Ravi Menon: An economic history of Singapore – 1965–2065

Keynote address by Mr Ravi Menon, Managing Director of the Monetary Authority of Singapore, at the Singapore Economic Review Conference 2015, Singapore, 5 August 2015.

* * *

It is always wise to look ahead but difficult to look further than you can see" – Winston Churchill. Everything about the future said here is pure imagination. It does not represent in any way a forecast or projection by MAS or by me. My intention is merely to paint a plausible scenario for Singapore. I can only be sure that someone reading this in 2065 will view it as totally lacking in imagination or realism or both.

Professor Euston Quah, ladies and gentlemen, good morning.

This year, Singapore celebrates 100 years as an independent nation. The Global-Asian Economic Review, or GAER, is relatively young, at 25 years old. But the GAER comes from a long tradition that goes back to the very beginnings of Singapore.

- It began life as the Malayan Economic Review in 1956, was renamed the Singapore Economic Review in 1969, and took new birth as the Global-Asian Economic Review in 2040.
- As the leading journal on economic issues that lie at the intersection of the world and Asia, the GAER's evolution has mirrored that of Singapore itself – starting life as part of Malaya, becoming independent, and then expanding its vision to become a Global-Asian entity limited neither by geography nor history.

We are a young nation by the standards of other countries but a hundred years is not a flash in the pan either. Amidst the centennial celebrations, it is worthwhile recalling the journey that Singapore has made as a nation since its humble beginnings in 1965. As this is a gathering of economists, I will do so in the form of a brief economic history of Singapore over the last century.

Our economic progress in a nutshell

Let me begin by reviewing the economic progress we have made as a nation in the last 100 years, from three perspectives, namely the level, generation, and distribution of income.

First, the level of income. I will use Gross Domestic Product rather than Gross National Income since the GNI measure that we use today is not available for the earlier years.

- In 1965, Singapore's nominal GDP per capita was around US$500. We were at the same level as Mexico and South Africa.
- In 1990, GDP per capita had risen to about US$13,000, surpassing South Korea, Israel, and Portugal.
- In 2015, GDP per capita was about US$56,000. We had caught up with Germany and the United States.
- By 2040, when our GDP per capita had reached US$96,000, we were already among the top-ranked countries in the world and our benchmark became cities. We were among the top 25 cities then.
- Today, in 2065, GDP per capita is US$120,000, fifth highest among cities in the world.

Second, the generation of income. Just as important as the level of income is: how we produced it, and what resources did we use?

- Output per hour worked has increased considerably.

- In 2015, Singaporeans worked 2,300 hours.
- This year Singaporeans are expected to work only 1,400 hours.
- But we are now generating nearly three times as much income as 50 years ago.

- The carbon intensity of our economy has fallen sharply.
  - In 2015, we emitted 0.2 kilograms of carbon to produce a dollar of output.
  - Today, we emit just 0.05 kilograms.

Third, the distribution of income.

- Income distribution has become more equal, thanks to heavy investments in building human capital and skills as well as a tax and transfers system that has become more progressive over the years.
  - In 2015, the Gini coefficient after taking account of taxes and transfers was 0.41.
  - Today, it is 0.36.
- Wealth inequality has remained more stubborn though.
  - Today, the top 1% and 10% of wealth holders in Singapore own around 20% and 60% of total wealth respectively.
  - This is little changed from 30 years ago, when we first started to collect this data.

1965–1984: Export-led industrialisation through multinationals

In 1965, when Singapore left the Federation of Malaysia, few expected it to survive let alone prosper. Singapore's first Prime Minister, Mr Lee Kuan Yew, had said in 1957 that the idea of an independent Singapore was a "political, economic, and geographical absurdity". It is not hard to see why.

- An island of 580 squares kilometres at low tide, Singapore in 1965 had no natural resources, no hinterland, no industry.
- It depended on the outside world not just for food and energy, but even water.
- Industrial strife was common. Unemployment was close to 9%.

Singapore's birth pangs were traumatic.

- Separation from Malaysia meant the loss of not just a common market but a hinterland.
- Indonesia's Confrontasi cut off Singapore's southern hinterland, further undermining the fledgling nation's traditional role as an entrepot trading post for the region.
- In 1968, the British government announced a withdrawal of its troops from Singapore, which left thousands of workers without a job and as much as a fifth of the economy at risk of coming to a halt.

Surviving as a nation and creating a better life for the people were thus the over-riding priorities. And economic growth was seen as the principal means to help achieve this.

The government made two strategic decisions – both sharply at odds with the conventional economic wisdom of the time.

- The first was to shift away from import-substitution in favour of export-led industrialisation.

- The second was to attract global multinational corporations as vehicles to achieve industrial growth.

These two decisions proved to be among the most important in our economic history. Promoting exports and promoting foreign direct investments at a time when few other countries were doing the same gave Singapore a decisive advantage.

But it was an advantage that Singapore had to work hard to realise.

- The government developed industrial land, put in place infrastructure facilities, reformed labour laws to promote industrial peace, and invested in basic education with emphasis on technical skills relevant to industrialisation.
- Sound fiscal and monetary policies ensured macroeconomic stability and underpinned investor confidence.

The two strategies paid off handsomely.

- By 1975, Singapore had established a substantial industrial base, with manufacturing's share in GDP climbing to 22% from 14% in 1965.
- The economy was at full employment and it was clear that Singapore had to move up the value chain towards more capital-intensive and skill-intensive activities.

The compositional change within manufacturing was striking.

- Industrialisation began in the 1960s with factories producing items such as matches, fish hooks and mosquito coils.
    - By the way, for those unfamiliar, mosquitoes used to spread life-threatening diseases in the tropics in those days until the disease-causing ones were eradicated in 2033 by genetic modification.
- In any case, these labour-intensive industries saw a steady decline through the 1970s.

By the late 1970s and early 1980s, we saw the emergence of strong clusters in higher value-added electronics, petrochemicals, component and precision engineering.

- In the 1980s, Singapore became the world's leading producer of hard disk drives – an early form of memory storage used in computers at the time.

The first two decades of Singapore's economic history could be described as the "take-off" phase. It was the period when the economic fundamentals of prudent public finances, sound monetary policies, co-operative industrial relations, outward orientation, and market-based strategies took root. The economy grew by an average of about 10% each year during this period, and Singapore emerged as a newly-industrialised economy at the forefront of developing countries.

1985–2010: Liberalisation and the rise of modern services

In 1985, the Singapore economy went into recession – the only time in our history the domestic economy contracted while the global economy was still growing. The 1985 recession exposed structural strains in the economy, which had hitherto been masked by strong economic growth.

- As the earlier phase of "catch-up" growth came to an end, resource constraints and diminishing returns to investment began to set in.
- The cost advantage that Singapore enjoyed began to narrow.

The 1985 recession was a significant milestone in Singapore's development history. It led to a fundamental review of the policies and strategies that prevailed at the time. The most important outcomes from that period of review which continued into the 1990s were the structural reforms to:

- enhance wage flexibility in the labour market;
- tap more decisively into regional markets for trade and outward investment;
- step up the pace of industrial upgrading;
- promote innovation, enterprise, and entrepreneurship in the economy; and
- liberalise various services sectors such as finance, telecommunications, and utilities.

In fact, the key story post-1985 recession up till the Global Financial Crisis of 2008 was the rise of modern services as a twin engine of growth alongside manufacturing.

- The share of modern services in GDP increased steadily, from 16% in 1965 to 24% in 1985 and 28% in 2010.

Financial services. Singapore was already a thriving regional financial centre since the 1970s. In the late 1990s and early 2000s, the insurance and securities industries were completely liberalised and progressive steps were taken to open up the domestic banking industry to foreign competition.

Business services. A broad range of business activities – accounting, law, advertising, and consultancy – grew in importance, playing an important role in cementing Singapore's status as a regional hub.

Info-communications services. The government embarked on a plan to computerise the civil service in the early 1980s. This helped to kick-start the info-communication services industry, one of the mainstays of the economy ever since.

Entertainment services. In 2005, the government decided to allow two casinos to operate within integrated resorts that also included leisure facilities, business and convention zones, and high-end retail outlets. This sparked the growth of a thriving entertainment services industry over the next few decades, attracting the burgeoning Asian middle class.

This second phase of our economic development essentially saw the transition of Singapore from Third World to First World. By 2010, Singapore was an affluent society and a global city, at the cross-roads of international flows of trade, investment, finance and talent. Real GDP grew an average 6.7% per annum during this period.

It was also a period in which the economy was buffeted by one crisis after another:

- the Asian Financial Crisis in 1998;
- the collapse of the global IT industry in 2001;
- the spread of the deadly SARS virus in 2003; and
- the Global Financial Crisis in 2008

But the economy grew in resilience, rebounding sharply and emerging stronger after each economic shock.

2011–2025: Demographic slowdown and economic restructuring

The dominant theme in the third phase of Singapore's economic history was the overcoming of resource constraints through a significant restructuring of the economy. While Singapore had always been short of land and labour, these constraints came to a head in the 2010s.

By 2011, annual growth in the total working age population had declined to less than 3%, and continued to fall steadily over the decade.

- Foreign labour, which had driven Singapore's labour force growth since the late 1970s, was already one-third of the total workforce.
- It was neither economically efficient nor socially desirable to allow the foreign workforce to expand much faster than the local workforce.
  By 2020, average total labour force growth was down to 1% per annum.

The central thrust of economic strategies in the 2010s and early 2020s was therefore to shift to a productivity-driven growth model. The aim was to increase productivity growth to at least 2% per annum, from the 1.4% averaged during the 2000s.

- The growth of lower-skilled foreign labour was curbed through increases in the foreign worker levy and reductions in the foreign worker dependency ratio ceilings.
- Financial incentives were given to firms to undertake capital deepening and adopt technology solutions to raise productivity.
- Programmes were put in place to help Singaporeans develop and master skills in new growth clusters.

While the manufacturing sector had continually undergone restructuring and moved up the value chain in the preceding five decades, this was the first time the entire economy was undergoing such a transition.

- It proved particularly challenging for many traditional domestically-oriented services like retail, hospitality, construction, real estate, and social services, which had come to be heavily dependent on cheap labour over the decades.
- While many firms in these sectors successfully upgraded themselves and became more efficient, there was a substantial reduction in the size of these sectors by the early 2020s.

But the decisive turnaround in the quest for productivity came when services industries with a traditionally domestic orientation, like education and healthcare, re-positioned themselves by scaling up, investing in technology and talent, and exporting their services.

The idea of Singapore as a Global School House was not new but it was pursued with renewed vigour and came to full fruition only during this period. Singapore positioned itself as a choice location for quality education for a growing Asian middle class.

- By 2025, international students studying in Singapore could be awarded joint degrees from 10 of the top 20 universities in the world.
- Singapore was well on its way to become the premier educational hub of Asia.

Similarly, the healthcare sector was opened up.

- By 2025, Singapore had become a multi-faceted medical hub hosting the world's top medical professionals and multi-national healthcare companies.
- This led to a vibrant ecosystem that created jobs in areas from research and training to conventions for medical professionals both locally and abroad, in addition to the large and diverse number of good jobs in hospitals.

This third phase of Singapore's economic history marked the most significant step-down in Singapore's economic growth, with real GDP growing by 3.6% per annum. However, it also marked the painful but successful economic transition towards productivity-led growth. By 2025, the economy had matured, with productivity growth accounting for virtually all of economic growth.

2026–2040: Regional integration and technological transformation

The fourth phase of Singapore's economic development saw the fruition of the decades-long quest for regional integration and the rise to prominence of what we refer to today as our offshore economy. This was also the period that saw widespread technological transformation and the emergence of the ideas economy.

By 2040, the global centre of economic gravity had shifted decisively to Asia.

- China was by far the largest economy in the world, with per capita incomes approaching that of upper middle income countries.
- India emerged as the third largest economy in the world, with the largest middle class and a global network of indigenous multinationals.
- But perhaps most significant for Singapore was the emergence of Indonesia as the fastest growing economy in the world, following far-reaching economic reforms in the early 2020s.

Singapore's high-end manufacturing and modern services benefitted significantly from trade and investment links with these Asian giants, in addition to the Unites States and the North Euro Area.

But the real game-changer was the setting up of two supra-national economic zones.

In 2028, Malaysia and Singapore got together to set up the Iskandar-Singapore Economic Zone or ISEZ: one economic system spanning two sovereign countries.

- The experiment succeeded beyond expectations, providing global and regional investors an integrated production and services base that was unmatched in Southeast Asia.

In 2030, the most ambitious blueprint of the ASEAN Economic Community process came into being, with the establishment of the ASEAN Free Economic Zone, or AFEZ.

- Unlike traditional economic zones like the ISEZ which were contiguous entities, the AFEZ was a network of the major cities across ASEAN connected by extensive road, rail, air, and sea links, not to mention advanced digital communications.
- There was free movement of goods, services, capital, and people between these cities, which become vibrant hubs for trade and enterprise.

While the bulk of the economic benefits of the AFEZ rightly accrued to the developing economies of Indo-China, Singapore benefitted from being the nerve centre of this network with extensive backward and forward linkages between the offshore economy and the territorial economy.

The Singapore economy which had hitherto been characterised by the export of goods and services was increasingly being driven by the export of capital and people.

- Singapore firms shifted a substantial volume of production offshore and increased ownership of production facilities in the AFEZ.
- Increased connectivity enabled large numbers of Singaporeans to work in the AFEZ while maintaining home in Singapore.
- The government partnered the private sector to build offshore satellite towns and industrial parks in the AFEZ to cater to the needs of Singapore MNCs and overseas communities.

The gross inflows of income derived from the deployment of Singapore's capital and people abroad rose by 50% between 2026 and 2040.

- For the first time, these inflows exceeded the income repatriated abroad by MNCs operating in Singapore.
- Gross National Income (GNI) per capita became the more relevant measure of Singapore's income and standard of living than just GDP per capita.

The 2020s and 2030s saw the proliferation and convergence of several technological trends that transformed economies and societies globally.

- Rapid progress in digital and mobile technologies, coupled with advanced biometrics and global wi-fi access, made payments virtually costless and highly secure, precipitating an explosion in the growth of digital commerce and digital finance.
- Advances in cloud computing, big data analytics, smart sensors and learning machines transformed the provision of consumer and business services, including financial, legal, auditing, consultancy, and logistics.
- They also spurred a transformation in the provision of social and public services such as telemedicine, online learning, and congestion control, substantially enhancing efficiency and consumer welfare.

Singapore was well-positioned for the pervasive digitisation of the global economy that occurred in the 2020s and 2030s, mainly due to two key initiatives that it embarked on in 2015 in the drive towards productivity-led growth:

- The first was the concerted national effort to build and deepen skills at all levels through extensive worker retraining programmes and subsequent introduction of the teaching of digital technology across the education system.
- The second was the drive to create a Smart Nation – building critical infrastructure and capabilities in digital and sensor technologies.

By 2040, a thriving ideas economy had taken root in Singapore, with value-added embedded in ideas rather than physical form.

- The creation of economic value was associated increasingly with "dematerialised products" such as telecommunications, algorithms, software, design, testing and research.
- At the same time, Singapore built on its traditional strengths in the ideas economy, namely marketing, branding, and global supply chain management.

Advances in robotics and 3-D printing helped to spawn new activities in Singapore's offshore facilities in the AFEZ:

- production of space vehicles and supersonic jet engines;
- additive manufacturing of components for electric cars and autonomous vehicles.

Technological advances also transformed the structure of the territorial economy.

- Cutting-edge biologics to produce drugs for cancer, auto-immune diseases, congenital disorders and dementia emerged as the largest component of manufacturing.
- Real-time genome sequencing for disease control started from scratch to become one of the fastest growing segments within the territorial economy.
- Infrastructure financing became the largest contributor to modern services, with Singapore-based financial institutions and markets financing projects ranging from the Sino-Indian lunar complex to the pan-ASEAN nuclear fusion reactors.

During this period, regional integration and technological advances helped sustain GNI growth of 2.9% per annum and GDP growth at 2.6% per annum, a remarkable performance given the maturing of the economy. But the period was not free of crisis.

- The Global Cyber Crisis of 2034 triggered the deepest recession in Singapore's history, with the economy contracting by 8.5% that year.
- The resurgence of smallpox and resultant pandemic in 2039 plunged the global economy into a recession that lasted two years, not to mention the tragic toll on human lives. It remains till today the darkest period in our nation's history.

2041–2065: Climate change mitigation and adaptation

By 2040, climate change had become the defining issue facing the global economy, including Singapore. It has been the key driver of the transformation of our economy over the last 25 years.

As recently as 50 years ago, climate change was still a matter of debate internationally, although it was known that global surface temperatures had been rising since 1850.

- But by 2020, it had been established firmly that man-made emissions of greenhouse gases were the dominant cause of global warming and that climate change on an existential scale was inevitable if urgent actions were not taken.
- It took the global community another 10 years to reach an agreement on carbon emission reductions.

The Global Climate Change Compact of 2030 – with subsequent reviews every ten years – was probably the most important international agreement in history.

- By committing countries to significant absolute reductions in carbon emissions, it helped slow down and eventually arrest global warming, thereby forestalling calamitous changes in the climate.
- But in some respects, the Compact was too late. Some degree of climate change and its effects could not be avoided, chief of which was a persistent rise in sea levels.

Adapting to climate change thus became as important a consideration as mitigating it. In 2041, the government announced a comprehensive programme to restructure the economy and reposition society for the new world emerging in the wake of climate change.

The introduction of a carbon tax helped to reduce carbon intensity in economic activities, increase energy efficiency, and modify consumption patterns. By 2055, the green industry emerged as the largest contributor to Singapore's Gross National Income, covering a wide range of economic activities:

- reconfiguration of earlier technologies, such as robots that were powered by electricity, to make them more sustainable in a carbon-constrained world;
- development of geo-engineering solutions to reduce the earth's capacity to absorb heat and re-freeze the polar ice caps through altering the natural environment;
- research, production, and deployment of renewable energy solutions centred on solar, hydrogen, nuclear fusion, algae biofuels, and zero-carbon diesel fuels recycled from atmospheric carbon;
- trading of carbon emission permits, carbon credit options, and other derivatives to manage carbon-related risks;
- energy consultancy and engineering services as well as specialty insurance against various kinds of climate change occurrences.

In the area of climate change adaptation, the Dyke Construction Programme, launched in 2045, proved critical not only in preventing the ongoing rise in sea levels from inundating our island, but also in generating a variety of ancillary economic activities. Adapting and building on the earlier Dutch designs and technologies, Singapore became a major exporter of dyke solutions to many other coastal cities around the world.

The last 25 years have seen perhaps the most significant transformation of the Singapore economy – competitive, dynamic, resilient, and environmentally sustainable. GDP grew by an average 1.5% per annum, and GNI 1.7% per annum.

Conclusion

Let me conclude.

I have described the evolution of our economy over the last 100 years, chiefly from the perspective of industrial developments, technological trends, and other global forces. It is a story of continuous restructuring, made possible by a judicious blend of the invisible hand of the market and the visible hand of good government.

But the key non-economic factor that made this development journey possible is the culture of our people.

It is a culture of innovation. Today, we have a highly productive and engaged workforce with deep skills, continually learning and taking advantage of new technologies, and building meaningful careers. It is this spirit of constant adaptation and lifelong learning that has

It is also a culture of resilience. Singapore has undergone various upheavals and crises over the last 100 years – recession, terrorism, pandemic – not to mention the dislocations and anxieties caused by globalisation, technological advance, population ageing, and climate change. Our strength has not been to insulate ourselves from crisis but to bounce back from it, stronger and more resolute.

Finally, it is a culture of cohesion. We have come this far because we have worked together and stayed together, with those who have done well doing their part for the less fortunate. It is not only about a willingness to pay higher taxes to support an ageing population but the spirit of philanthropy and volunteerism that has taken root in our society, especially over the last 50 years. Our economic success could not have been possible without this deeper social cohesion that has held the nation together.