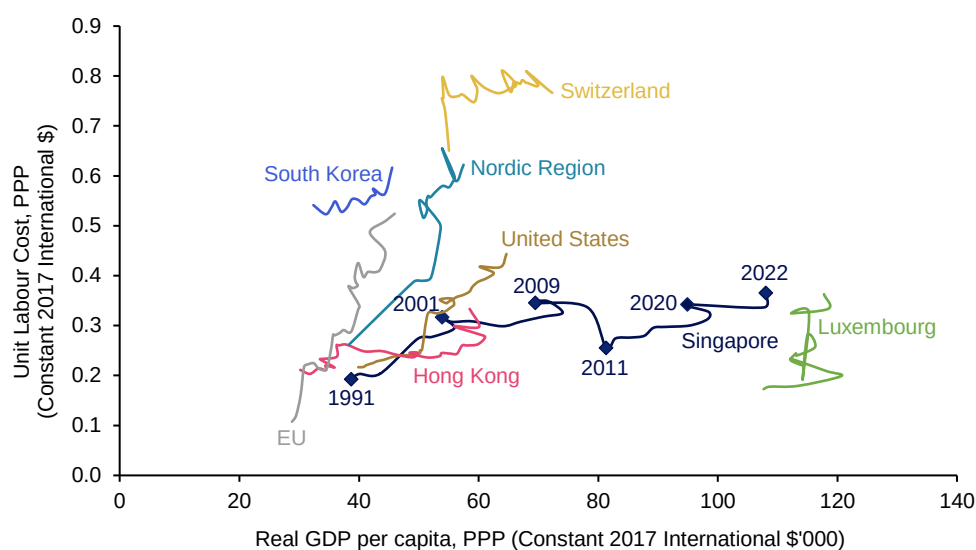
Source: DOS and EPG, MAS estimates

It is becoming increasingly challenging for Singapore to continue on a benign growth-cost path as international and domestic cost pressures mount

Overall, Singapore has generally managed to sustain growth in real GDP per capita over the years, without a commensurate increase in ULC. This is shown by the largely horizontal movement of its ULC in **Chart 2.33**, in comparison to the rising paths of ULC experienced by the advanced economies such as Europe and the US. However, sustaining this relatively benign growth-cost path will become more challenging going forward.

Chart 2.33 Compared to many other advanced economies, Singapore has broadly managed to sustain economic growth without a large increase in ULC

ULC and GDP per capita



Source: World Bank, International Labour Organisation (ILO), Haver Analytics, and EPG, MAS estimates

Note: ULC is computed by dividing average monthly earnings by output per worker, based mainly on data from ILO.

The global economy is likely to face several cost headwinds in the coming years, as growth becomes increasingly supply-constrained alongside population ageing, declining labour supply and changes in working preferences as economies move up the income ladder. Accordingly, import prices could rise as Singapore's trading partners grapple with these supply issues. There are also costs associated with geoeconomic fragmentation, as firms navigate disruptions to their supply chains by diversifying and establishing new and more costly input sources. Meanwhile, climate change action also entails large public and private sector investments to facilitate the energy transition, which will eventually translate to higher input prices. On the domestic front, labour costs and ULC growth are expected to trend up in the coming years, especially for lower-productivity sectors where labour constraints are the tightest.

It is crucial that Singapore maintains a positive cycle where high wages correspond to high productivity levels

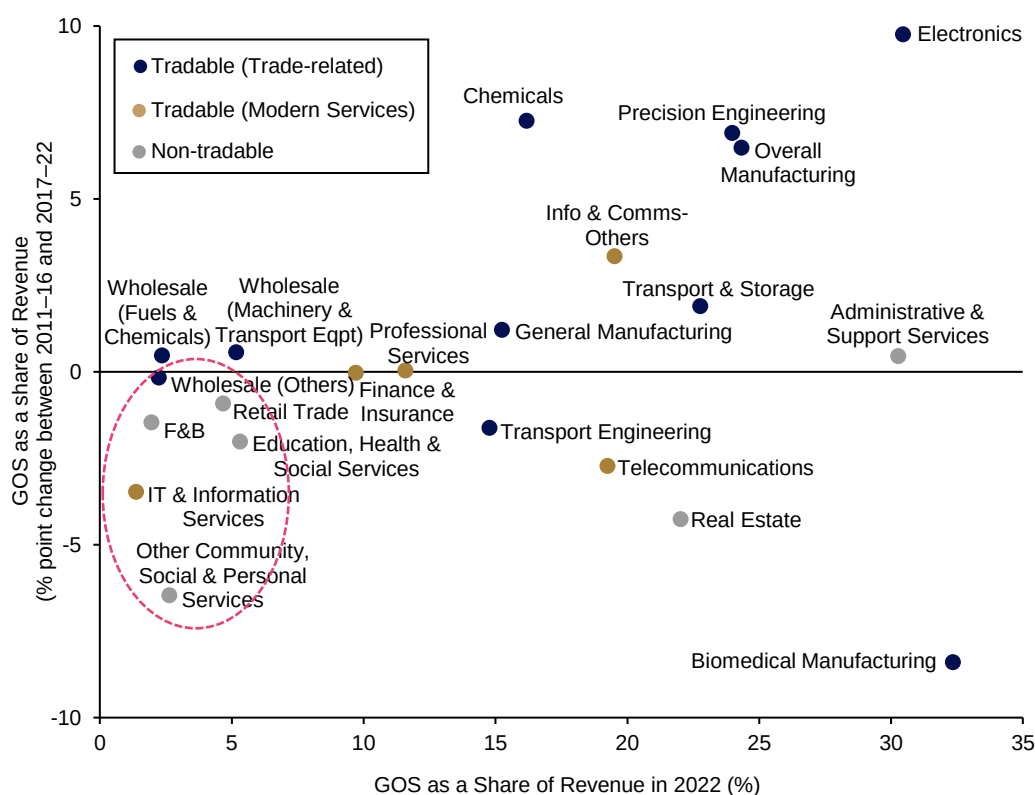
Countries with high productivity in the tradable sector tend to have high wages and prices in the non-tradable sector compared to countries with lower productivity. However, this phenomenon (termed the "Samuelson-Balassa hypothesis") has been somewhat more muted in Singapore, with wages and prices in the non-tradable sector remaining significantly lower than those in the tradable sector thus far, reflecting in part the fairly elastic foreign worker supply in the 2000s. Going forward, as labour constraints become more binding, wages and prices would likely have to rise more quickly relative to other countries, to more accurately reflect the true resource costs of producing essential non-tradable goods and services, against growing demand.

Singapore's tradable sector as a whole should be able to cope with rising costs, provided firms continue to move towards the higher value-added parts of the global value chain. Over the last decade, Singapore's share in the world's total goods exports has remained stable at around 2%. Meanwhile, Singapore's share in global services exports grew from 2.5% to 4.1%, which was mainly driven by the water transport and finance & insurance sectors. With more binding resource constraints, firms in the tradable sectors will have to optimise their factor inputs with technology solutions to a greater extent than before. There could be some shifts in the composition of the tradable sectors, towards industries that can command a premium in global markets. For instance, FDI has been channelled into expanding the ICT and semiconductor industries in recent years, leveraging on Singapore's ability to adapt to fast-moving technology trends. These industries exhibited one of the highest annualised FDI growth rates between 2010 to 2022 of about 15%, compared to 12% for the overall economy.

In comparison, some firms in the non-tradable sector may be less able to pass on higher costs to consumers. **Chart 2.34** illustrates gross operating surplus (GOS) as a share of revenue by industry in 2022, and how it has evolved over the last ten years. Firms in sectors in the bottom left of the chart, characterised by the lowest GOS as a share of revenue, and experiencing the most significant decline over the past decade, are at greater risk of consolidation as companies face rising costs. These include the domestic-oriented sectors such as retail and F&B. However, these sectors need not necessarily shrink in importance. Rather, the non-tradable corporate landscape could see compositional shifts, where businesses prioritise offering higher quality, differentiated goods and services, aligning with the evolving, more sophisticated consumption patterns emerging in the domestic market, alongside the general rise in wages.

Chart 2.34 Firms in sectors, whose GOS as a share of revenue was the lowest and fell the most over the past ten years, face greater risks of consolidation

Gross operating surplus as a share of revenue



Source: DOS, EDB and EPG, MAS estimates

Note: Revenue of the services sectors is proxied using operating revenue, while that of the manufacturing clusters is proxied by total output.

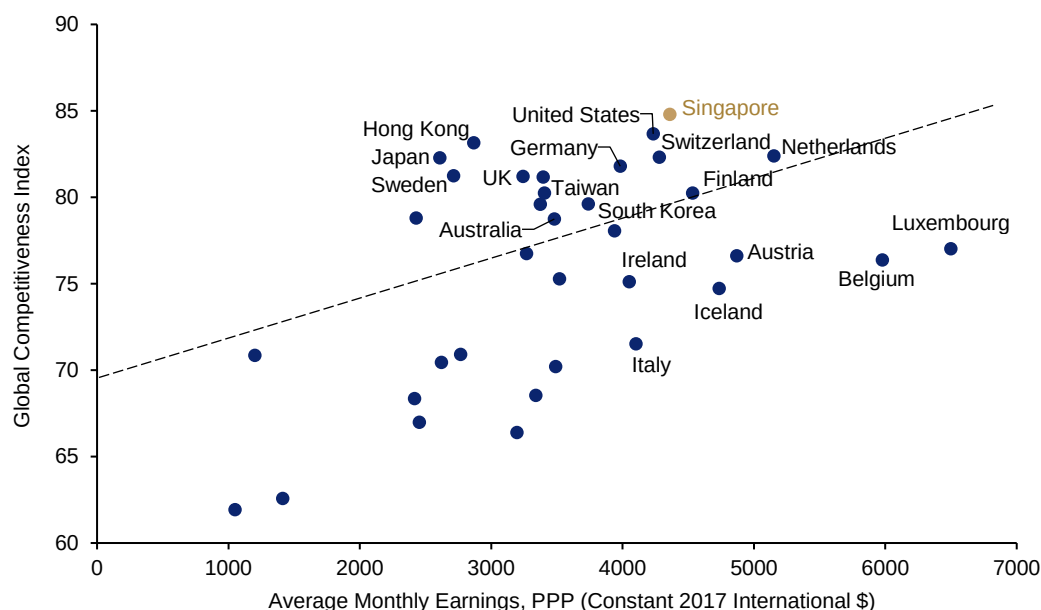
Singapore will have to confront the eventuality of long-term growth driven by TFP gains

Higher business costs do not necessarily preclude a country from being competitive. Higher wages that are typically a result of productivity growth enabled by technological progress, can place the economy in a virtuous circle.³ This phenomenon is borne out in **Chart 2.35**, where it can be seen that countries with higher wages also tend to be highly competitive and excel in several domains from business dynamism to innovation and capability. In a sense, higher costs accompanied by higher productivity and incomes can strengthen broader economic competitiveness, economic depth and societal welfare.

³ See for example, De Grauwe, P (2017), *The Limits of the Market: The Pendulum between Government and Market*, Oxford University Press.

Chart 2.35 Countries with high wages are correlated with high levels of competitiveness

Wages and competitiveness, 2019



Source: World Economic Forum, International Labour Organisation, Haver Analytics, and EPG, MAS estimates

Note: Data on global competitiveness are from the latest available *The Global Competitiveness Index 4.0 2019 Dataset*, published by the World Economic Forum.

As predicted by the Solow growth model, when capital accumulation plateaus, population growth slows, and resource constraints become increasingly binding in the long run, technological improvements will play a larger role in shaping economic progress. In other words, Singapore's steady state growth rate will be largely dependent on its TFP growth.

In sum, rising costs is an adjunct to rising income levels. At this advanced stage of development, Singapore should look beyond simply being cost competitive, but instead cultivate and sustain openness, dynamism and innovation, as necessarily supporting factors for continued TFP gains over the longer term.