



<http://lkyspp.sg/sgfutureready>

The question

- What are the limitations and challenges of Singapore's economic growth model? And what reforms and transformations do you think are required to overcome those limitations and challenges, particularly in terms of productivity and innovation?

What is productivity?

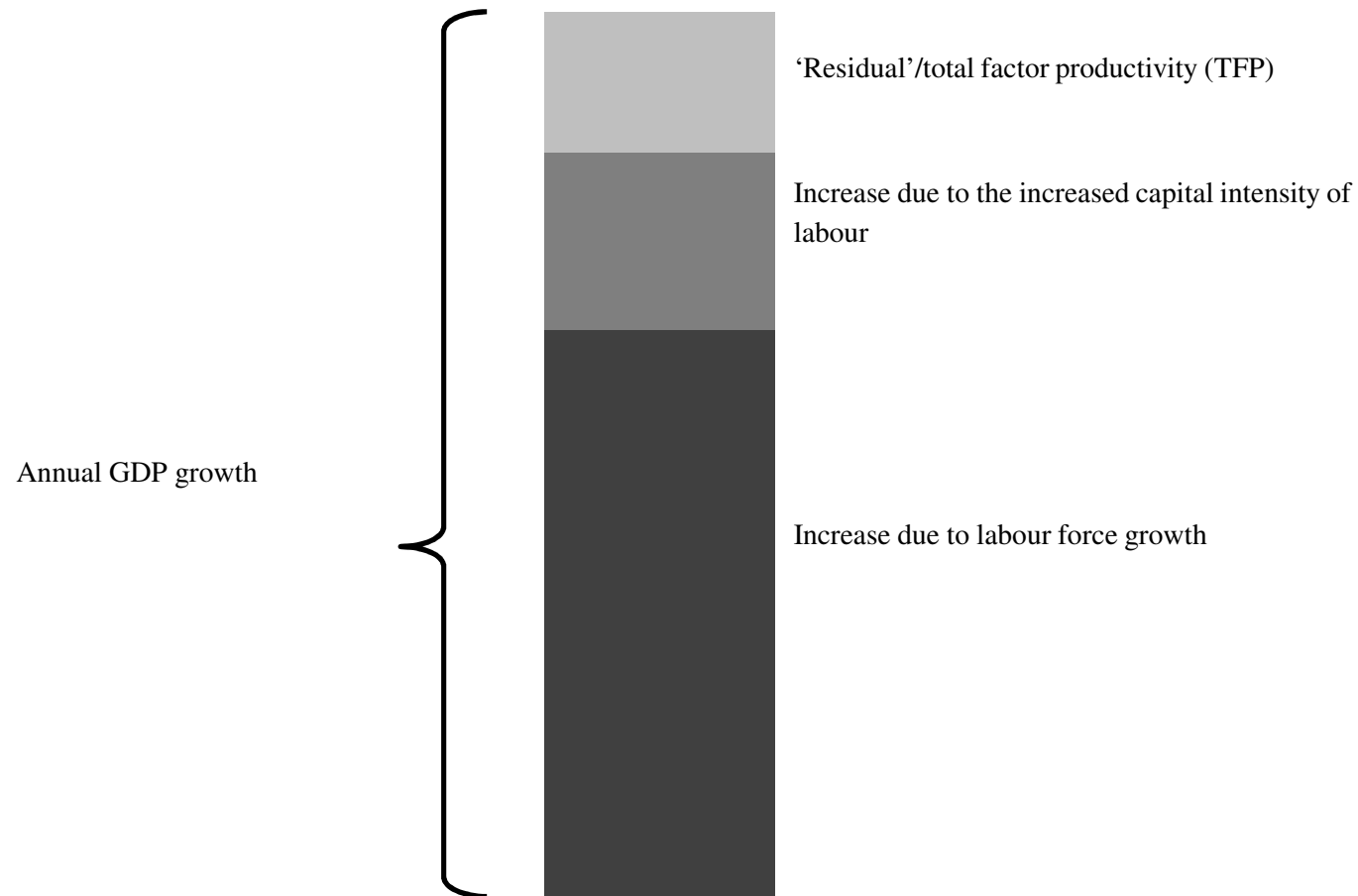
How much stuff you make with how much resources.

What is productivity?

For the economy as a whole, labour productivity roughly equals GDP/workers, or VA/workers.

And VA roughly equals profits + wages + depreciation

What causes economic growth?

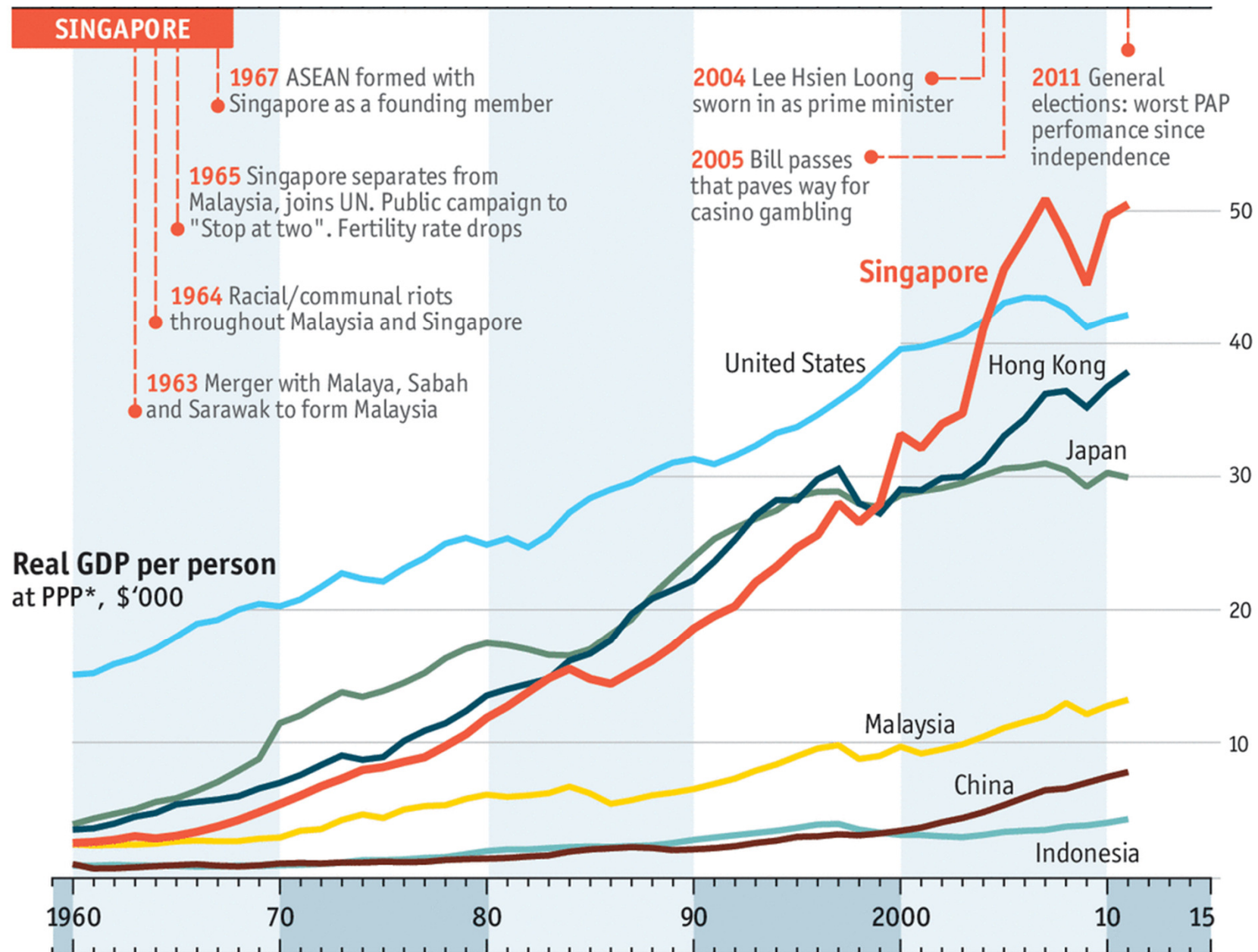


Why is productivity important?

“Productivity isn’t everything, but in the long run it is *almost everything*. A country’s ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker.”

- Paul Krugman, The Age of Diminished Expectations.

Singapore's Economic Performance



OUR HISTORY

The emergence of Singapore as the heart of Asia's economy has come with many challenges. From its days as a small and underdeveloped nation, Singapore has emerged from the tumultuous financial, social and political changes over the years to transform into the first-world metropolis that it is today.



**THE
SIXTIES**



**THE
SEVENTIES**



**THE
EIGHTIES**



**THE
NINETIES**



**THE
MILLENNIUM**

THE SIXTIES

As a newly independent country in 1965 with no natural resources, Singapore as an infant nation faced much uncertainty. Unemployment was one of the key issues that needed to be resolved quickly in order to get the wheels of the Singapore economy moving.

With a GNP per capita of less than US\$320, Singapore was a third-world nation with poor infrastructure and limited capital. Low-end commerce was the mainstay of the economy and the handful of industries that existed produced only for domestic consumption, leaving no room for direct foreign investment.

To create job opportunities following the massive unemployment and labour unrest, an environment conducive to industrial development had to be formed, thus leading to the birth of the Jurong Industrial Estate – the first of many such estates on the island.

It was during this exciting period of growth that the Singapore Economic Development Board (EDB) was established with a budget of \$100 million to take on the challenge of convincing foreign investors that the country was a good place for business.

These two developments marked the start of Singapore's industrialisation programme that began with factories producing garments, textiles, toys, wood products and hair wigs. Along with these labour-intensive industries were capital and technology-intensive projects from companies such as Shell Eastern Petroleum and the National Iron and Steel Mills.

The success of this programme over time meant new issues had to be tackled, namely the lack of raw resources that once came from Malaysia and rapidly growing local demand. Singapore's solution then was to develop its export-oriented industries, as EDB opened its first overseas centres in Hong Kong and New York to be better placed to woo foreign investors.



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THE SEVENTIES

As a result, the country remained unaffected in the throes of a subsequent economic global recession in the 1970s.

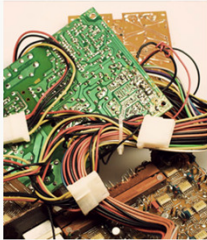
By this decade, industrial development was surging ahead as EDB marketed Singapore to be a quick operations start-up location where factories were built in advance of demand and a highly skilled workforce was readily available.

Singapore's manufacturing industry evolved to become more sophisticated and included computer parts, peripherals, software packages and silicon wafers.

To push Singapore's agenda as a business hub, more EDB offices were set up in Europe, USA and Asia. During this period, Texas Instruments rolled out a production line in just 50 days after committing \$6 million to make semiconductors and integrated circuits for export to world markets. This major investment, which EDB secured in under six months, heralded the start of Singapore's electronics industry.

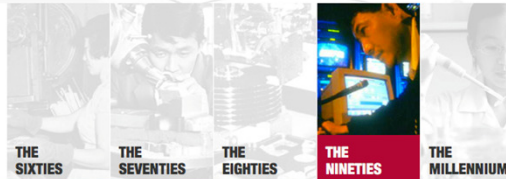
To balance the opening of new EDB overseas centres in Zurich, Paris, Osaka and Houston between 1971 and 1976, a Manpower and Training Unit was established locally to focus on industrial training. The Overseas Training Programme and Joint Government Training Centres with Tata of India, Philips of Holland and Rollei of Germany were also drawn up to place young Singaporean workers in apprenticeship programmes for the exchange of knowledge and skills. This unique partnership approach to workforce training was the first of its kind and a significant step forward in Singapore's investment promotion programme.

Although the world recession in 1975 slowed progress slightly, the city's economy remained nimble and flexible as EDB pushed for more industrial projects and manufacturing eventually became the largest sector in the economy surpassing trade.



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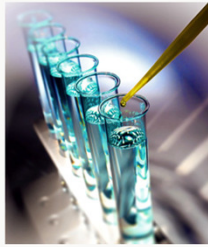


THE NINETIES

The services industry flourished to form one of the pillars of Singapore's economy, along with the field of biomedical sciences and emerging key industries. This resulted in a diversification of the city's economic structure, with Singapore hosting a wide range of businesses.

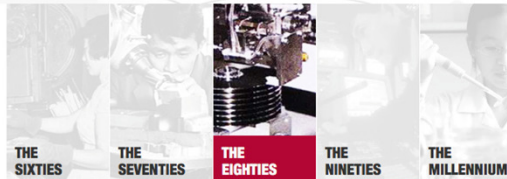
The 1990s saw companies moving up the value chain and intensifying their use of technology while the service sector became the engine for growth. EDB shifted its focus from manufacturing to strengthen the new key industries, namely chemicals, electronics and engineering. It also began leveraging its leadership in these industries to develop biomedical sciences; an area that included the pharmaceutical biotechnology and medical technology sectors.

This helped Singapore's economic structure become more diversified and balanced, resulting in the city hosting a wide range of businesses particularly in higher value-added activities. It also started welcoming talent from around the world to augment the local skill pool and subsequently, become a hub of skilled manpower and headquarters for decision-making.



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THE EIGHTIES

The Second Industrial Revolution beckoned the growth of technologically advanced & knowledge-intensive activities such as R&D, engineering design and computer software services. Sunrise industries were identified, workers received high-tech training, and Southeast Asia's first silicon wafer manufacturing plant was built in Singapore.

The 1980s saw EDB co-establishing institutions of technology with Japan, Germany and France to meet the specialised manpower needs of high-technology industries. Coupled with the Skills Development Fund, these places of learning provided Singaporeans with the right kind of training for specialised jobs in the electronics and engineering sectors.

At the same time, the Science Park was set up next to the National University of Singapore to stimulate R&D activities by the private sector while the Robot Leasing Scheme was established to offer low-cost financing and technical consultancy to manufacturers who wanted to automate their operations.

Eventually, due to the government's adoption of a high-wage policy to accelerate the move away from labour-intensive industries and the attraction to high-technology industries, wage bills swelled as the world slipped into an economic slowdown and Singapore slid into a recession.

An Economic Committee, led by then Minister for Trade and Industry Mr. Lee Hsien Loong, then took a long hard look at what was needed to restore Singapore's competitiveness – consequently recommending the introduction of a flexi-wage system where pay hikes would be relative to a company's profitability. Another call the Committee made was for EDB to promote all aspects of economic activity.

With the new goal of positioning Singapore as a Total Business Centre, EDB set out to attract international service corporations in the financial, educational, lifestyle, medical, IT and software sectors; identifying PC, printed circuit board and disc drive manufacture as important sunrise industries.

By working hard to attract investors to these areas, Singapore's – and Southeast Asia's – first silicon wafer manufacture plant opened in the early 1980s, followed by Apple Computer's in 1981 and one for disc drives in 1982.

As the promotion of local enterprises also became increasingly important, EDB then set up the Small Enterprise Bureau in 1986 to shape a range of assistance schemes that helped facilitate the growth of these companies.



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THE MILLENNIUM

At the turn of the century, Singapore increased its focus on knowledge and innovation-intensive activities while R&D became the cornerstone of the country's economic development.

In 2006, the government set aside more than \$13 billion to promote R&D over the next five years as part of its goal to increase gross expenditure on R&D (GERD) from 2.25 per cent to 3 per cent of gross domestic product (GDP) within that period.

The National Research Foundation was set up in the same year to develop, coordinate and implement national research and innovation strategies under the national R&D agenda. To date, most of the R&D activity has been focused on environmental and water technology, biomedical sciences and interactive and digital media.

To further facilitate Singapore becoming an information-led economy, a strong Intellectual Property (IP) protection and enforcement environment was put in place – resulting in the city's ranking as the first in Asia for IP protection today.

Based on this foundation built over the years, Singapore has put in place a strong and established network of public and private sector R&D centres which currently work closely together with companies to commercialise new technologies, processes and products.



Increase in economic volatility

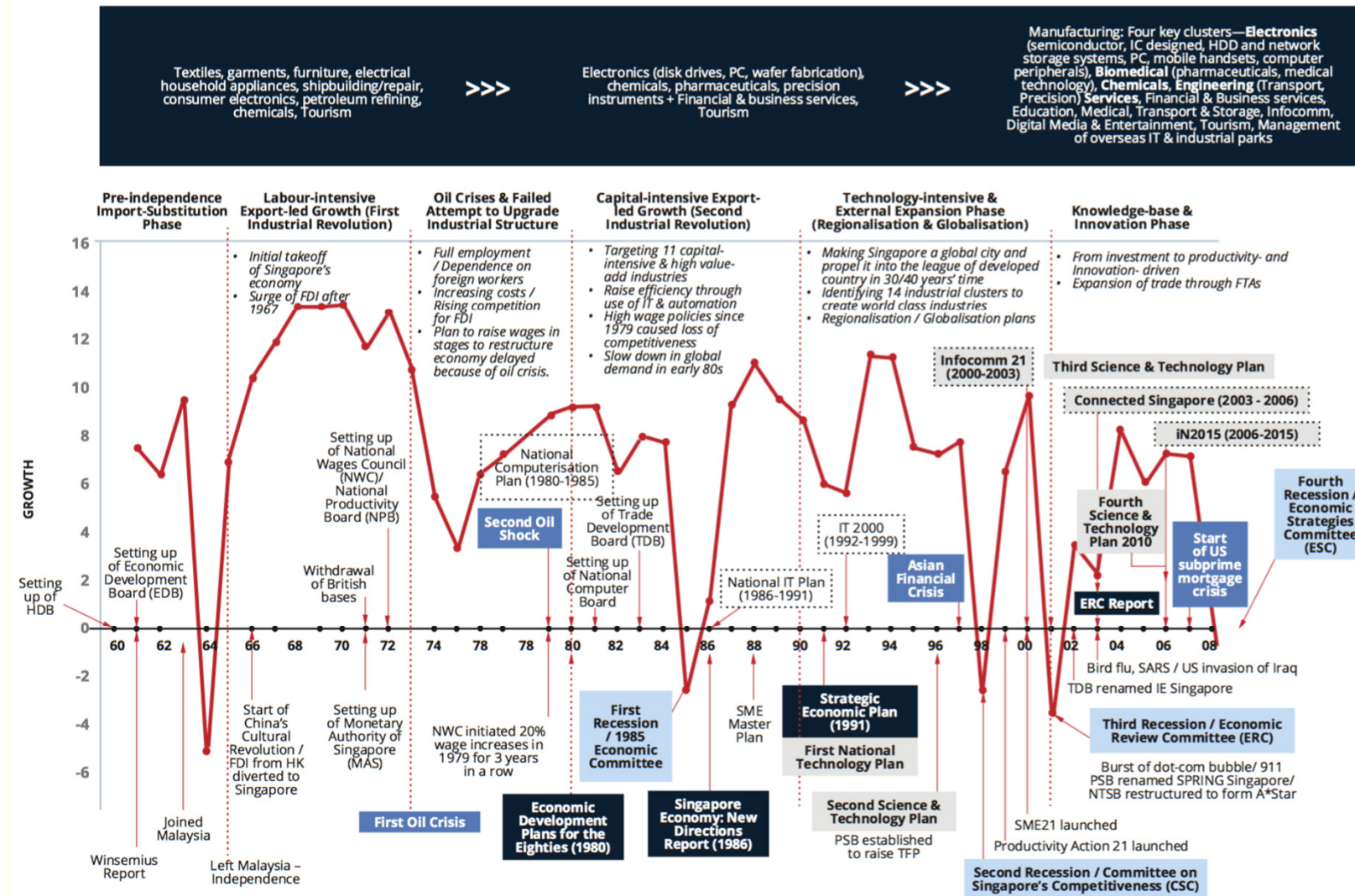
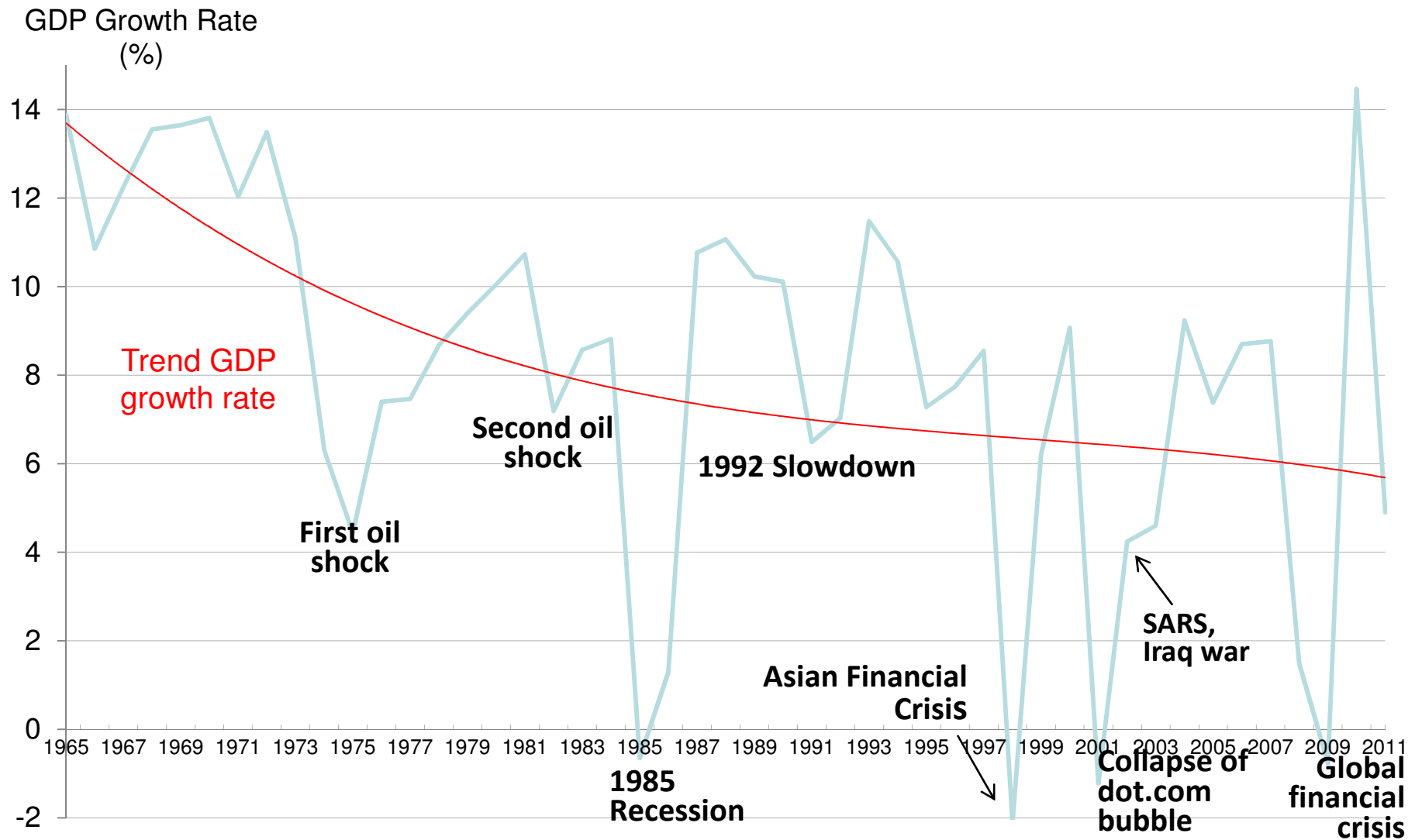


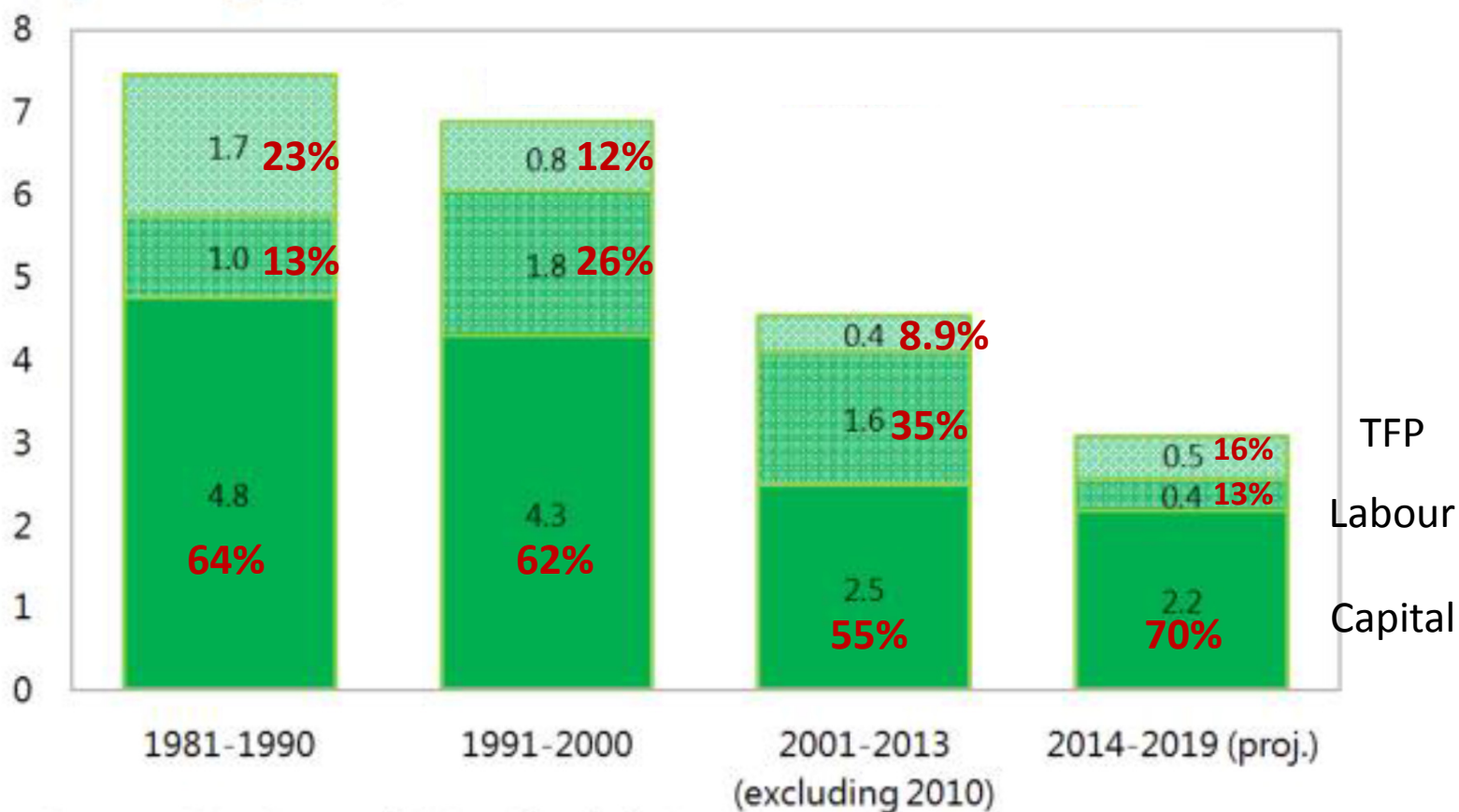
Figure 2.1: Various economic upgrades in Singapore since 1959

Slowdown in GDP growth



What was the growth model that emerged after the 1980s?

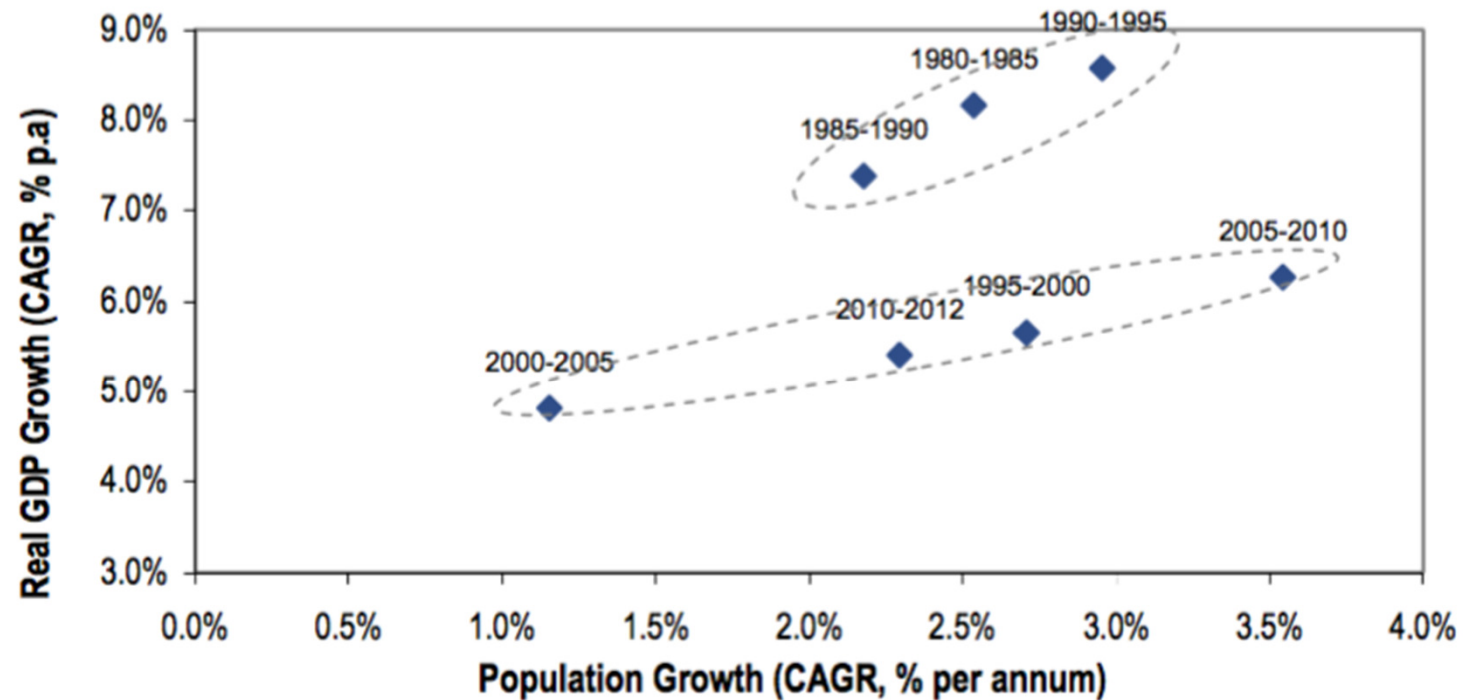
Contribution to Growth
(In percentage points)



Sources: SingStat and IMF staff calculations.

Diminishing returns to labour

Figure 10. Singapore – Real GDP Growth vs Population Growth (1980 to 2010)



Source: CEIC, Citi Research

What have economists said about Singapore?

*“I advance the notion that Singapore is a victim of its own targeting policies, which are increasingly **driving the economy ahead of its learning maturity into the production of goods in which it has lower and lower productivity**... although Singapore might be experiencing learning-induced improvements in total factor productivity within individual sectors, this is masked at the aggregate level by a movement into industries in which the economy is less productive.”*

Alwyn Young, “Tale of Two Cities: Factor Accumulation and Technical Change in Hong Kong and Singapore”, 1992

*“All of Singapore’s growth can be explained by increases in measured inputs. There is **no sign at all of increased efficiency**. In this sense, the growth of Lee Kuan Yew’s Singapore is an economic twin of the growth of Stalin’s Soviet Union – growth achieved purely through mobilization of resources.”*

Paul Krugman, “The Myth of Asia’s Miracle”, 1994

“There have been no studies, to my knowledge, of the relative dependence of these countries on foreign investments as an instrument of economic growth. My own subjective impression is that this dependence is strongest in Singapore and that the participation of national entrepreneurs in promoting industrial development is smaller here than in the other countries...”

*Not only is Singapore more **dependent on foreign entrepreneurs** than are Hong Kong, Taiwan and South Korea, but her position is probably unique in that she is now **dependent on a continuing supply of foreign workers to sustain growth**... This, then, is the setting against which we have to consider our long-term problem of income distribution...*

*... All this involves a fundamental matter of policy. The question we must answer sooner or later is this: ‘**When do we stop growing?**’ Or to be more precise, at what point do we stop importing foreign workers and cease to encourage foreign entrepreneurs and capital in Singapore? Because of our limited land area, industrial expansion together with the concomitant population expansion will produce overcrowding to increasingly uncomfortable limits.”*

Goh Keng Swee, Singapore in the International Economy, 1972

Singapore Tackles '2d Industrial Revolution'

By William Branigin
Washington Post Foreign Service

SINGAPORE — Building on an economy that is already the strongest in Southeast Asia, Singapore's government is pursuing a "second industrial revolution" aimed at putting the city-state in the ranks of the world's most technologically advanced countries.

At the same time, the administration of Prime Minister Lee Kuan Yew is moving toward greater political sophistication. Most political prisoners have been quietly released in recent months, and a "second generation" of young technocrats is being groomed to take over Singapore's leadership.

These new leaders will inherit Southeast Asia's best run state, one whose world importance far outstrips its small size. Although Singapore has only 2.4 million people and 226 square miles of land, it ranks as the world's third-largest oil refining center after Rotterdam and Houston and, according to diplo-



By Dave Cook—The Washington Post

matives and generally made their continued presence difficult.

Instead of labor-intensive industries, Singapore is trying to attract

The city-state's prosperity has a price. "Singaporeans get a high standard of living in return for being treated like schoolchildren."

Among the risks, however, is that the economic reprogramming could entail labor problems. This concern apparently lies behind the govern-

This sort of control is exercised over the society generally by Lee Kuan Yew's ruling People's Action Party, which has not lost an election since 1959 and has won every seat in parliament since 1968.

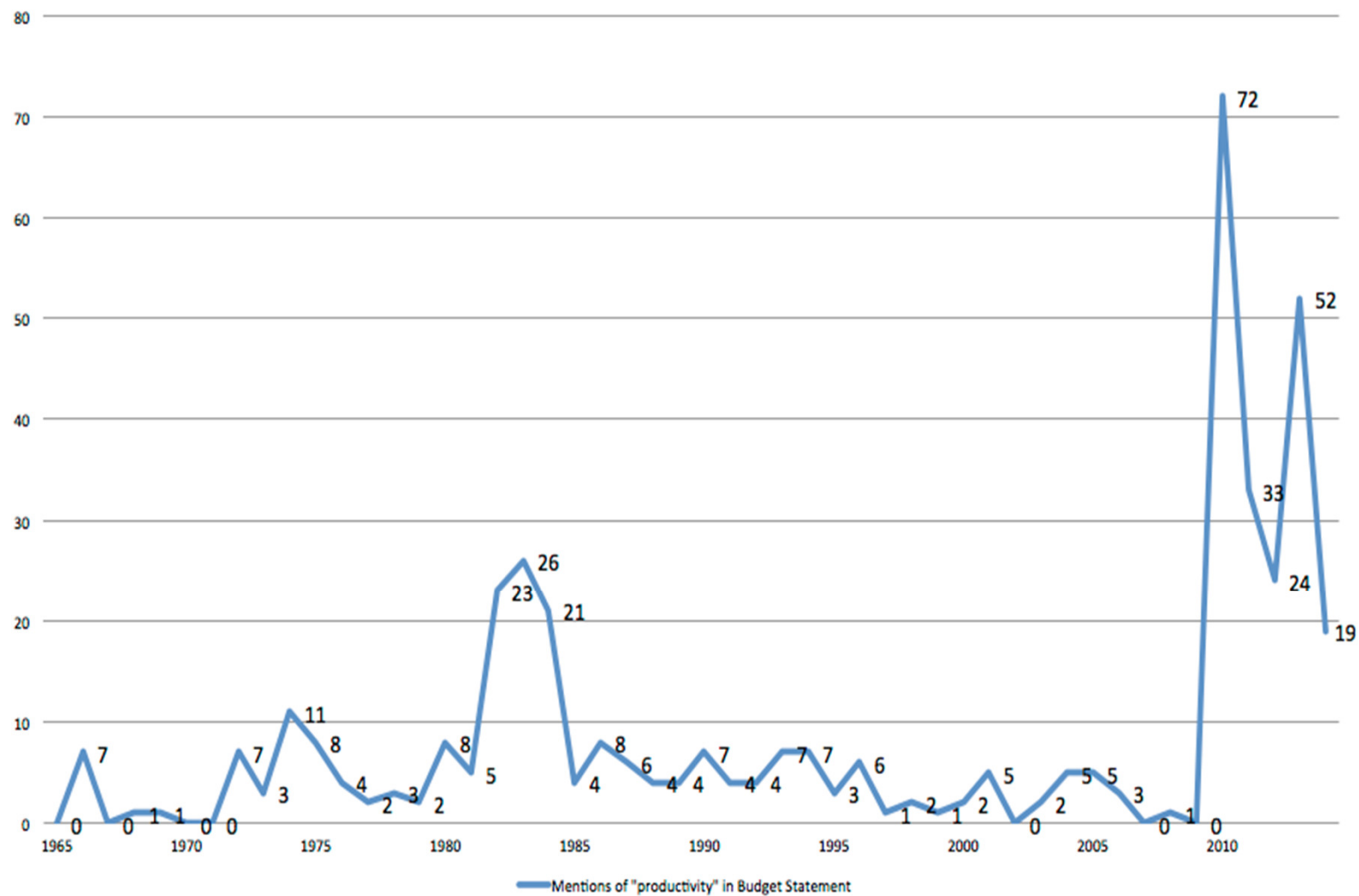
Singapore's press observes a fairly stringent self-censorship, and the government retains the authority to imprison opponents for two years without trial under the Internal Security Act, a remnant of British colonial days.

But with the political situation stable and public support ensured by the country's economic successes, the government has felt confident enough to release most of the 50 political prisoners Lee acknowledged were being held four years ago.

The release of Communists, union organizers and student leaders began about two years ago, and several have been freed in recent months. Now Singapore is believed to hold no more than 15 political prisoners.

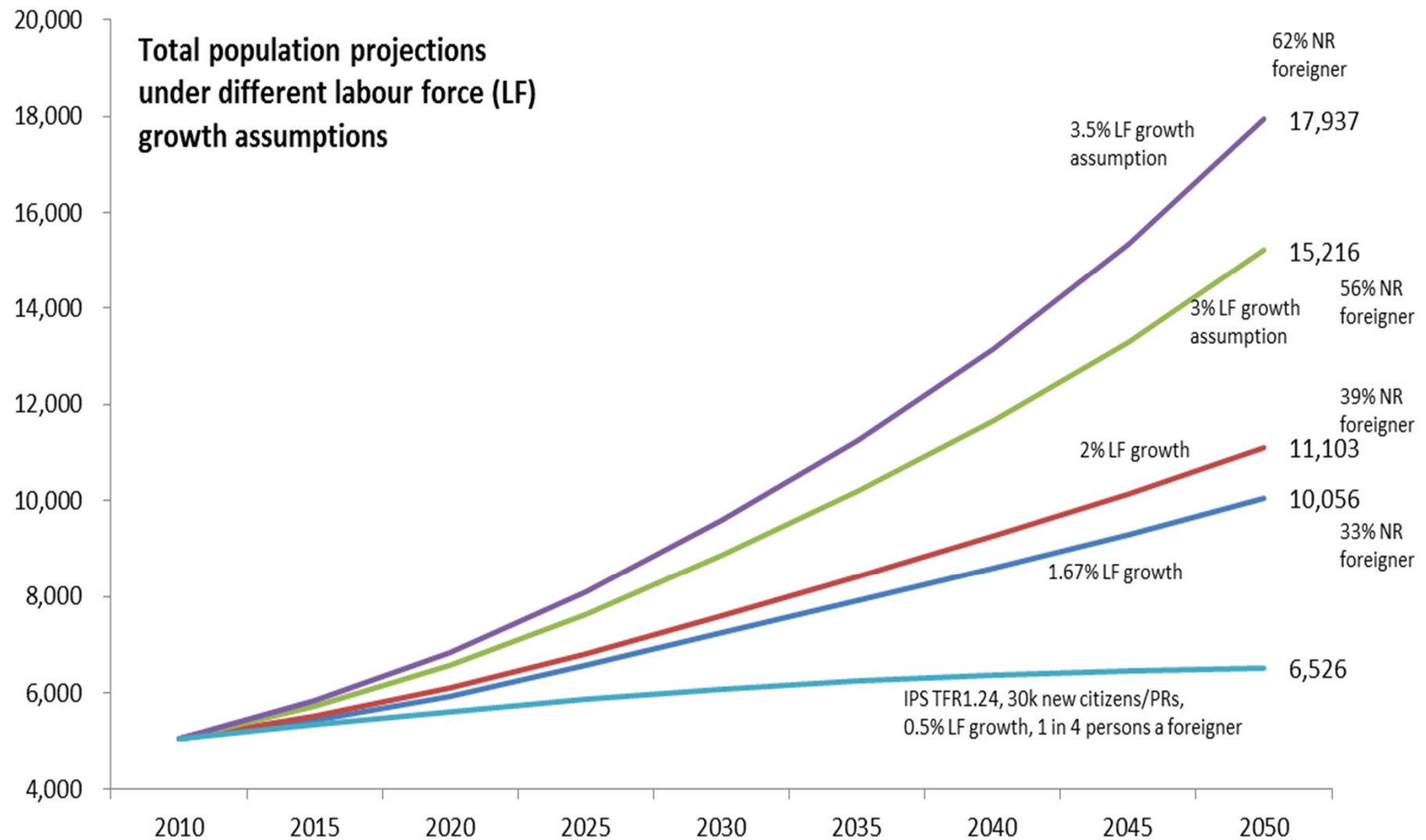
"There are still political prisoners, but they're no longer a major issue,"

Mentions of "productivity" in Budget Statement



Immigration Policy, Labour Force Growth and Final Population Size

The Future Singapore Society – Switzerland or Dubai?



Points to ponder

- What is Singapore's economic model and how does it relate to Singapore's productivity challenges?
- Does Singapore need a new economic model? If so, what assumptions need to be rethought?
- How important will entrepreneurship and innovation be to Singapore in the future?
- While GDP per capita is high, the wage share is low by rich country standards. A large part of profits is repatriated rather than invested domestically.
- What role do the aspirations of Singapore's citizens play in its economic restructuring?

Questions?