

# CPCE-SHAPE Health Conference 2024

## Healthcare Financing Key to Healthcare Systems Sustainability: The Case of Hong Kong

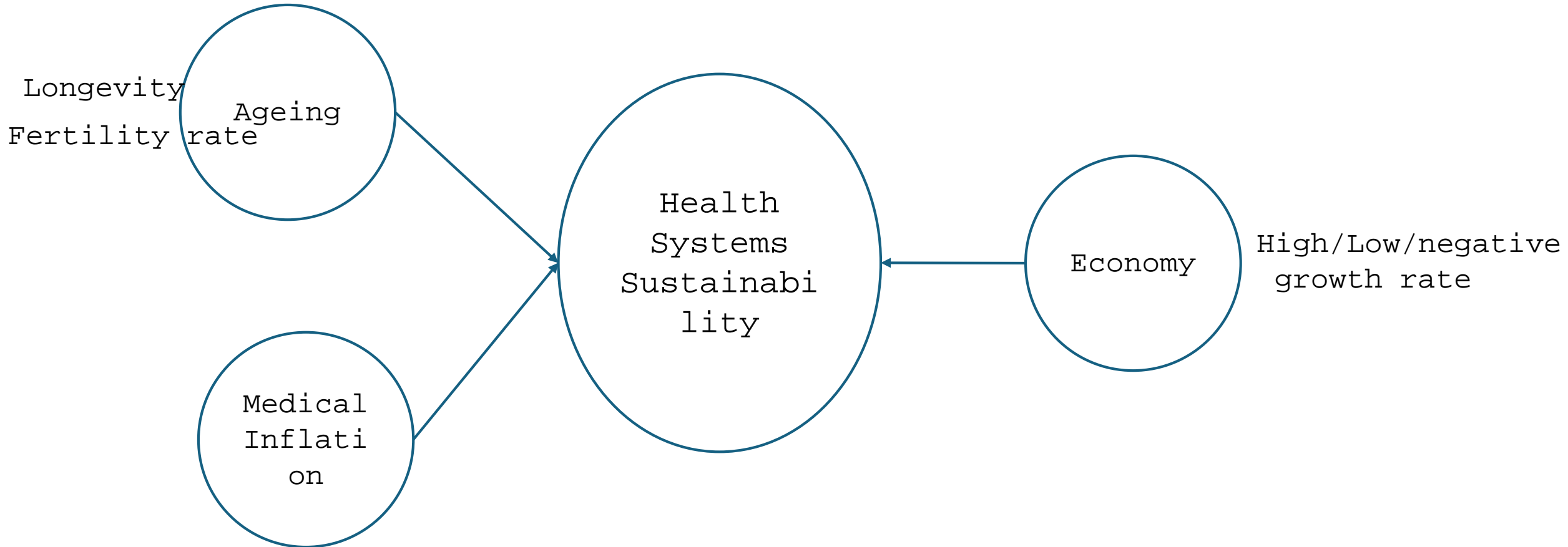
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The Hong Kong Polytechnic University



# Healthcare Financing is about:

- The sources and the mix of funds for health care:
  - Sources: taxes, social insurance, out-of-pocket payment, voluntary insurance, users fee, and donations
  - the size of each source
  - The different mix for each service/goods
- The payment arrangements -- to organization and individual providers:
  - block grant, capitation, fee-for-service, case-mix, performance-based payment, and fixed salary

# Broad Factors Affecting Healthcare Systems Sustainability



# Longevity 2023

| #  | Country                            | Life Expectancy (both sexes) |
|----|------------------------------------|------------------------------|
| 1  | <u><a href="#">Hong Kong</a></u>   | 85.83                        |
| 2  | <u><a href="#">Macao</a></u>       | 85.51                        |
| 3  | <u><a href="#">Japan</a></u>       | 84.95                        |
| 4  | <u><a href="#">Switzerland</a></u> | 84.38                        |
| 5  | <u><a href="#">Singapore</a></u>   | 84.27                        |
| 6  | <u><a href="#">Italy</a></u>       | 84.20                        |
| 7  | <u><a href="#">South Korea</a></u> | 84.14                        |
| 8  | <u><a href="#">Spain</a></u>       | 84.05                        |
| 9  | <u><a href="#">Malta</a></u>       | 83.85                        |
| 10 | <u><a href="#">Australia</a></u>   | 83.73                        |

<https://www.worldometers.info/demographics/life-expectancy/>

# Fertility Rates:

(The replacement fertility rate is around 2.1 for developed countries)

|                                |     |                           |     |
|--------------------------------|-----|---------------------------|-----|
| <u>Least Developed Regions</u> | 3.8 | <u>East Asia/S.E Asia</u> |     |
|                                |     | Japan                     | 1.3 |
|                                |     | Thailand                  | 1.3 |
| <u>Less Developed Regions</u>  | 2.4 | China (mainland)          | 1.2 |
|                                |     | Macau                     | 1.2 |
|                                |     | Singapore                 | 1.1 |
| <u>More Developed Regions</u>  | 1.5 | South Korea               | 0.9 |
|                                |     | Hong Kong                 | 0.8 |

Source: 2024 List by United Nations Population Fund

# Medical Inflation 2024

|                     | 2023                          |                            |            | 2024                          |                            |            |
|---------------------|-------------------------------|----------------------------|------------|-------------------------------|----------------------------|------------|
|                     | Annual General Inflation Rate | Annual Medical Trend Rates |            | Annual General Inflation Rate | Annual Medical Trend Rates |            |
|                     |                               | Gross                      | Net        |                               | Gross                      | Net        |
| <b>Asia-Pacific</b> | <b>3.0</b>                    | <b>9.2</b>                 | <b>6.2</b> | <b>3.6</b>                    | <b>9.7</b>                 | <b>6.1</b> |
| Australia           | 2.7                           | 3.7                        | 1.0        | 3.2                           | 4.2                        | 1.0        |
| Bangladesh          | 6.2                           | 6.2                        | 0.0        | 6.5                           | 10.0                       | 3.5        |
| China               | 1.8                           | 7.5                        | 5.7        | 2.2                           | 7.9                        | 5.7        |
| Hong Kong           | 2.1                           | 7.0                        | 4.9        | 2.4                           | 7.5                        | 5.1        |
| India               | 4.8                           | 12.0                       | 7.2        | 4.4                           | 12.0                       | 7.6        |
| Indonesia           | 3.3                           | 12.7                       | 9.4        | 3.0                           | 13.1                       | 10.1       |
| Japan               | 0.8                           | 0.4                        | (0.4)      | 2.2                           | 0.4                        | (1.8)      |
| Kazakhstan          | 7.1                           | 15.0                       | 7.9        | 8.5                           | 30.0                       | 21.5       |
| Malaysia            | 2.4                           | 15.0                       | 12.6       | 3.1                           | 15.0                       | 11.9       |
| Mongolia            | 14.5                          | 16.4                       | 1.9        | 8.8                           | 15.0                       | 6.2        |
| New Zealand         | 3.5                           | 8.0                        | 4.5        | 2.6                           | 10.0                       | 7.4        |
| Pakistan            | 10.5                          | 24.0                       | 13.5       | 21.9                          | n/a                        | n/a        |
| Papua New Guinea    | 5.4                           | 9.0                        | 3.6        | 4.9                           | 4.9                        | 0.0        |
| Philippines         | 3.7                           | 9.0                        | 5.3        | 3.2                           | 14.0                       | 10.8       |
| Singapore           | 2.0                           | 12.0                       | 10.0       | 3.5                           | 13.0                       | 9.5        |
| South Korea         | 2.4                           | 7.5                        | 5.1        | 2.3                           | 10.0                       | 7.7        |
| Taiwan              | 2.2                           | 10.0                       | 7.8        | 1.7                           | 10.0                       | 8.3        |
| Thailand            | 2.8                           | 12.3                       | 9.5        | 2.0                           | 9.1                        | 7.1        |
| Vietnam             | 3.2                           | 6.5                        | 3.3        | 4.3                           | 6.7                        | 2.4        |

Source: AON 2024  
Global Medical  
Trend Rates Report

## Countries by Real GDP Growth Rate in 2023 (Data from IMF WEO Database, April 2024)

|                | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019   | 2020    | 2021  | 2022   | 2023  | Average |
|----------------|-------|-------|-------|-------|-------|-------|--------|---------|-------|--------|-------|---------|
| Hong Kong SAR  | 3.102 | 2.762 | 2.388 | 2.175 | 3.796 | 2.847 | -1.672 | -6.545  | 6.454 | -3.681 | 3.215 | 1.349   |
| Japan          | 2.005 | 0.296 | 1.561 | 0.754 | 1.675 | 0.643 | -0.402 | -4.147  | 2.559 | 0.957  | 1.923 | 0.711   |
| Korea          | 3.165 | 3.202 | 2.809 | 2.947 | 3.160 | 2.907 | 2.244  | -0.709  | 4.305 | 2.613  | 1.357 | 2.545   |
| Singapore      | 4.818 | 3.936 | 2.977 | 3.589 | 4.513 | 3.517 | 1.345  | -3.870  | 9.691 | 3.838  | 1.075 | 3.221   |
| Thailand       | 2.687 | 0.984 | 3.134 | 3.435 | 4.178 | 4.223 | 2.115  | -6.050  | 1.549 | 2.511  | 1.872 | 1.876   |
| United Kingdom | 1.792 | 3.196 | 2.220 | 1.921 | 2.655 | 1.404 | 1.642  | -10.360 | 8.675 | 4.345  | 0.145 | 1.603   |
| United States  | 2.118 | 2.524 | 2.946 | 1.920 | 2.458 | 2.967 | 2.467  | -2.214  | 5.800 | 1.936  | 2.531 | 2.305   |

These Evidence Suggests that  
Most Healthcare Systems will  
face huge challenges in terms of  
Sustainability





## The Case of Hong Kong

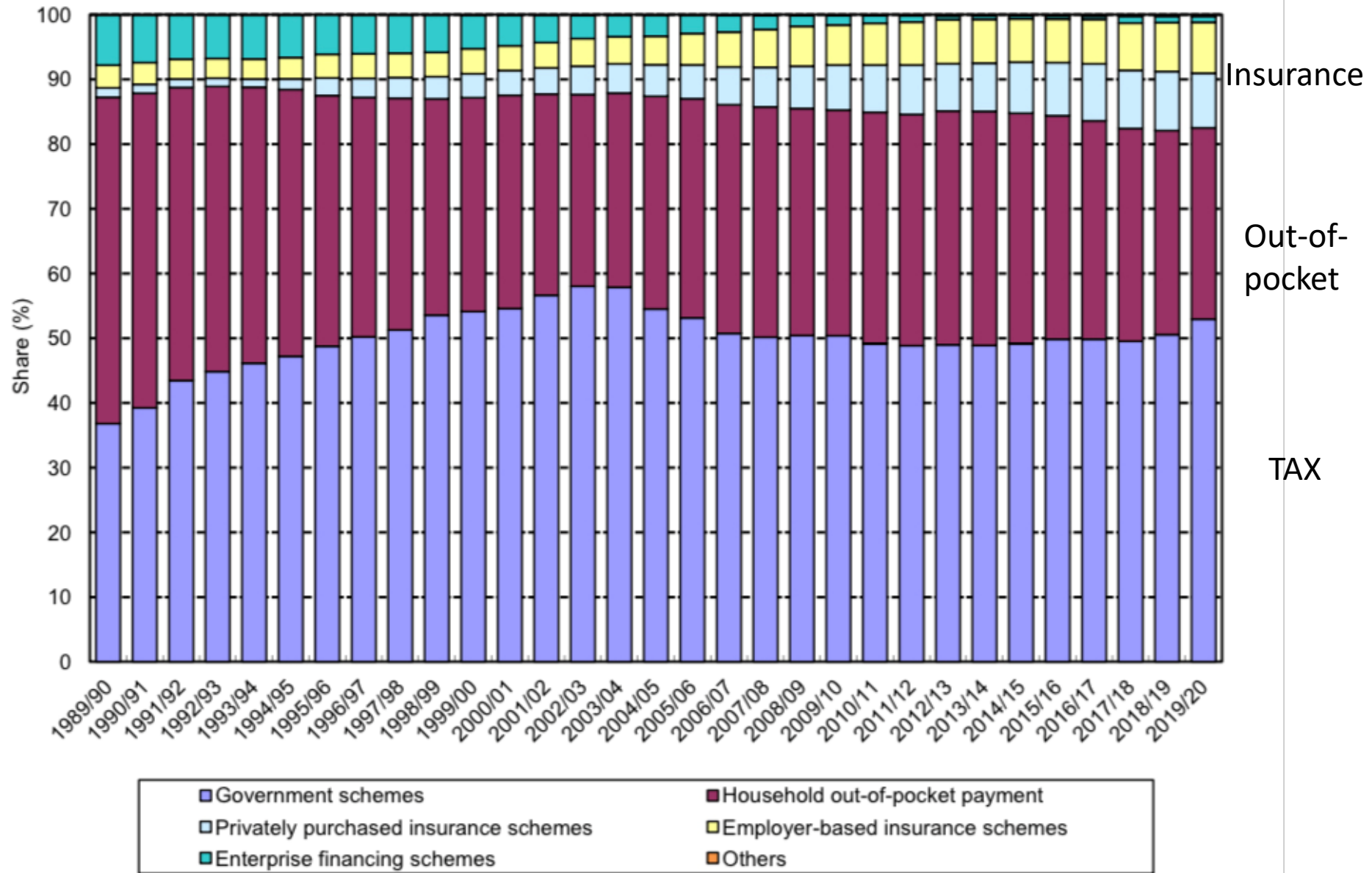
How can we improve Efficiencies?

How much can be saved?

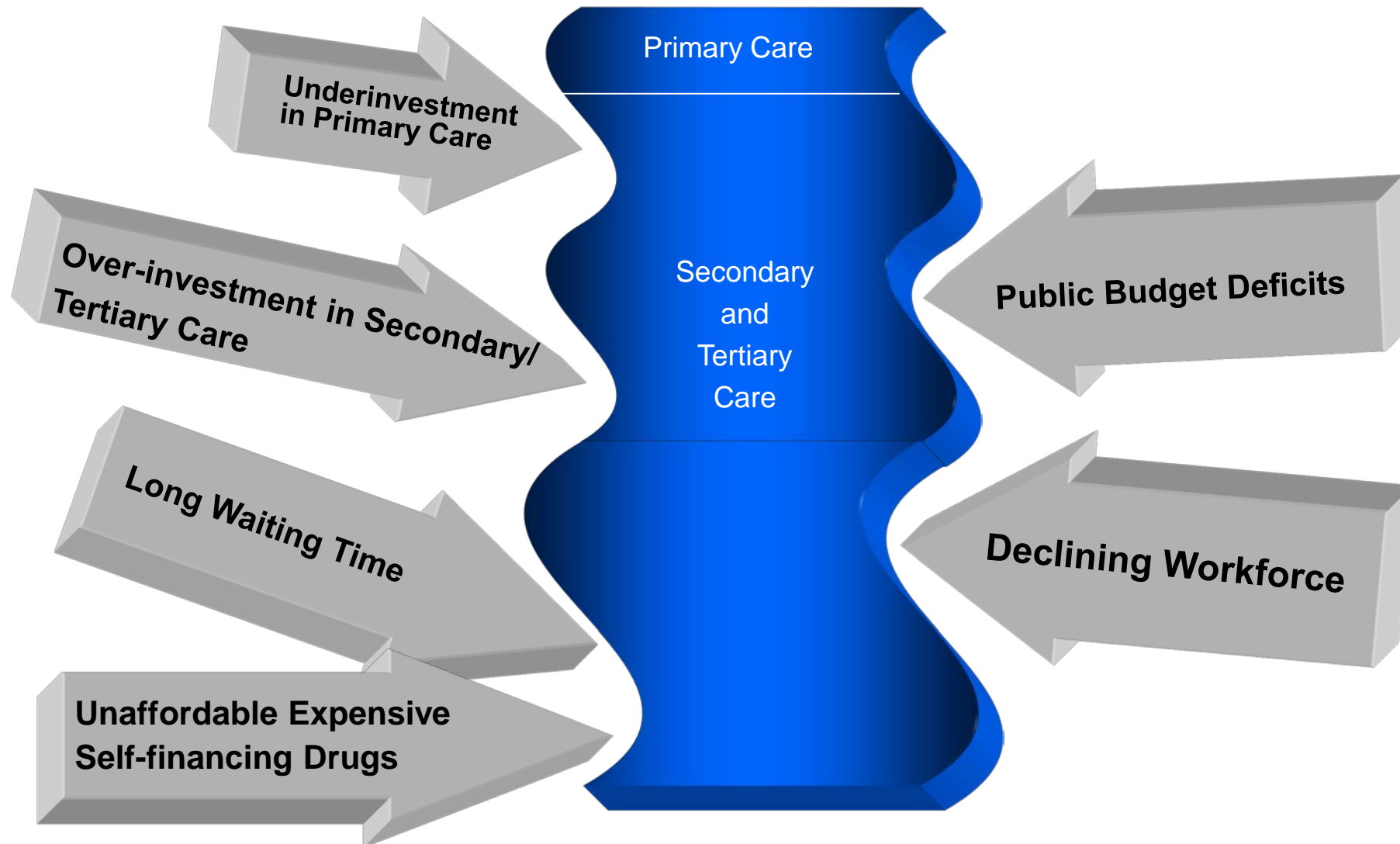
Will the Increase in efficiencies be adequate?

What if we do Nothing?

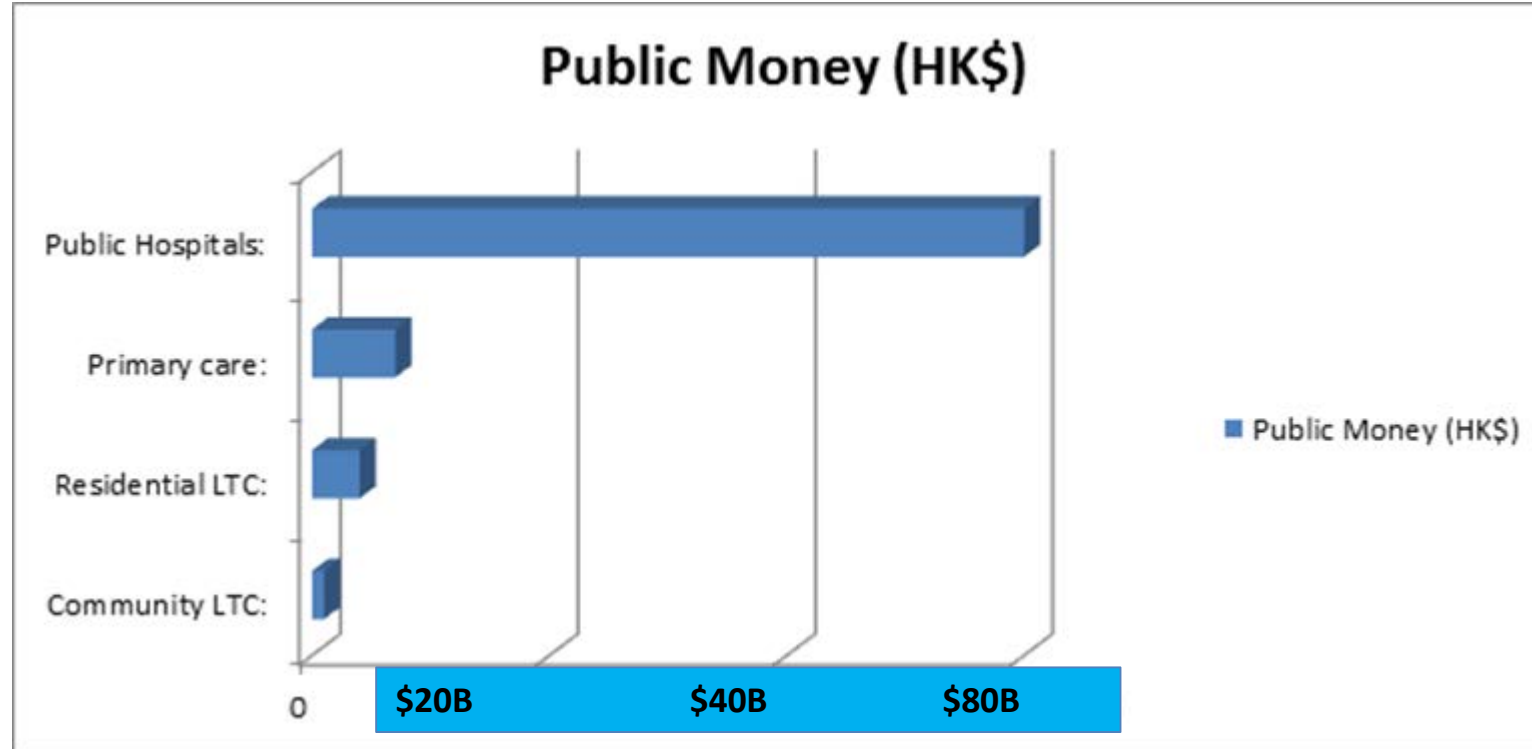
# Financing Sources for Health Care 1989-2020



# Pressure Points on Hong Kong's Public Health Care System



# Allocative Inefficiency in Hong Kong: How Public Money is Spent



**~50% of all public hospital admissions were found to be Ambulatory Care Sensitive Conditions (JCSPHPC 2017, Yam et al 2014)**

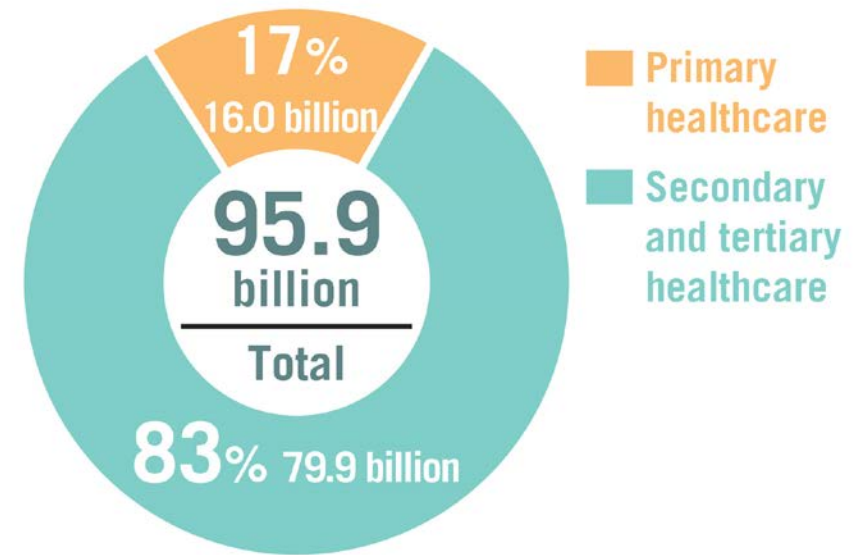
**~65% applications for subsidised LTC services were assessed to have care needs that could be met by community care (Elderly Commission 2017)**

# More cost-effective interventions are done in the Primary healthcare (PHC) setting

Public health expenditure on primary healthcare is only 17% of total public expenditure on healthcare

Private health expenditure on primary health care accounts for ~70% of total PHC spending

Public health expenditure in 2019/20



# Cost-effectiveness of Interventions

More Cost-effective interventions relies heavily on out-of-pocket payments

- Prevention – lifestyle/diet interventions;
- Early detection – screening programmes
- Early treatment

# Out-of-pocket payment for preventive and screening services is problematic

- Highly price elastic
- Persons have no symptoms generally not willing to pay for services
- Resulting in low level of consumption
- Private insurance seldom covers preventive or screening services
- More public financing is needed

# International Comparison of PHC spending

|                           | Government Spending on Primary Care as a % of Total Government Health Spending | Out-of-pocket spending on Primary care as a % of total Primary Care spending |
|---------------------------|--|--|
| Low-income group          | 33%  | 44%  |
| Low-middle income group   | 36%  | 49%  |
| Upper-middle income group | 34%  | 39%  |
| High-income group         | 36%  | 28%  |
| <b>Hong Kong</b>          | <b>17%</b>   | <b>70%</b>   |

Hanson et al 2022. The Lancet Global Commission on financing primary health care: putting people at the centre  
*Lancet* Vol 10



# Public Hospital System Already Strained

Public Hospitals' Waiting time for patients with total joint replacement surgeries performed in the past 12 months (1 Jan 2022 – 31 Dec 2022)

| Cluster                                      | HK East   | HK West   | KLN Centr | KLN East  | KLN West  | NT East   | NT West   |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Median Waiting Time* (month)</b>          | <b>33</b> | <b>27</b> | <b>37</b> | <b>22</b> | <b>42</b> | <b>29</b> | <b>56</b> |
| <b>90th Percentile Waiting Time* (month)</b> | <b>79</b> | <b>67</b> | <b>47</b> | <b>64</b> | <b>56</b> | <b>60</b> | <b>95</b> |

[https://www.ha.org.hk/visitor/ha\\_visitor\\_index.asp?Parent\\_ID=214172&Content\\_ID=221223](https://www.ha.org.hk/visitor/ha_visitor_index.asp?Parent_ID=214172&Content_ID=221223)

# Self-financing Drugs for Serious Life-threatening Illness

- \$0 subsidy; 32,000 HA patients
- Out-of-pocket payment \$1.1B per year

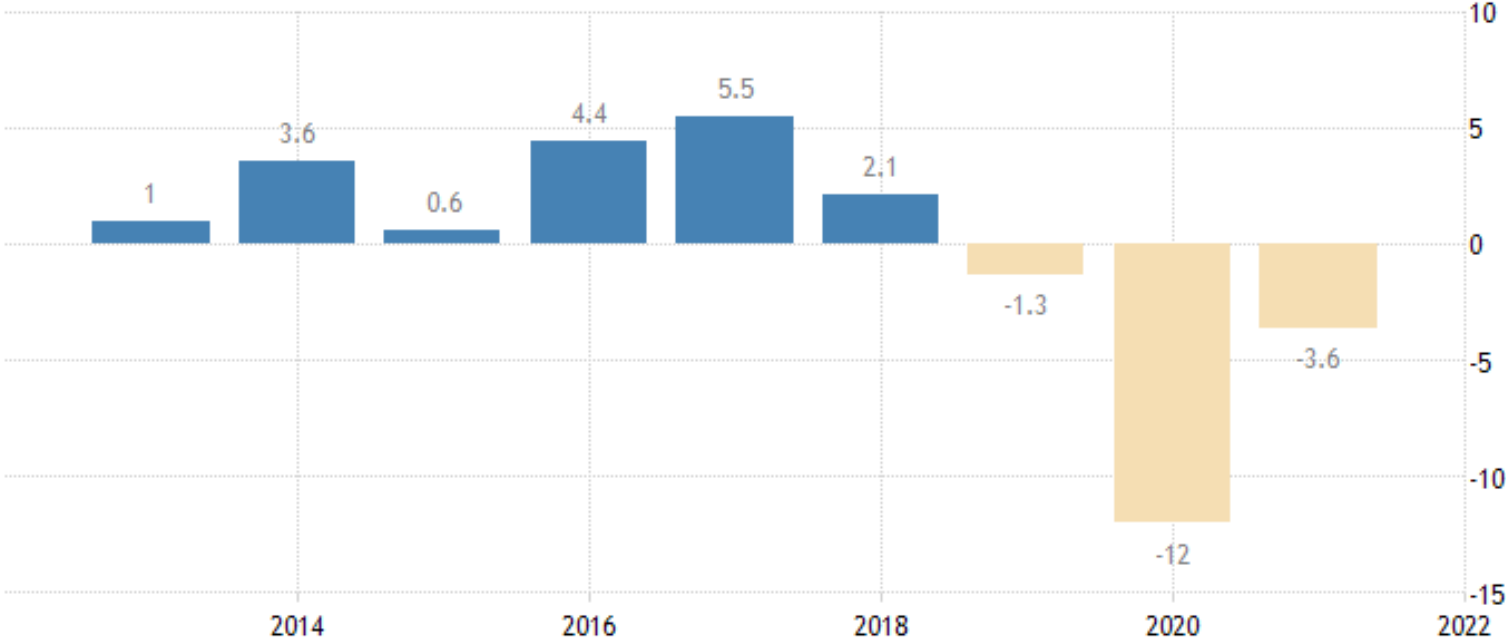
Source: Lo CM (2024) Dr Li Shu Fan Oration

- Causing hardship to many cancer and rare disease patients



# Hong Kong Government Budget Surpluses/Deficits

The fiscal deficit for 2023-2024 : **HK\$101.6 Billion**

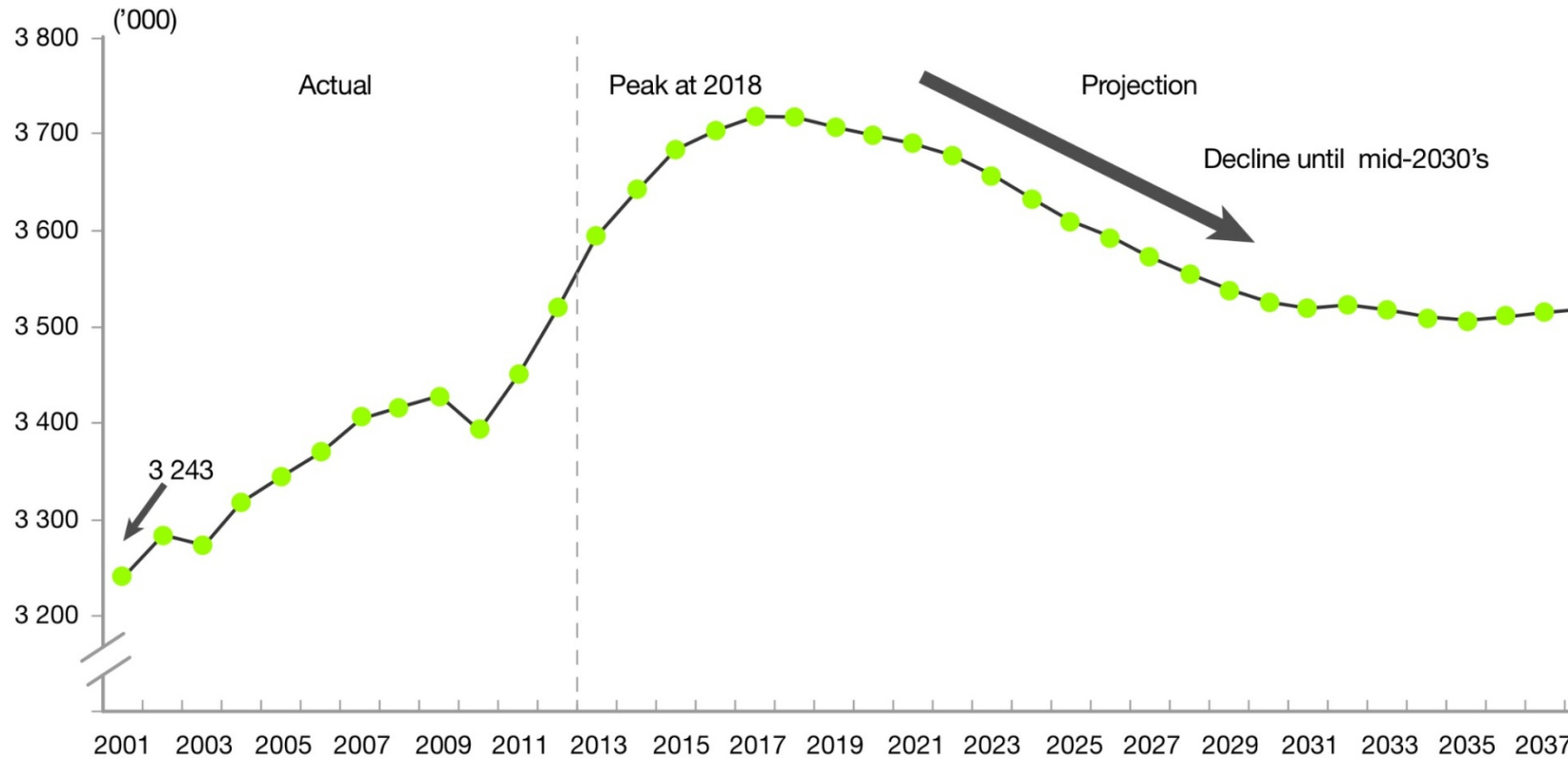


TRADINGECONOMICS.COM | GOVHK

# Tax Revenue Decline is Structural

## Steady Decline in Labour Force after 2018

Chart 1.2: Projected labour force to 2041



Note: Excluding foreign domestic helpers

Source: General Household Survey Section, Census and Statistics Department

Source: Secretariat of the Steering Committee on Population Policy (2014), *Thoughts for Hong Kong: Public Engagement Exercise on Population Policy*, Chief Secretary for Administration's Office, Hong Kong.

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# What Can be Done?

- Need to improve Efficiency in a big way :
  - Do more with Less
- 2 types of Efficiencies
  - Allocative efficiency : putting resources in areas that bring the most benefits
  - X-efficiency: resources allocated are used in a most effective manner

# How much can be saved from doing things more efficiently? (2022-23 data)

- 50% of HA admissions can be treated on outpatient basis
  - 974,192 admissions /2 = 487,096 inappropriate admissions
  - Cost of a patient day: \$7,390
  - the average length of stay is 6.7 days for general hospitals in HA
  - the cost = \$7,390 X 487,096 X 6.7 =
  - \$24.1B
  - If they were treated in SOPD@\$1,620, the cost will be 487,096 X\$1,620 =
  - \$0.79B
  - Savings = \$23.3B
  - HA total expenditure: \$95 B
  - Roughly 25% savings

# Is the HA more efficient than the Private Sector? Buying VHIS Basic Plan for the Whole Population 2021

| AGE GROUP                  | MALE POPULATION | MALE PREMIUM | FEMALE POPULATION | FEMALE PREMIUM | PREIMUM COST FOR THE AGE GROUP |
|----------------------------|-----------------|--------------|-------------------|----------------|--------------------------------|
| 0 TO 4                     | 134.8           | \$2,758.00   | 124.6             | \$2,208.00     | \$646,895.20                   |
| 5 TO 19                    | 465.5           | \$1,708.00   | 427.6             | \$1,804.00     | \$1,566,464.40                 |
| 20 TO 24                   | 176.4           | \$1,792.00   | 192.2             | \$2,246.00     | \$747,790.00                   |
| 25 TO 29                   | 219.4           | \$1,881.00   | 328.1             | \$2,758.00     | \$1,317,591.20                 |
| 30 TO 34                   | 229.2           | \$2,060.00   | 364.2             | \$3,225.00     | \$1,646,697.00                 |
| 35 TO39                    | 235.6           | \$2,291.00   | 360.3             | \$3,616.00     | \$1,842,604.40                 |
| 40 TO 44                   | 230.5           | \$2,899.00   | 329.9             | \$4,678.00     | \$2,211,491.70                 |
| 45 TO 49                   | 244.1           | \$3,686.00   | 327.4             | \$5,382.00     | \$2,661,819.40                 |
| 50 TO 54                   | 253.8           | \$4,665.00   | 333               | \$5,619.00     | \$3,055,104.00                 |
| 50 TO 59                   | 288.2           | \$6,144.00   | 343.4             | \$6,336.00     | \$3,946,483.20                 |
| 60 TO 64                   | 294.7           | \$8,262.00   | 308.5             | \$8,070.00     | \$4,924,406.40                 |
| 65 TO 69                   | 235.7           | \$10,598.00  | 247.6             | \$10,483.00    | \$5,093,539.40                 |
| 70 TO 74                   | 185.5           | \$13,766.00  | 195.8             | \$13,574.00    | \$5,211,382.20                 |
| 75 TO 79                   | 100.7           | \$17,580.00  | 103.8             | \$17,395.00    | \$3,575,907.00                 |
| 80 TO 84                   | 79.6            | \$21,715.00  | 92.4              | \$21,497.00    | \$3,714,836.80                 |
| 85+                        | 72.1            | \$27,545.00  | 137.6             | \$25,264.00    | \$5,462,320.90                 |
| <b>Total Preimum Cost:</b> | <b>3445.8</b>   |              | <b>4216.4</b>     |                | <b>\$47,625,333.20</b>         |

# How Much Can we Save if we Contract-out All Inpatient Services?

- 2021 recurrent funding to HA: \$80.7 B
- 2021 capital subvention to HA: \$12.6B
- 2021 Total subvention to HA: \$93.3B
- Inpatient services share: 53.8% -> \$50.19
- Buy VHIS for everyone -> **\$47.62B**
- Savings: \$2.5B -> roughly 3% of total budget

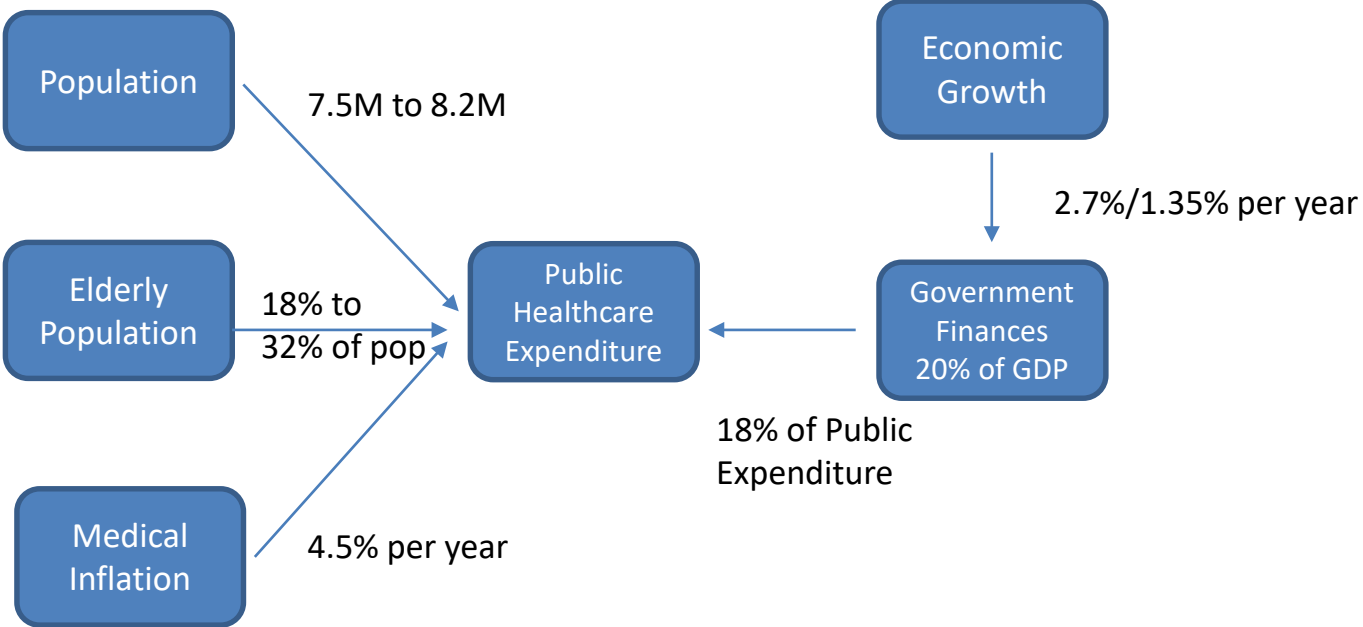


# How Bad Will It Be in 20 Years Time if We Don't Do Anything

## Parameters

- Population
- Elderly population
- Medical inflation
- Economic growth

# My Forecasting Model: 2019-2039 (using pre-COVID figures)



# Current Health Care Funding Level from Taxation

2019 Health Care Funding Level: \$72.7B

2019 Population: 7.5M

- % elderly: 18.5% → 1.4M

equivalent to 5.6M population units (X4 )

- % non-elderly: 81.5% → 6.1M population units (X1)

Total = 11.7M population units

Per population unit funding:  $\$72.7\text{B}/11.7\text{M} = \$6,214$

# Demographics in 2039

2039 Population: 8.2M

- % elderly: 32% → 2.6M → 10.5M population units (X4 )
- % non-elderly 68% → 5.6M population units (X1)

Total = 16.1M population units

Maintaining 2019 Per population unit funding: \$6,214

Total Healthcare funding Requirement:

$\$6,214 \times 16.1M = \sim \$100B$

(Based on population level and ageing only)

# Medical Inflation

## Medical Inflation Adjustment

- @4.5% per year compounded for 20 years : **\$241.1B** :  
funding requirements for 2039 based on 2019 level

# Assuming GDP Growth Rate Same as the Past 20 years

## Funds Available in 2039

- Scenario 1 : main same GDP growth rate of the past 20 years: average 2.7% per year
- GDP in 2019: \$2,987.60B
- GDP in 2039 = \$5,090.16B
- Public expenditure (20% of GDP) : \$1,018.03B
- Public healthcare expenditure (18% of public expenditure) : \$183.25B : funding available
- Requirements: \$241.1 B
- --> inadequate: **\$57.85B** short (less 30%)

# Assuming GDP Growth Rate Reduced by Half

## Funds Available in 2039

- Scenario 2 : GDP growth rate is half that the past 20 years' average : 1.35%
- GDP in 2019: \$2,987.60B
- GDP in 2039 = \$3,906.95B
- Public expenditure (20% of GDP) : \$781.4B
- Public healthcare expenditure (18% of public expenditure) : \$140.65B : funding available
- Requirements: \$241.1B
- --> inadequate (**\$100.45B short**, 70% less)

# Conclusions

My estimations suggest:

- The system will not be sustainable if we do nothing
- Improvements in efficiency can go a long way to mitigate the problem