Singapore Actuarial Society
3rd Health Insurance Conference 2012



Public-Private Partnership in Healthcare Financing

Survey of East Asian Countries

SiaoWearn Leong
Samuel Tan
Chi Cheng Hock
Gideon Tan
Joyce Poh

PPP in Healthcare Financing

Survey of East Asian countries

Agenda

- Goal of SAS project
- Healthcare financing and expenditure by the government
- Healthcare financing and expenditure by the private sector
- Health outcomes and their relationship to spending
- Role that actuaries can play
- Concluding observations

PPP in Healthcare Financing

Survey of East Asian countries

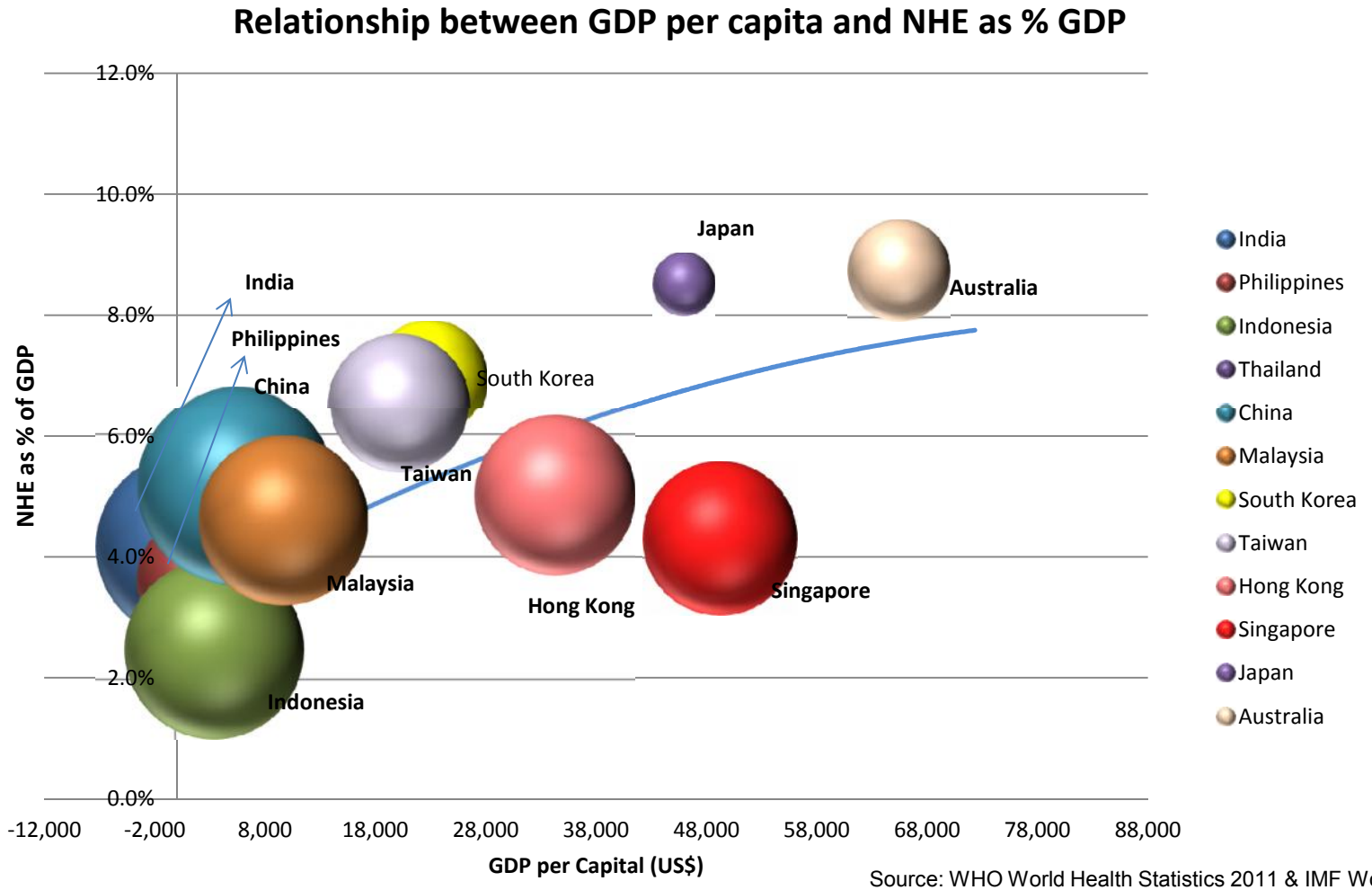
Goal of SAS project

- Establish repository of information on public-private healthcare financing models around the world, starting with East Asia
- Resource for actuaries and researchers
- Compare contribution to national healthcare expenditure (NHE) by public sector / residents, and relationship of health outcomes with spending
- Identify trends over time e.g.
  - trends in health outcomes
  - penetration of health insurance in the population
  - convergence of design of private insurance plans
  - involvement of actuaries in the design of financing models

PPP in Healthcare Financing

Survey of East Asian countries

GDP and NHE

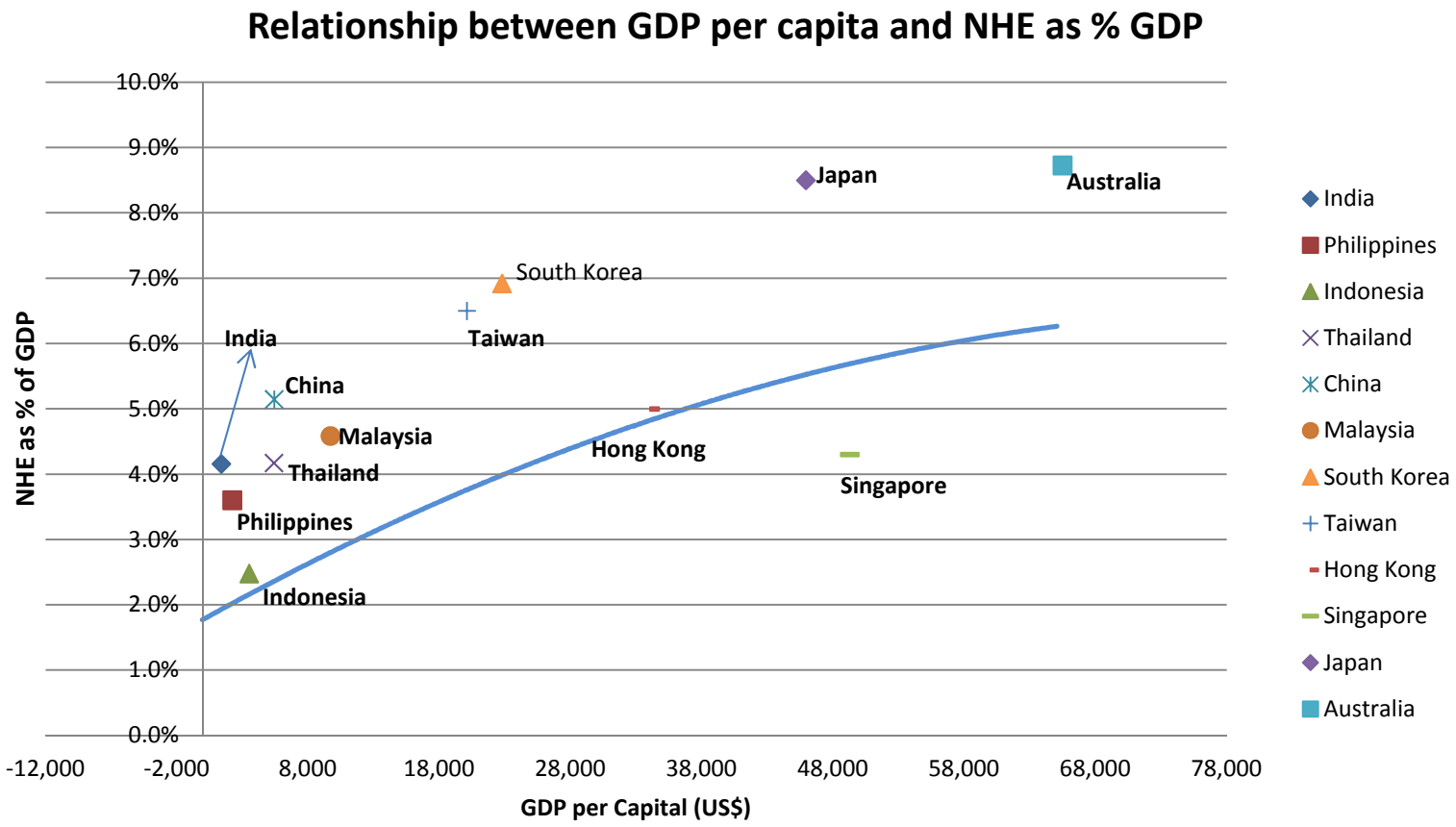


Source: WHO World Health Statistics 2011 & IMF World Economic Outlook Database extracted April 2012 & Health Authorities Website of HK and Taiwan

PPP in Healthcare Financing

Survey of East Asian countries

GDP and NHE

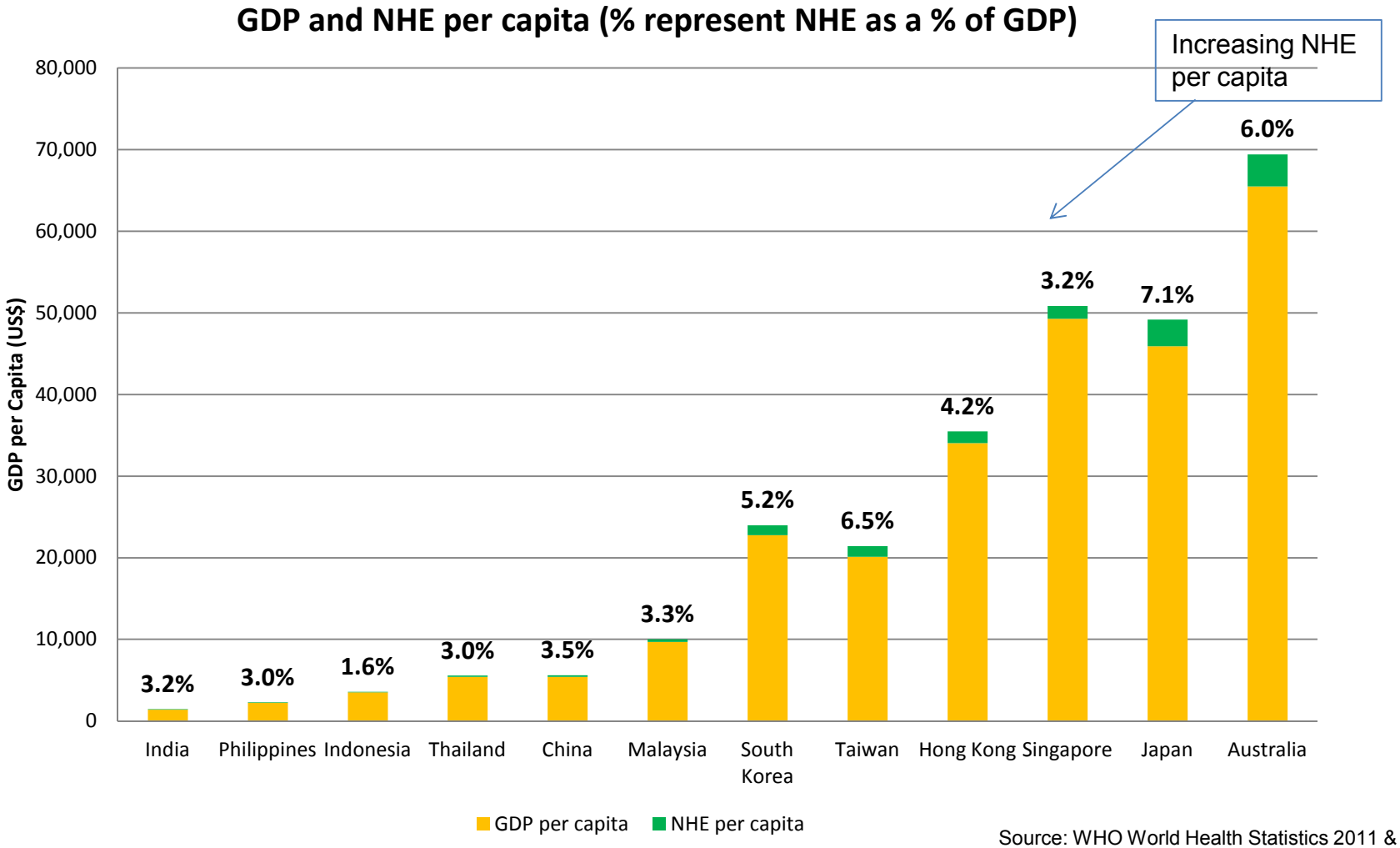


Source: WHO World Health Statistics 2011 & IMF World Economic Outlook Database extracted April 2012 & Health Authorities Website of HK and Taiwan

PPP in Healthcare Financing

Survey of East Asian countries

GDP and NHE



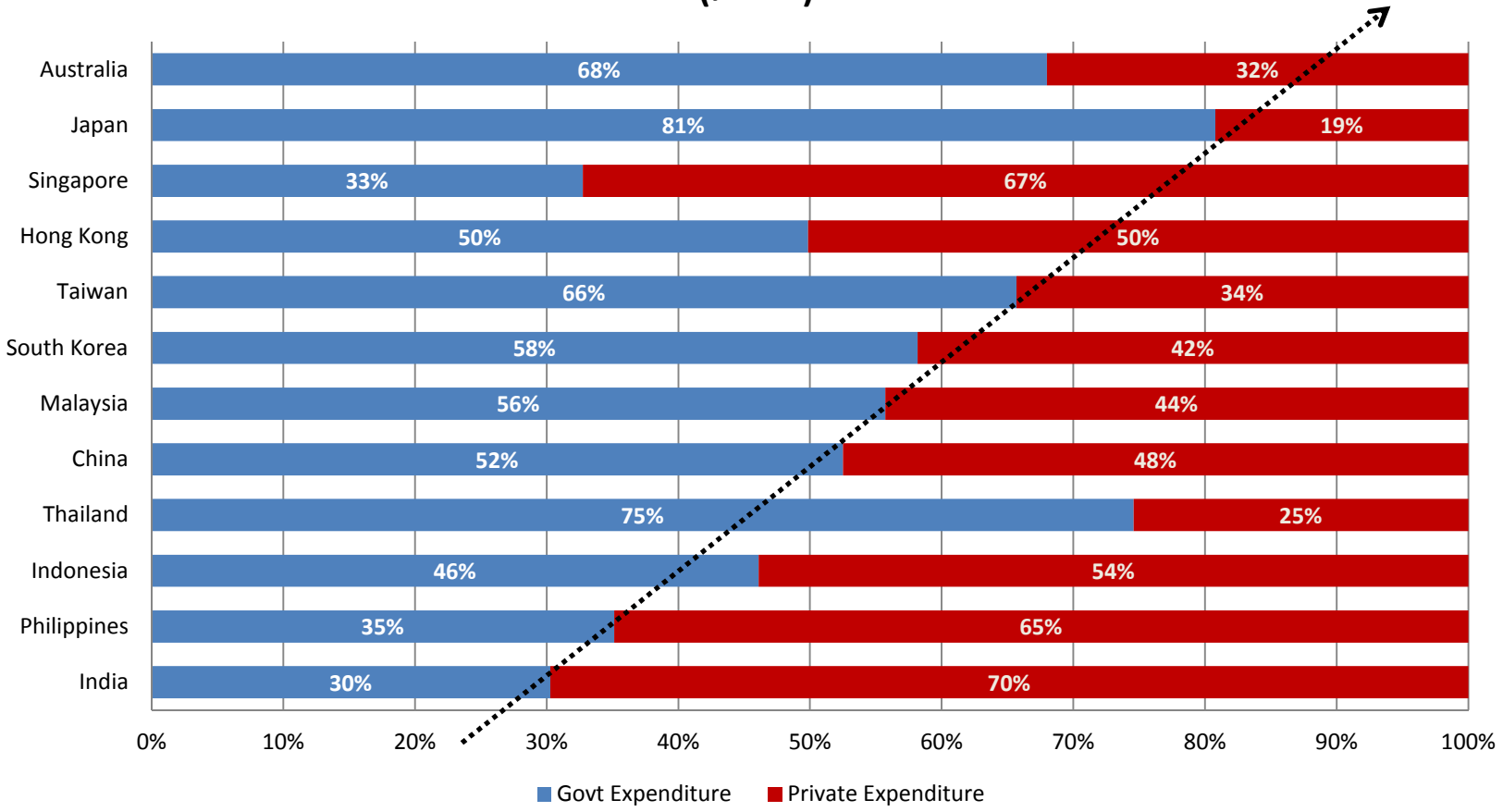
Source: WHO World Health Statistics 2011 & Health Authorities Website of HK and Taiwan

PPP in Healthcare Financing

Survey of East Asian countries

Healthcare funding: public and private

Breakdown of NHE by source of funding (%THE)



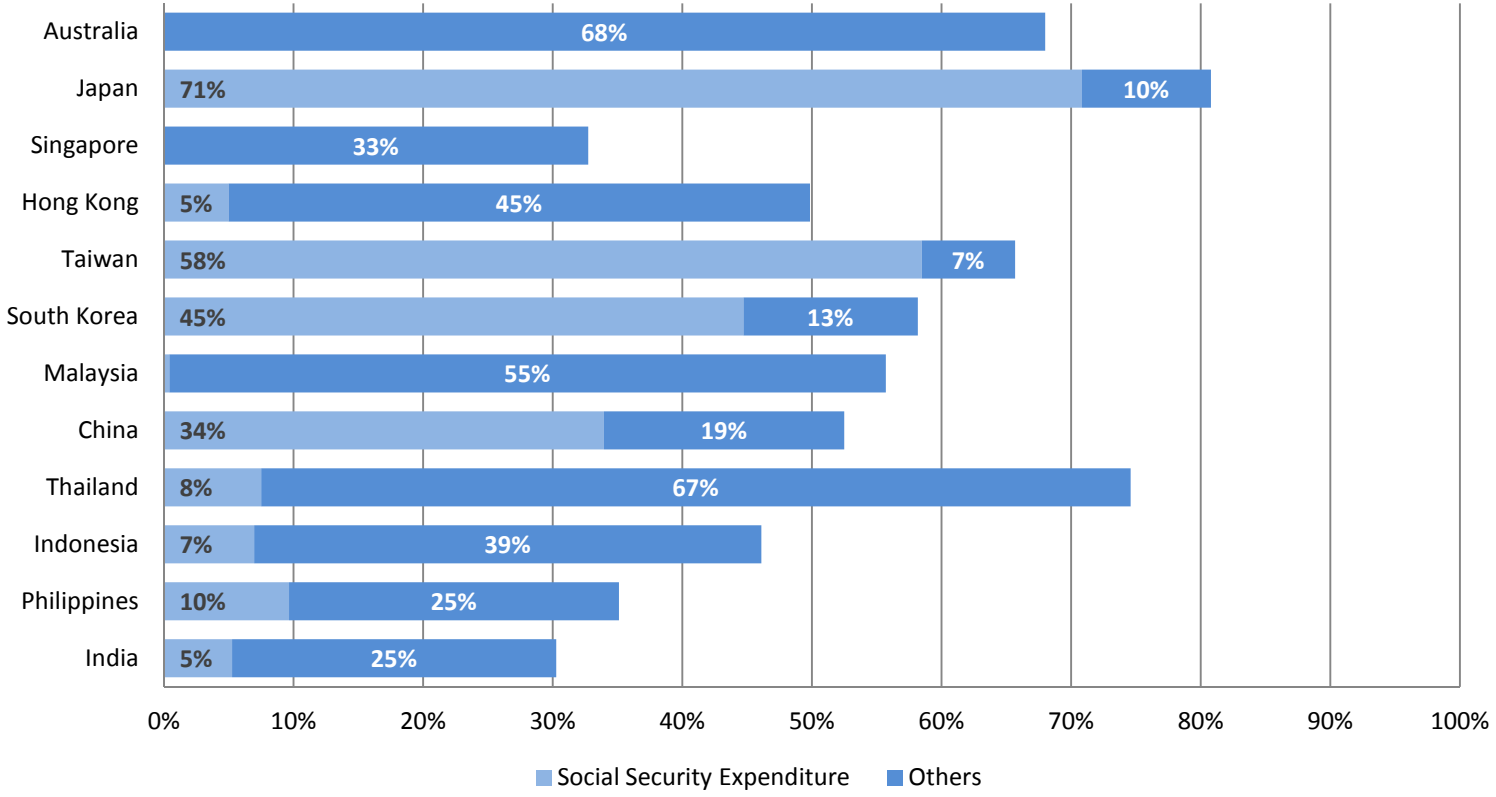
Source: WHO World Health Statistics 2011 & Health Authorities Website of HK and Taiwan

PPP in Healthcare Financing

Survey of East Asian countries

Healthcare funding: public

Breakdown of General Government Expenditure by source of funding (% NHE)



Source: WHO World Health Statistics 2011 &
Health Authorities Website of HK and Taiwan

PPP in Healthcare Financing

Survey of East Asian countries

How is financing obtained?

General tax revenue

Main form of financing for most countries surveyed, even those with payroll / income tax levies

Payroll levy on employers + employees

China (SHI), India

Notional income tax

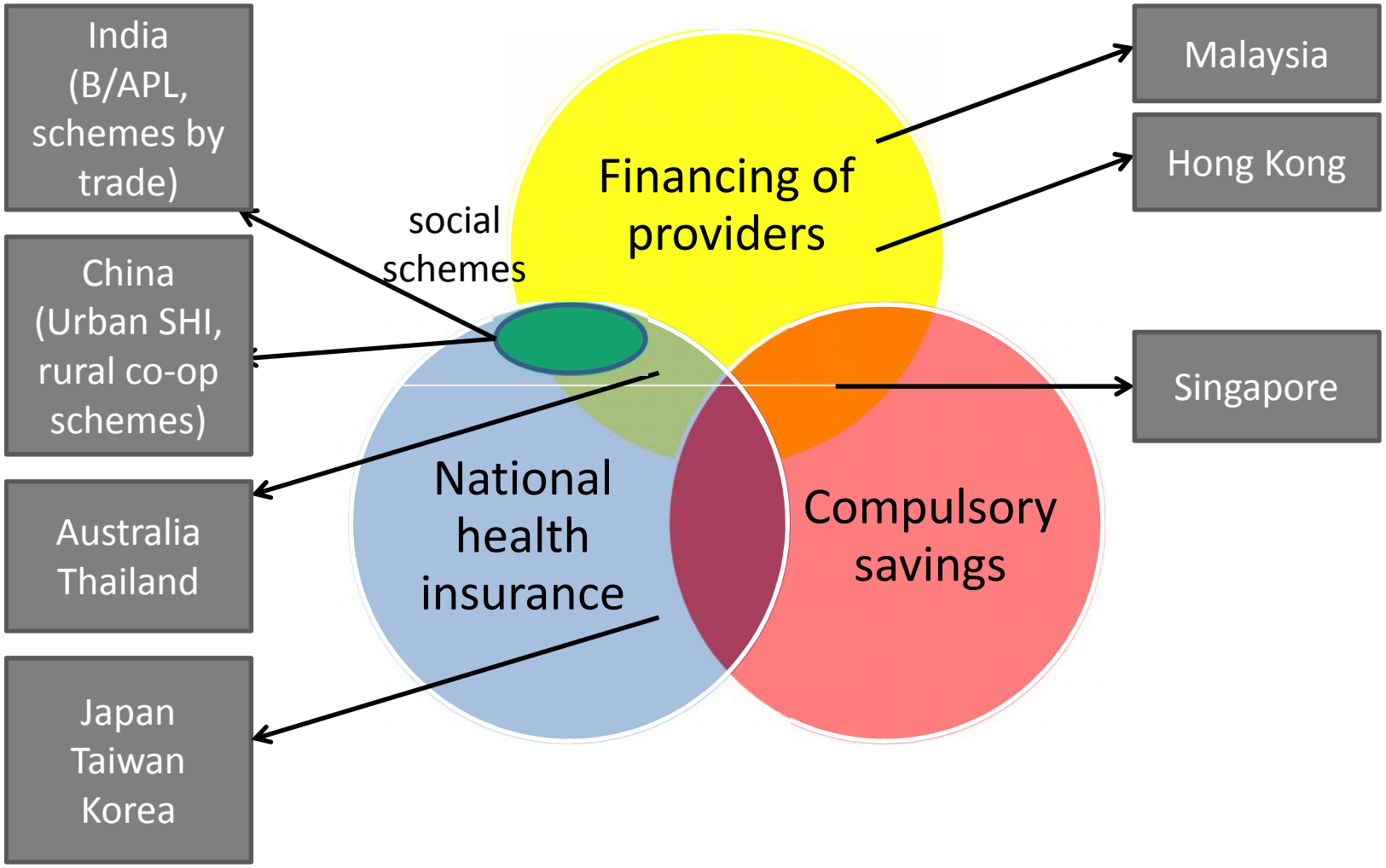
Australia Medicare levy

Taiwan NHI levy

PPP in Healthcare Financing

Survey of East Asian countries

Government's main role in healthcare financing



PPP in Healthcare Financing

Survey of East Asian countries

Public / private roles in healthcare provision

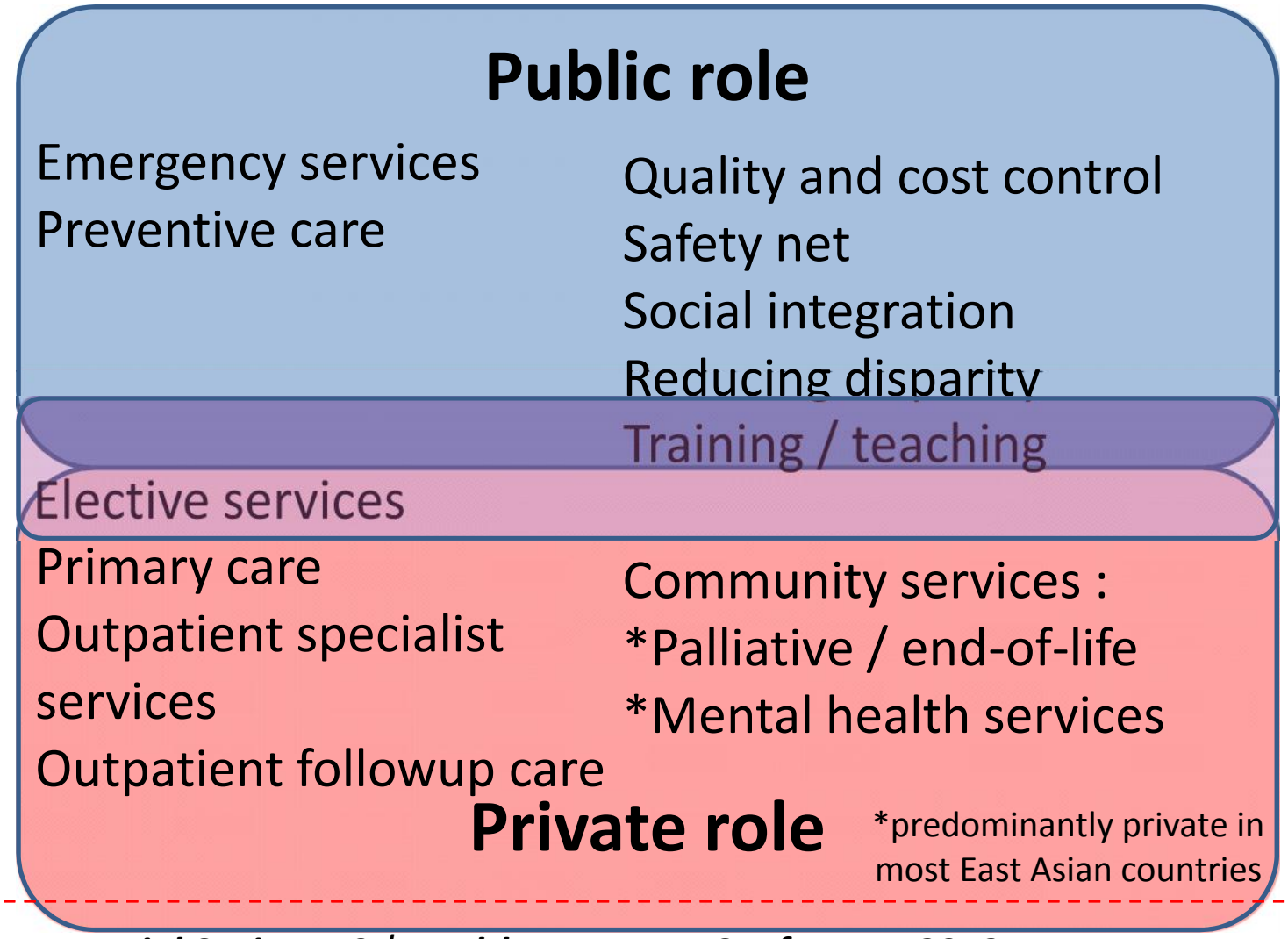
Hospital Ownership (% of hospital beds)

	Public	Private
Australia	67%	33%
Japan	31%	69%
Singapore	72%	28%
Hong Kong	88%	12%
Taiwan	34%	66%
South Korea	10%	90%
Malaysia	71%	29%
China	92%	8%
Thailand	75%	21%
Indonesia	71%	29%
Philippines	38%	62%
India	60%	40%

PPP in Healthcare Financing

Survey of East Asian countries

Public / private roles in healthcare provision



PPP in Healthcare Financing

Survey of East Asian countries

Role of primary care

	Is registration with GP required?	Gatekeeping by GP
UK	**Yes**	**High**
Australia	No	High
Japan	No	Low
Singapore	No	Med
Hong Kong	No	Med
Taiwan	No	Low
South Korea	No	Low
Malaysia	No	Med
China	No	No
Thailand	No	Low
Indonesia	No	No
Philippines	No	Low
India	No	No

PPP in Healthcare Financing

Survey of East Asian countries

Provider payment methods

Dominant Method of Payment in hospitals

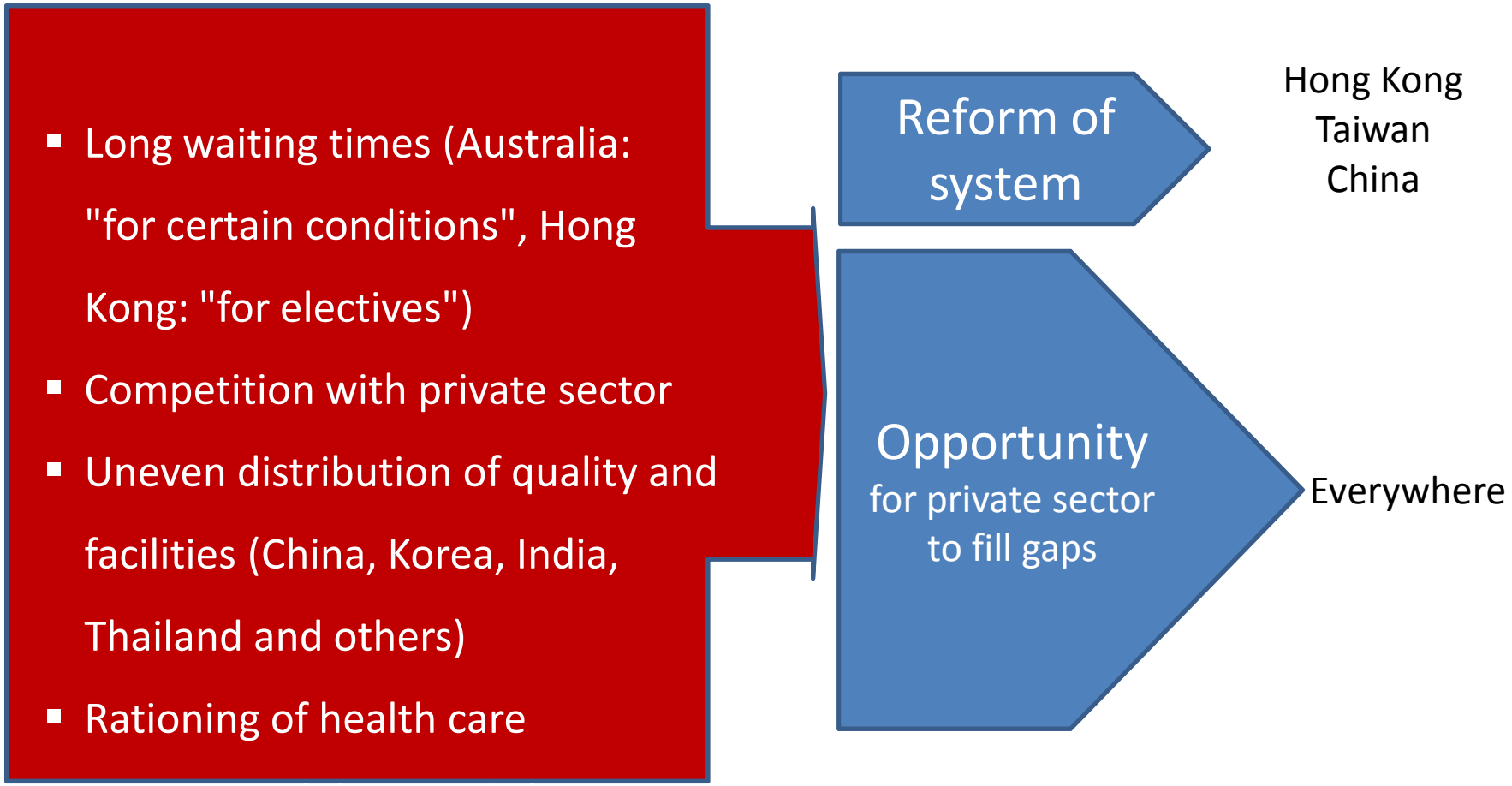
X - Public
Δ - Private

	Global Budget	Fee for Service	Case Based (DRG, per diem/capita)
Australia	X Δ		X Δ
Japan		X Δ	X Δ
Singapore		Δ	X
Hong Kong	X	Δ	
Taiwan		XΔ	XΔ
South Korea		XΔ	XΔ
Malaysia	X	XΔ	
China		XΔ	
Thailand	X		X
India	X	XΔ	XΔ

PPP in Healthcare Financing

Survey of East Asian countries

Challenges in government financed provision

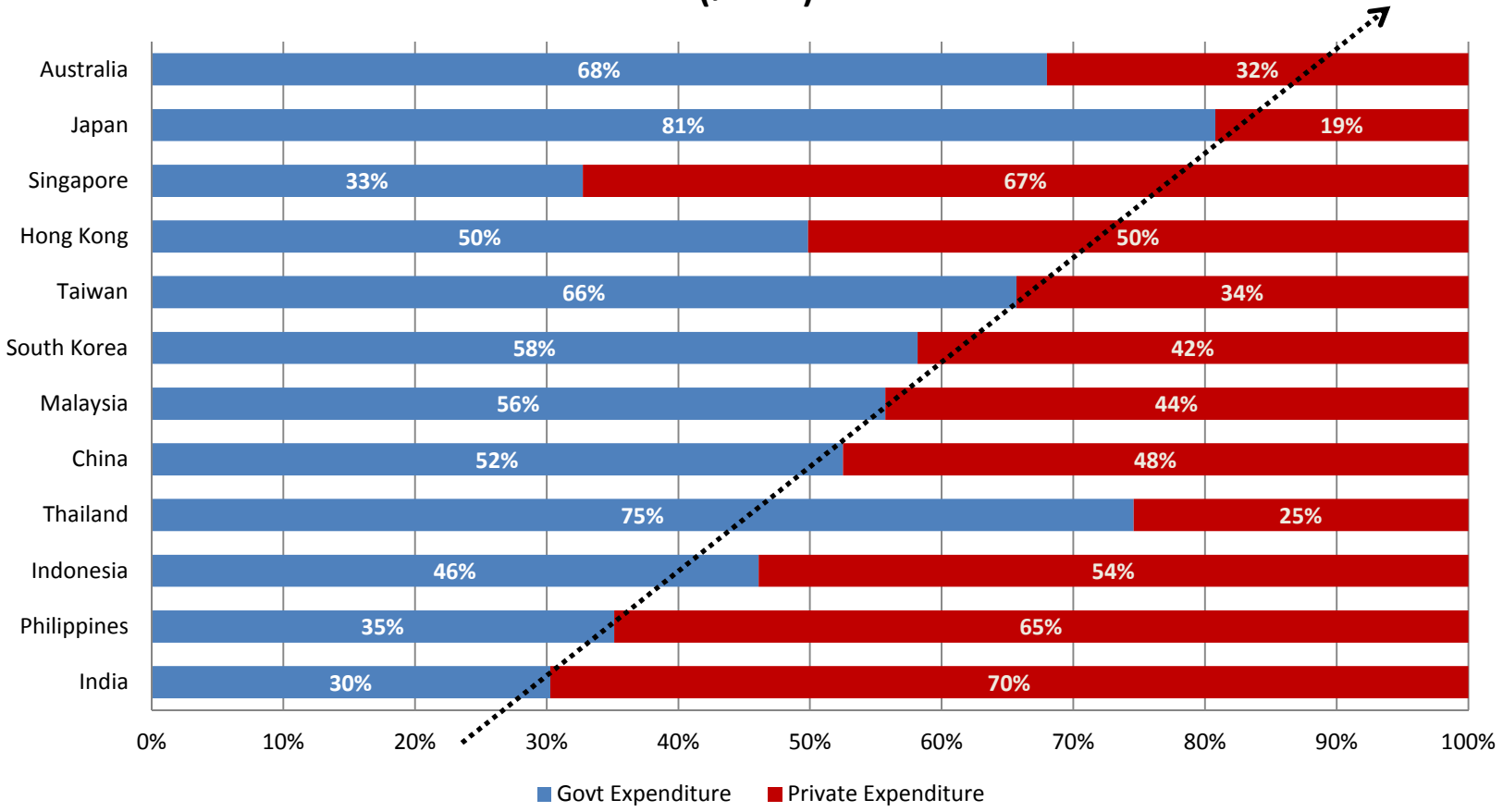


PPP in Healthcare Financing

Survey of East Asian countries

Healthcare funding: public and private

Breakdown of NHE by source of funding (%THE)



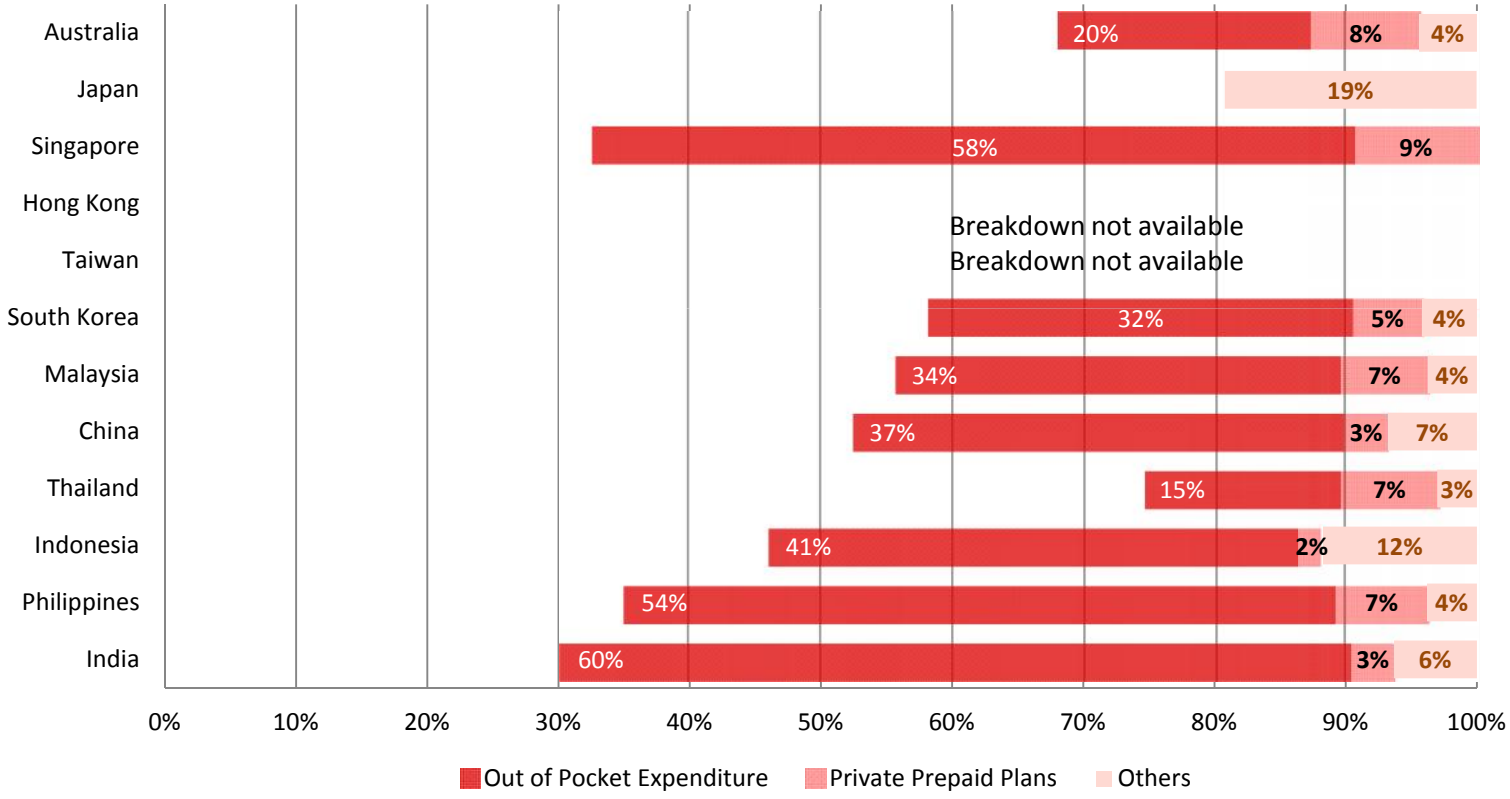
Source: WHO World Health Statistics 2011 & Health Authorities Website of HK and Taiwan

PPP in Healthcare Financing

Survey of East Asian countries

Healthcare funding: private

Breakdown of Private Expenditure on health by source of funding (% NHE)

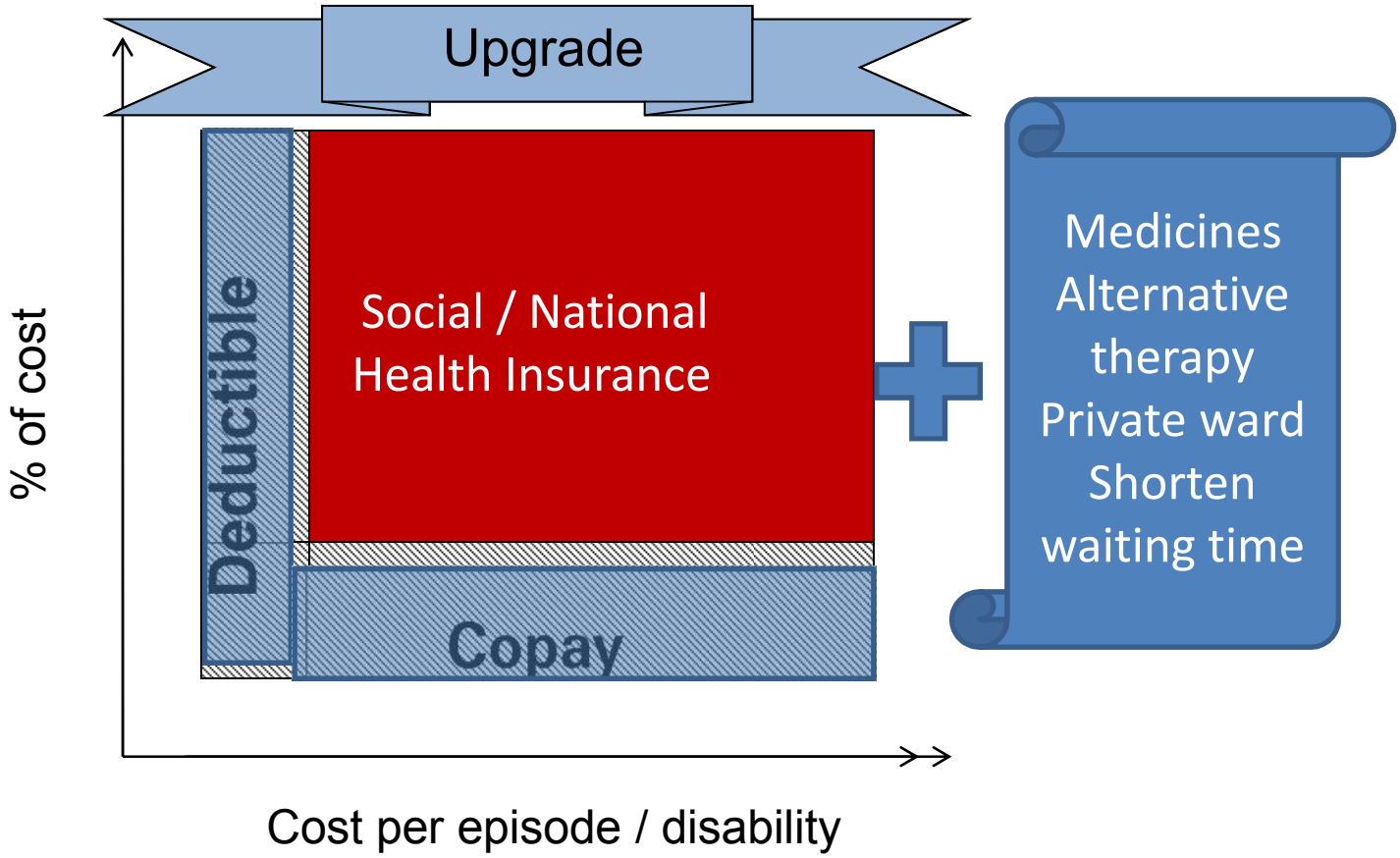


Source: WHO World Health Statistics 2011 &
Health Authorities Website of HK and Taiwan

PPP in Healthcare Financing

Survey of East Asian countries

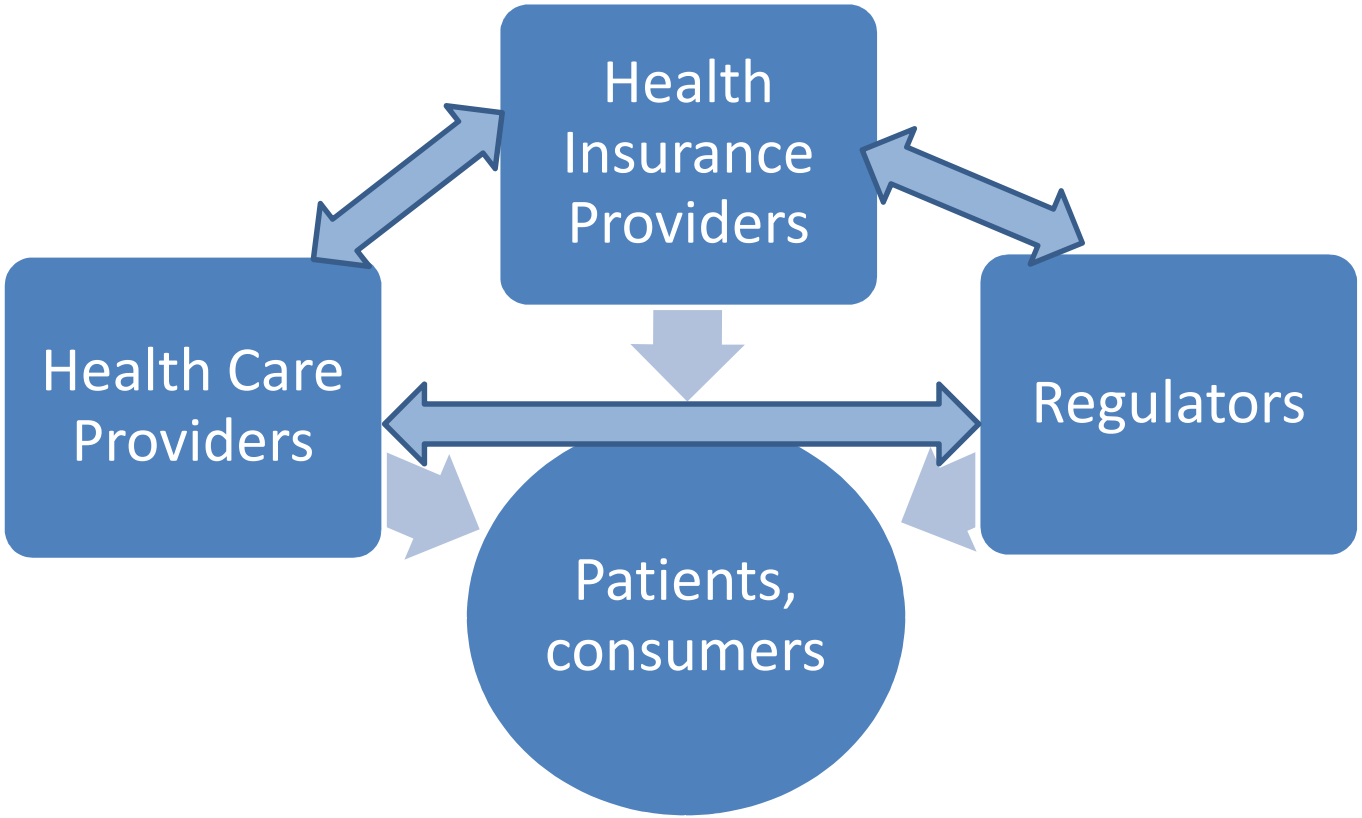
Interaction of public / private insurance schemes



PPP in Healthcare Financing

Survey of East Asian countries

Private and Public Partnership

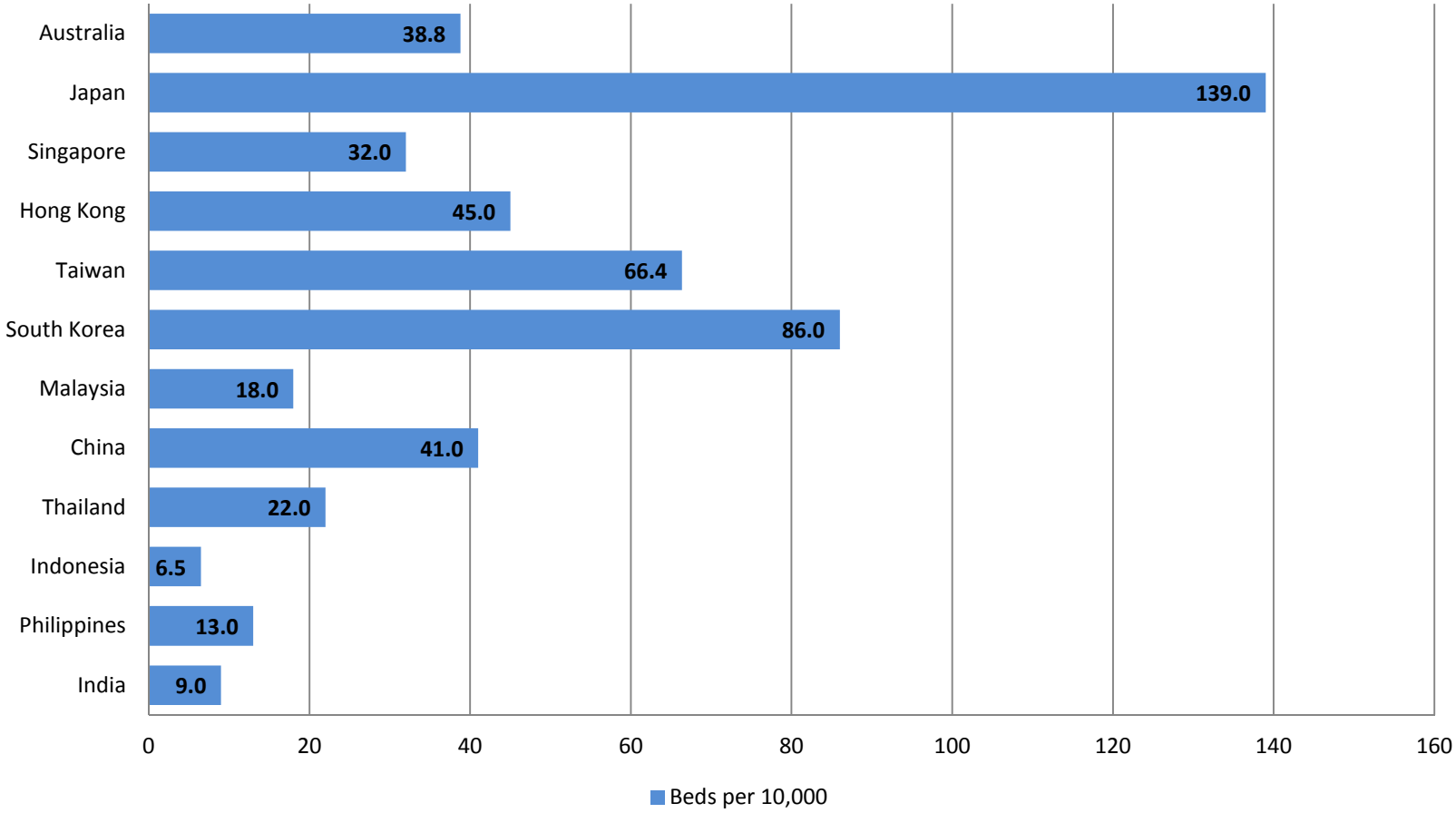


PPP in Healthcare Financing

Survey of East Asian countries

Healthcare Outcomes

Hospital Beds per 10,000 population



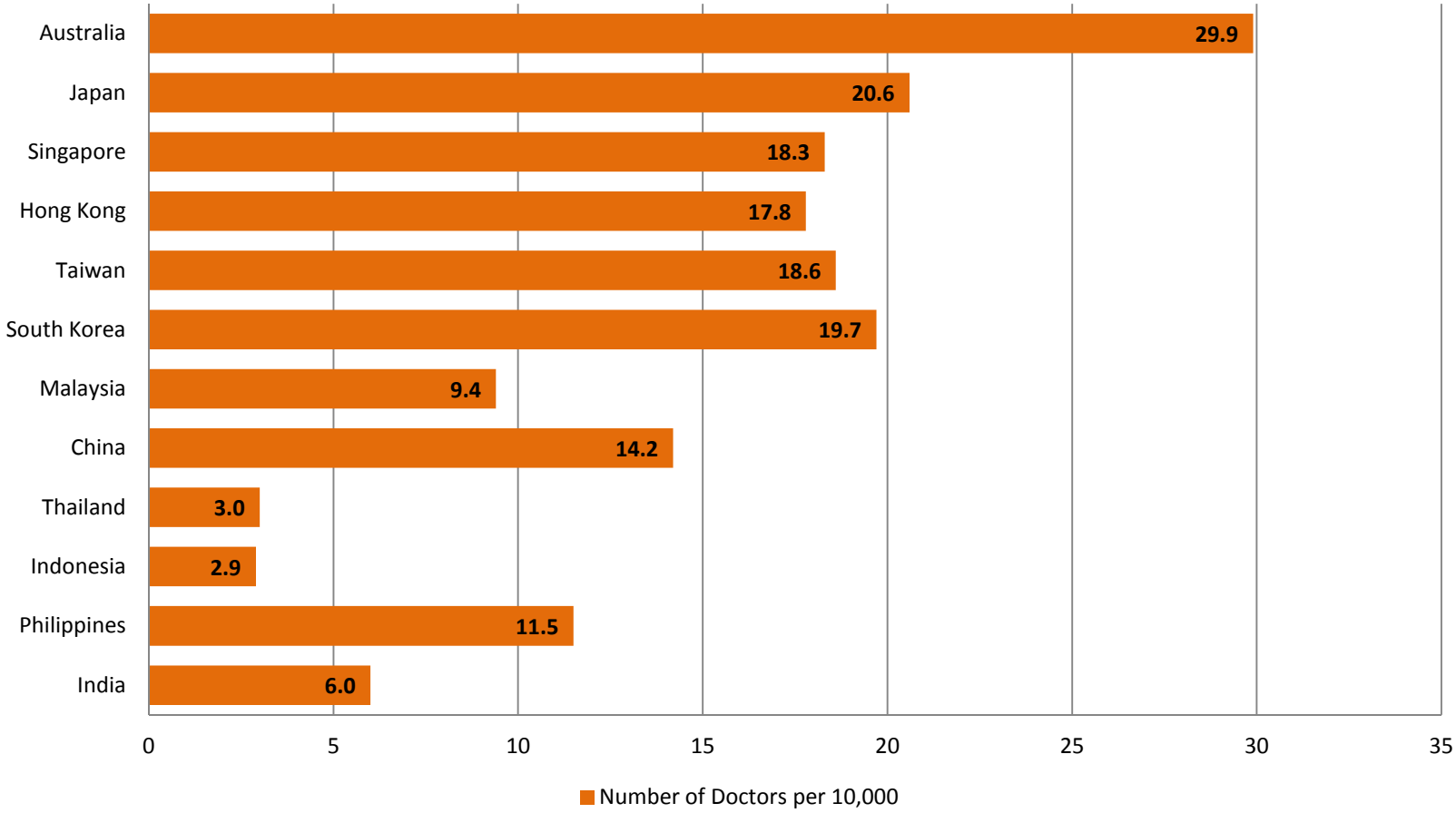
Source: WHO World Health Statistics 2011 &
Health Authorities Website of HK and Taiwan

PPP in Healthcare Financing

Survey of East Asian countries

Healthcare Outcomes

Number of Doctors per 10,000 population



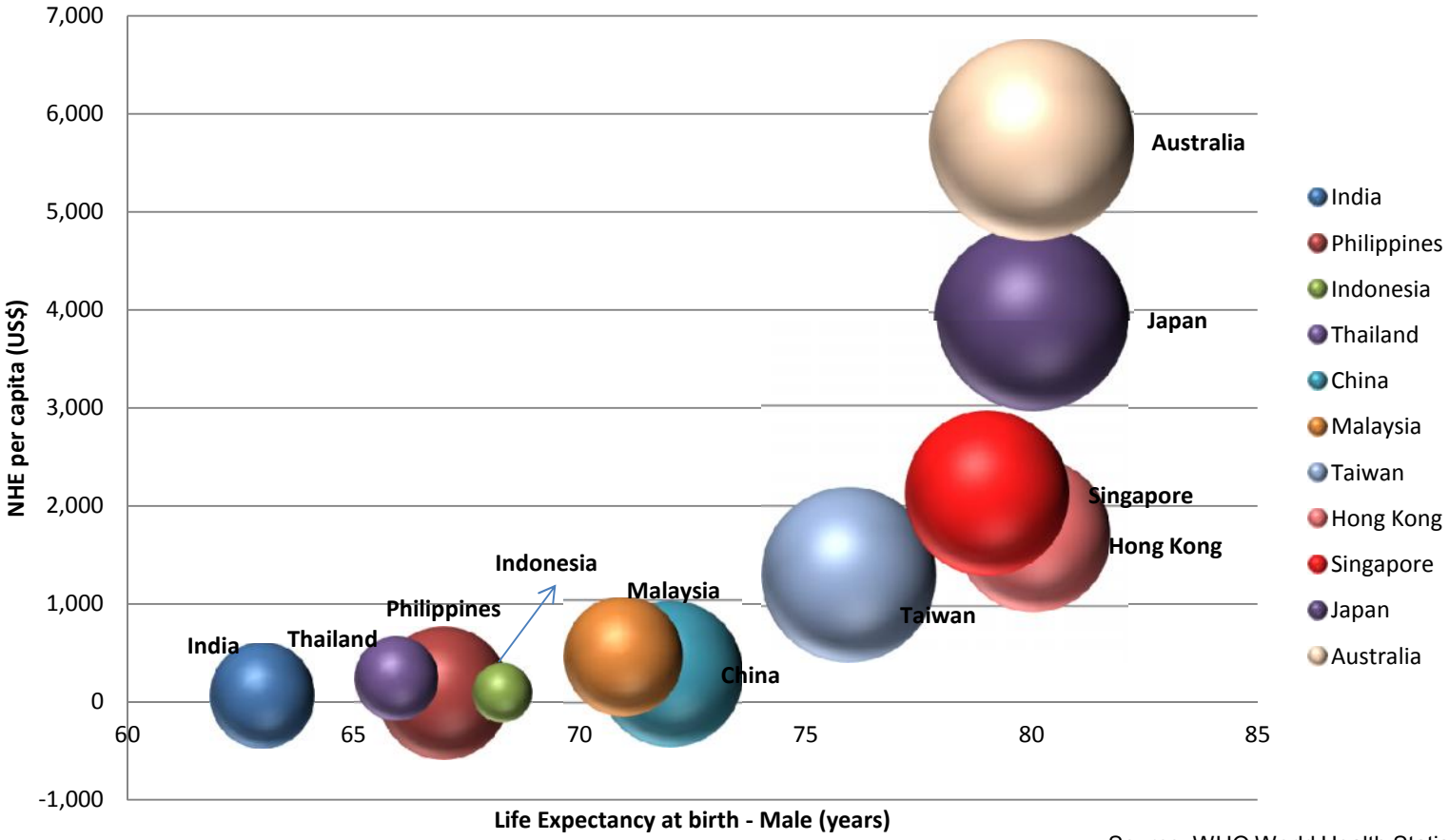
Source: WHO World Health Statistics 2011 &
Health Authorities Website of HK and Taiwan

PPP in Healthcare Financing

Survey of East Asian countries

Healthcare Outcomes

Relationship between Life Expectancy and NHE per capita and Number of Doctors



Source: WHO World Health Statistics 2011 & Health Authorities Website of HK and Taiwan

PPP in Healthcare Financing

Survey of East Asian countries

Actuaries' involvement in healthcare

	Public	Private
Australia	Yes	Yes
Japan	Yes	Yes
Singapore	Yes	Yes
Hong Kong	N/A	N/A
Taiwan	No	Yes
South Korea	Yes	Yes
Malaysia	N/A	Yes
China	Yes	Yes
Thailand	No	Yes
Indonesia	N/A	Yes
Philippines	N/A	N/A
India	Yes	Yes

PPP in Healthcare Financing

Survey of East Asian countries

No. of practising actuaries in health

	Actuaries
	Public
Australia	3
Hong Kong	1
Japan	*low single digit
Malaysia	0
Singapore	3
Taiwan	0
Thailand	0
India	6
Indonesia	0
Philippines	0
Korea	4
China	0

PPP in Healthcare Financing

Survey of East Asian countries

Role of health actuaries in Asia

	Australia	HK	Japan	Malaysia	Singapore	Taiwan	Thailand	India	Korea	China
Product development / pricing / marketing										
Advice on product design	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Calculation of premium rates	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Advice on underwriting	Y	Y	N	Y	Y	Y	Y	N	Y	Y
Work on reinsurance arrangements	N	Y	Y	Y	Y	Y	Y	N	Y	Y
IT-Development / Datasets										
Support of IT development and implementation	Y	Y	Y	Y	Y	N	N	N	N	N
Establish or managing data sets	Y	Y	Y	Y	Y	Y	N	N	N	N
Product management										
Revision and review of premium rates at least yearly	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
Approval of rates is required by a qualified actuary	Y	Y	N	Y	Y	Y	Y	Y	Y	N
Reserving										
Calculation of aging provisions	N	N	N	Y	N	Y	Y	Y	Y	N
Calculation of active reserves (i.e. DAC)	Y	Y	N	N/A	N	Y	Y	Y	Y	Y
Calculation of technical provisions (Unearned premium, reported but not paid claims, IBNR, claims handling reserve):	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Accounting / Statistics and reporting										
Statutory accounting	Y	Y	Y	Y	N	Y	N	N	N	Y
Statistics, reporting and consulting										
Provide reports to management	Y	Y	Y	N/A	Y	Y	Y	N	Y	Y
Provide information or reports to supervisory authorities	Y	Y	Y	N/A	Y	Y	Y	Y	Y	Y
Compile statistics or publications	Y	Y	Y	N/A	Y	Y	Y	N	Y	Y
Financial modelling										
Business planning	Y	Y	Y	N/A	Y	Y	Y	N	Y	Y
Valuation	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Forecasting/Profit testing/Stress tests	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Medical management and operational reviews	N	Y	Y	N/A	Y	Y	N	N	Y	N
Benchmarking	Y	Y	Y	Y	N		N	N	Y	Y
Other activities										
Analysis for mergers	Y	Y	Y	N/A	Y	Y	Y	N	N	N
Companies appraisal analysis	Y	Y	Y	N/A	Y	Y	Y	N	N	N
Involvement in risk management	Y	Y	Y	N/A	Y	Y	Y	N	N	N

PPP in Healthcare Financing

Survey of East Asian countries

Role of health actuaries in Asia

Opportunities for health actuaries to work more closely with the government in PPP

- Research studies on relationships between health outcomes and public-private models
- Work with government agencies to improve coordination of care between public and private sectors
- Experiment with various managed care models to keep the cost of health care financing low while improving access to care
- Provide input on healthcare reform in various countries where the government is exploring different alternatives

PPP in Healthcare Financing

Survey of East Asian countries

Observations

- Public/private contributions to health care financing in Asia ranges across wide spectrum, wide variety of public/private models
- As GDP/capita increases, NHE as a percentage of GDP also increases. However the city-states HK and SG have low NHE relative to GDP (and high outcomes)
- Public role must extend beyond direct financing of providers or providing certain services to governance, incentivisation of private sector, and social integration
- At the same time opportunities abound for private sector to take bigger role not just in providing health care services but also in completing and optimizing financing mechanisms and improving efficiency of health care
- Actuaries' role in public and private health financing is evolving and expanding