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What can be achieved with a single-payer NHI system: The case of Taiwan

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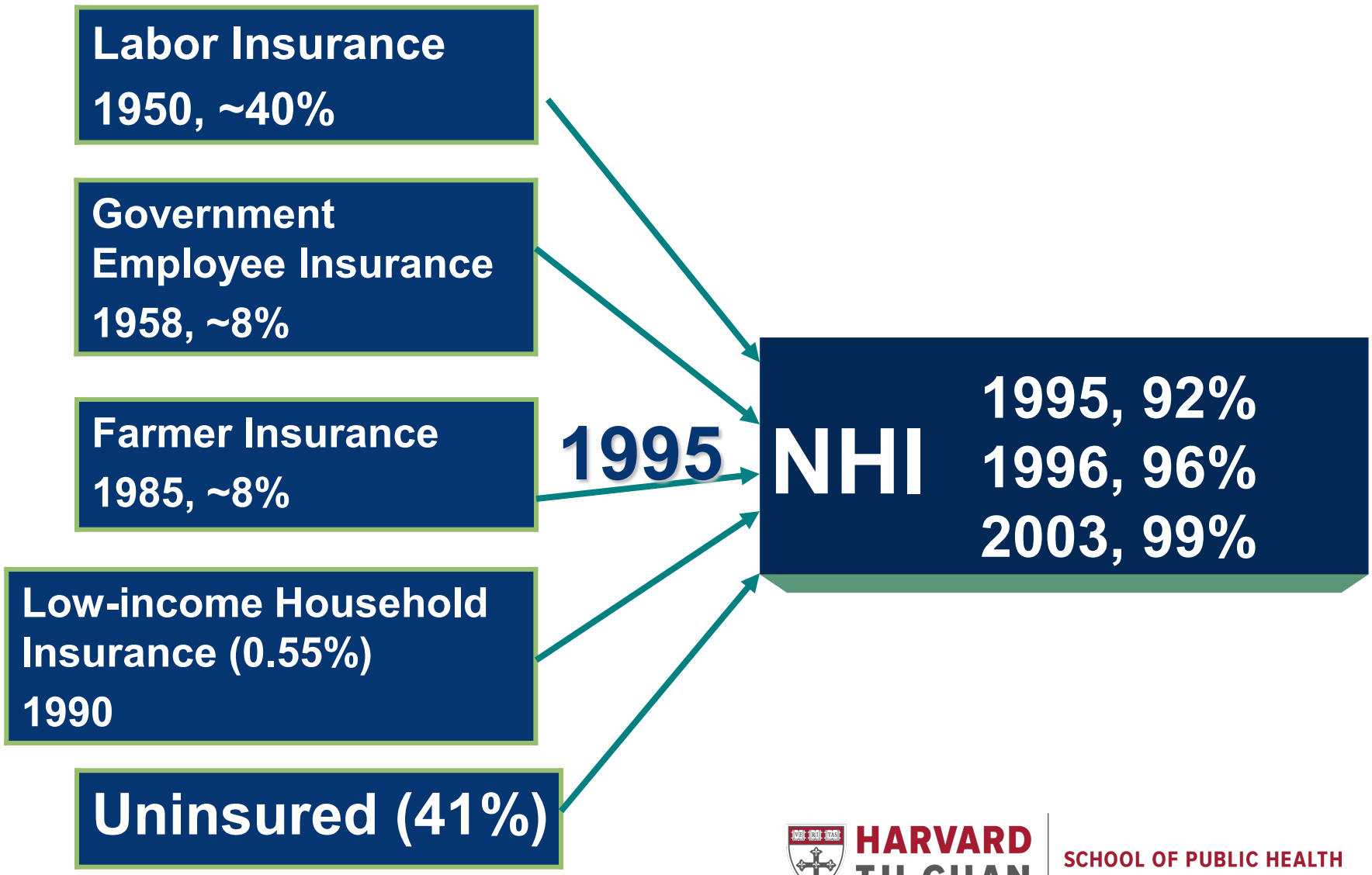
Background

- Taiwan established the National Health Insurance (NHI) system in 1995
- Objectives:
  - Providing every citizen with equal access to good quality health services
  - Assuring financial sustainability by controlling health spending at an affordable level

Definition of A Single-Payer System

1. One risk pool for the whole nation (or each province/state)
2. One uniform benefit package, with people able to voluntarily purchase additional insurance covering services beyond what is available in the uniform benefit package;
3. One purchaser who pays providers with the same provider payment method and uses one uniform set of rules for selection and contracting

Integration of Various Social Health Insurance Schemes



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Uniform and Comprehensive Benefit Package

- Inpatient services
- Ambulatory care
- Tests and Examinations
- Prescription drugs and certain OTC drugs
- Dental services
- Traditional Chinese medicine
- Day care for the mentally ill
- Home care (Nursing service)
- Excluded: Immunization, prevention and other medical services shall be born by the government; Cosmetic surgery; double or single occupancy; non-prescription drugs; denture, hearing Aids or prosthetics which shall be provided under social welfare; long term care

Financing

- Program financed through payroll related premium, Contribution rate was (per person, Families pay up to 4):
  - 1995-2002: 4.25%
  - 2003-2010: 4.55%
  - 2010: 5.17%
- Self employed, Farmers, retired persons pay flat amounts
- Contribution shared by the insured, employer, and Government (apprx 1/3 each)
- Low income, Veterans, and Aborigines (Senior and children) are fully subsidized

Premium Contribution Percentage, by Population Group, 2015

Population Group	Insured	Employers	Gov't
Category 1 (56.4%) Civil servants	30	70	0
Employees in formal sector	30	60	10
Category 2 (15.8%) Union members	60	0	40
Category 3 (10.3%) Farmers and fishermen	30	0	70
Category 4 (0.8%) Active soldiers and prisoners	0	0	100
Category 5 (1.4%) The poor	0	0	100
Category 6 (15.3%) Unemployed veterans and surviving dependents of veterans	0	0	100
Other unemployed households	60	0	40

Enabling Conditions

- Booming economy:
  - Annual growth rate of GDP: 7-11%
  - Rising wages and corporate profits
- Political support: Taiwan was undergoing a transformation from a one-party authoritarian regime to a democratic state. President Lee Teng-Hui was strongly committed to establishing a new landmark social program for all citizens.
- Designated a powerful agency—Taiwan's Council of Economic Development and Planning—to conduct the planning with competent Taiwanese technical experts

Coinsurance for Inpatient Care (Acute Care)

Length of Stay	Coinsurance Rate
within 30 days	10%
31 to 60 days	20%
Above 61 days	30%

Coinsurance ceiling: capped at 6% of average national income per person for a single admission, and 10 % for an entire calendar year

Exemption of Co-payment

- Major diseases and injuries
- Child delivery
- Preventive health services
- Medical services in remote areas (mountain areas, offshore islands)
- Low-income households
- Veterans
- Children under the age of 3

Single Purchaser with Market Power

- Over 93% of Taiwan's providers have a service contract with NHIA.
- The NHIA contracts with public and private providers equally.
- Service delivery is predominantly private:
- In 2014, 70% of the total outpatient visits in Taiwan were delivered by private clinics, 8% by public hospitals, 7% by for profit hospitals, 14% by not-for-profit hospitals and 1% by public clinics.
- About 48% of hospital admissions were at not-for-profit hospitals, 19% at for profit hospitals and 31% at public hospitals

Financial sustainability and the global budget system

- Global budget with point-based fee schedule
- Setting annual budget cap:
  - Each year the Cabinet approves the expenditure target
  - National Health Insurance Committee (NHIC) negotiates and sets an annual global budget prospectively within the expenditure target
  - NHIC members: 10 representing providers (hospitals, physicians, dentists, pharmaceuticals), 2 government officials and 5 members from academic institutions to provide objective public interest views and to help break ties.

Setting the Budget for each sector

- Four sectors: dental, Chinese medicine, western medicine clinics (20%) and hospitals (70%)
- $Sector\ budget_{(t,j)} = (Basic\ benefit\ budget_{(t-1,j)} * (1 + Growth\ rate\ of\ basic\ benefit\ budget_{(t,j)})) + Special\ program\ budget_{(t,j)}$
- Growth rate of non-negotiable factor = growth rate in the number of enrollees + growth rate in cost due to demographic (age-sex structure) changes + growth rate in the Medical Consumer Price Index (MCPI)
- Negotiable factors: expansion of NHI benefits package to cover new procedures, devices and/or drugs and target efficiency gains. Efficiency gains refer to anticipated savings.

Negotiable and non-negotiable rates

	All			Hospital		
	Negotiable	Non-negotiable	Total	Negotiable	Non-negotiable	Total
2003	2.35%	1.55%	3.90%	2.22%	1.79%	4.01%
2004	3.30%	0.51%	3.81%	3.14%	0.96%	4.10%
2005	2.27%	1.34%	3.61%	1.96%	1.57%	3.53%
2006	3.37%	1.17%	4.54%	3.48%	1.42%	4.90%
2007	2.18%	2.32%	4.50%	2.04%	2.88%	4.91%
2008	2.44%	2.30%	4.74%	2.13%	2.77%	4.90%
2009	0.09%	3.36%	3.46%	0.62%	3.84%	4.46%
2010	0.97%	1.82%	2.80%	0.42%	2.31%	2.73%
2011	1.05%	1.64%	2.69%	0.95%	2.05%	3.01%
2012	1.55%	2.70%	4.24%	1.61%	3.00%	4.61%
2013	1.43%	2.99%	4.43%	2.45%	3.13%	5.58%
2014	1.41%	1.58%	2.99%	1.07%	1.92%	2.99%
2015	1.46%	1.77%	3.23%	1.33%	2.13%	3.45%
2016	0.56%	4.03%	4.58%	0.94%	4.40%	5.33%

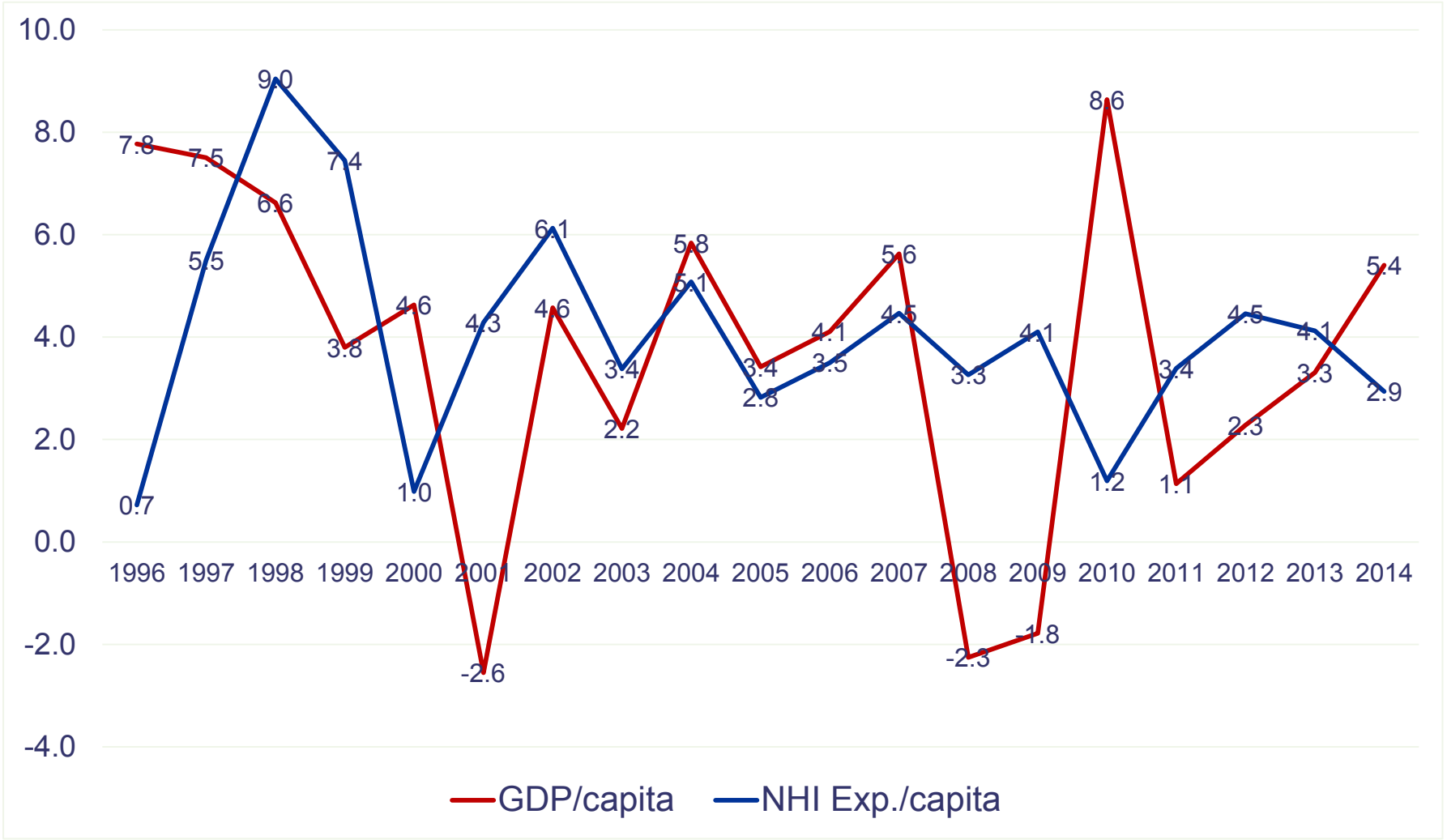
A Single Point-Based Fee Schedule for Medical Services

- Nationwide point based fee schedule
- Floating conversion factor, except for pharmaceutical (fixed at 1)

Annual Growth Rate in Real Per Capita Total, NHI and Private Health Expenditure, 1996-2012

Years	GDP	Total Health Expenditure	NHI Expenditure	Out of Pocket (OOP)
96-02	3.8%	5.7%	5.0%	5.2%
02-12	3.9%	2.9%	2.7%	1.9%
96-12	3.9%	3.9%	3.5%	3.1%

Annual Growth Rate



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Admission Volume and Total Points Billed in Inpatient Care, 1997-2014

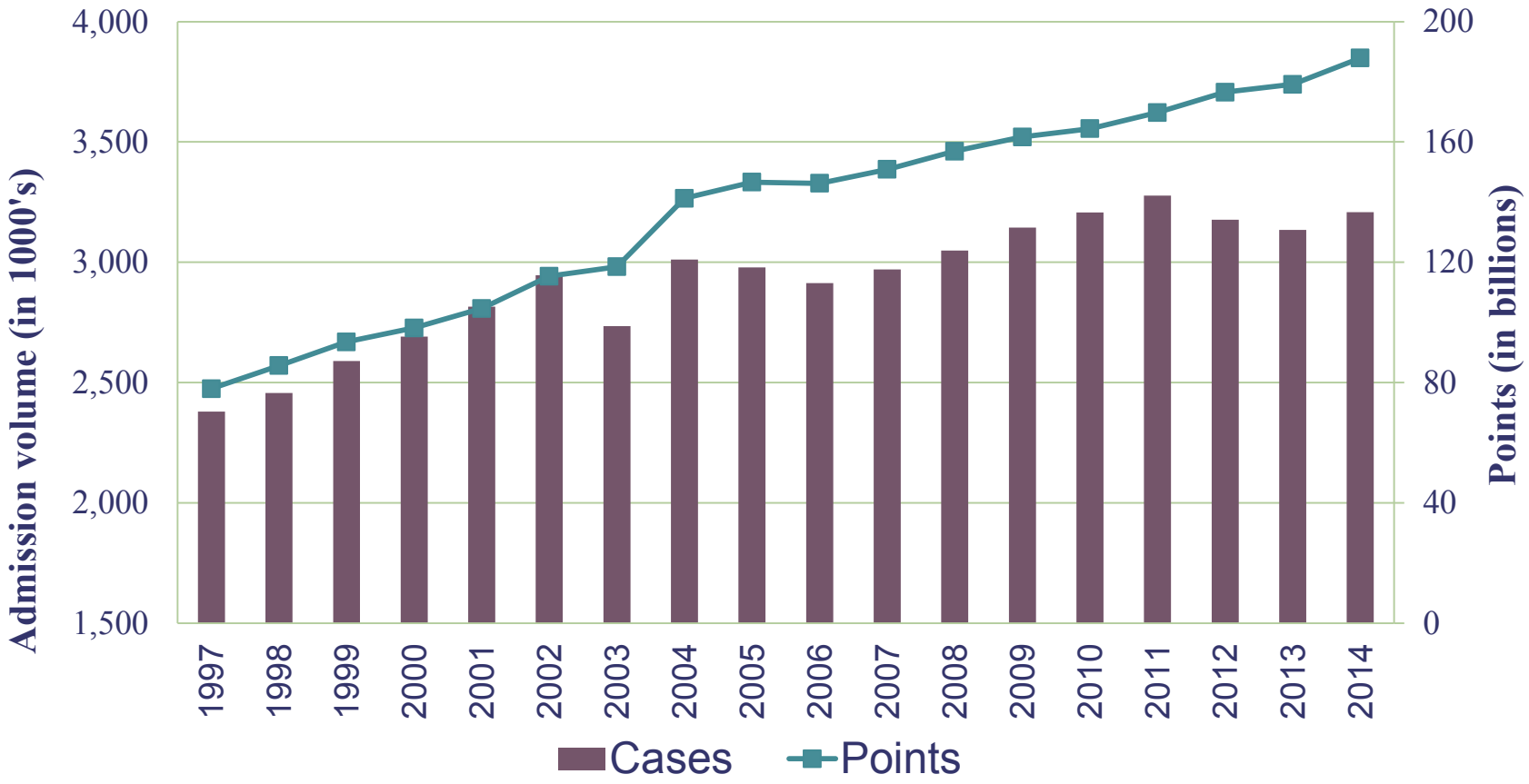

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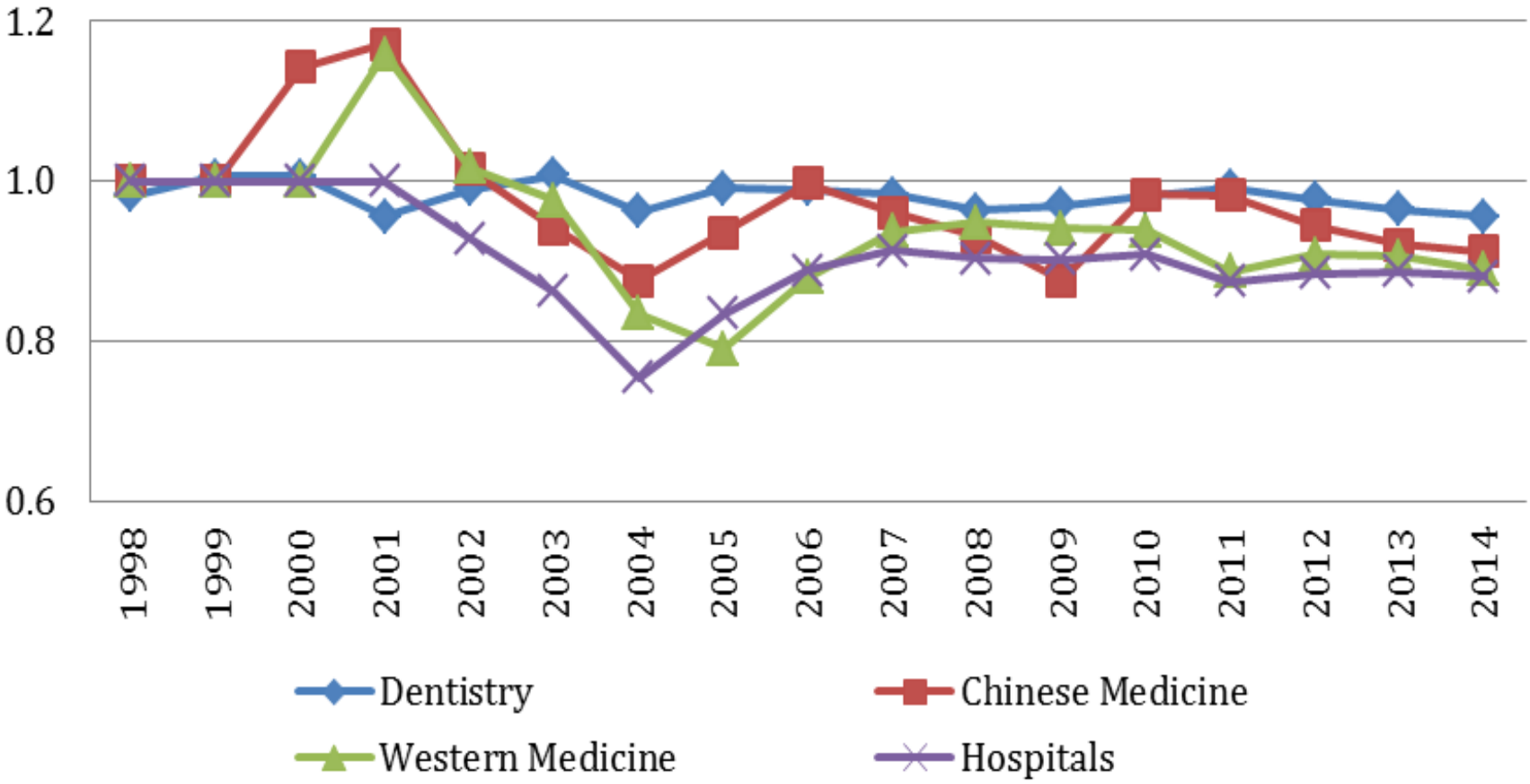
Fig 2. Sector Specific Conversion Factor, 1998-2014



Source: National Health Insurance Administration of Ministry of Health and Welfare of the Republic of China (2014b).

Quality

- AMI: reduced CF value associated with higher 30-day mortality rate (Chang et al 2012)
- Pneumonia: global budget associated with longer length of stay, higher health expenditures and poorer quality measured by risk of revisiting the Emergency Department within 3 days of discharge and higher risk of readmission within 14 days of discharge (Lin et al., 2016)
- Stroke: a sample of 411,487 stroke patients during 1997 and 2010, found that while the global budget improved some process of care, for example, use of CT/MRI, statin and physiotherapy, it was also associated with a reduction in the use of antiplatelet/anticoagulant and higher 30-day mortality (Tung et al.,2015).

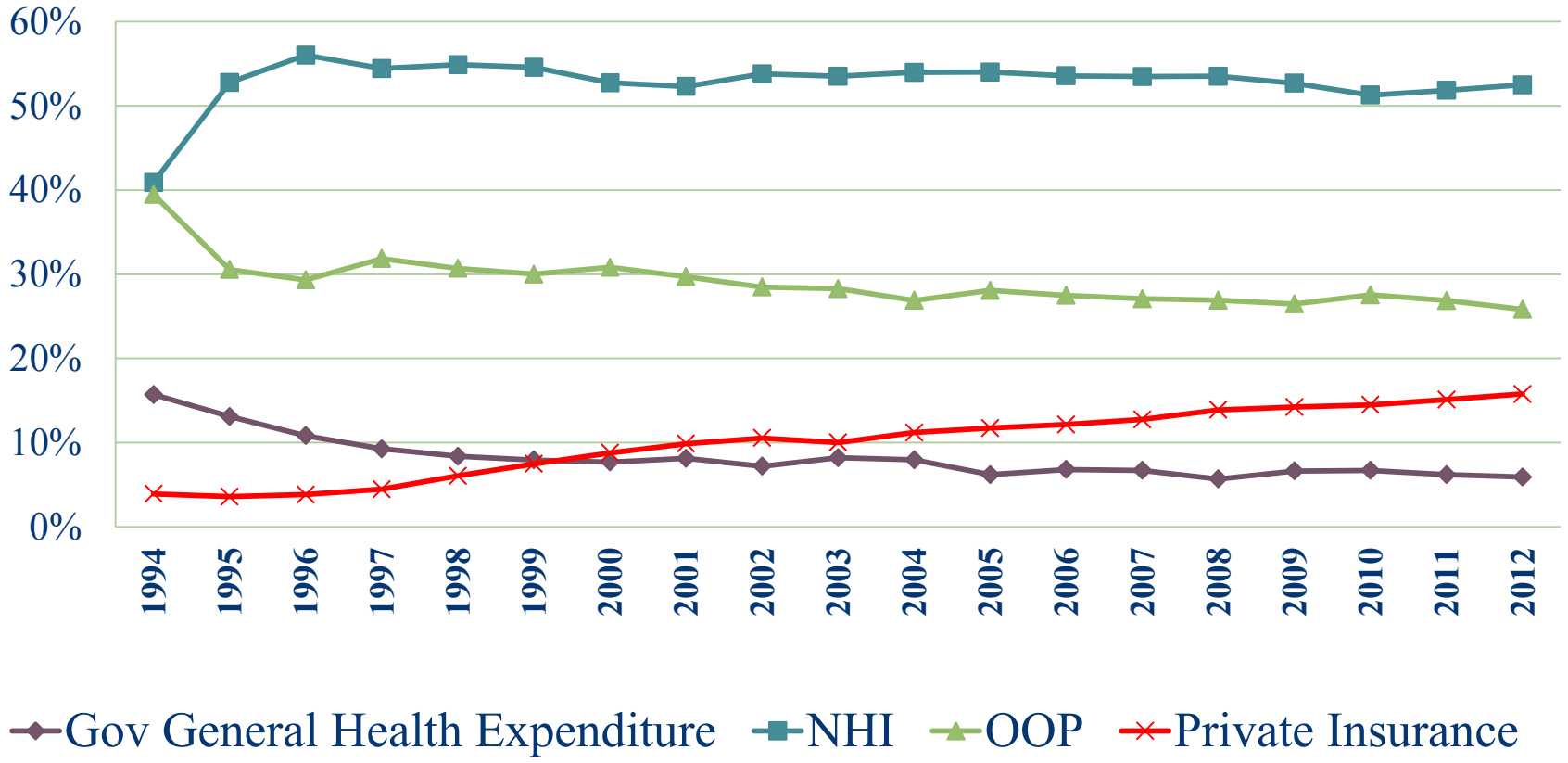
Lessons

- Single risk pool and comprehensive benefit coverage assures citizens of equitable and affordable access to health care, with limited financial burden
- Single purchaser with (hard) global budget effectively manages health expenditure growth, vis-à-vis changing health needs
- Added benefit of a single IT system:
  - Provider (physician and hospital) profiles; Patient record; Pharma Cloud
  - Utilization review to identify potential inappropriate and unnecessary use
  - Provider profiles to identify outliers/frauds
  - Complete record of drugs, tests to avoid duplications

Challenges

- Fiscal pressure:
  - Increase premium and copayment
  - Increase revenue source: tobacco tax, 2% on stock dividends, bank interest, rental income, bonus payroll, and moonlighting payroll.
  - Provider payment reform: DRGs, capitation, pay-for-performance
- Rising private insurance expenditure
- Aging population:
  - Long-term care insurance
- Fragmented and hospital-centric delivery system

Rising Private Insurance Expenditure Share



Source: see data source under Table 2.