



Health Investments and Economic Growth

Maureen Lewis
World Bank
mlewis1@worldbank.org

PKU Guanghua School of Management
Beijing, China
April 21, 2010

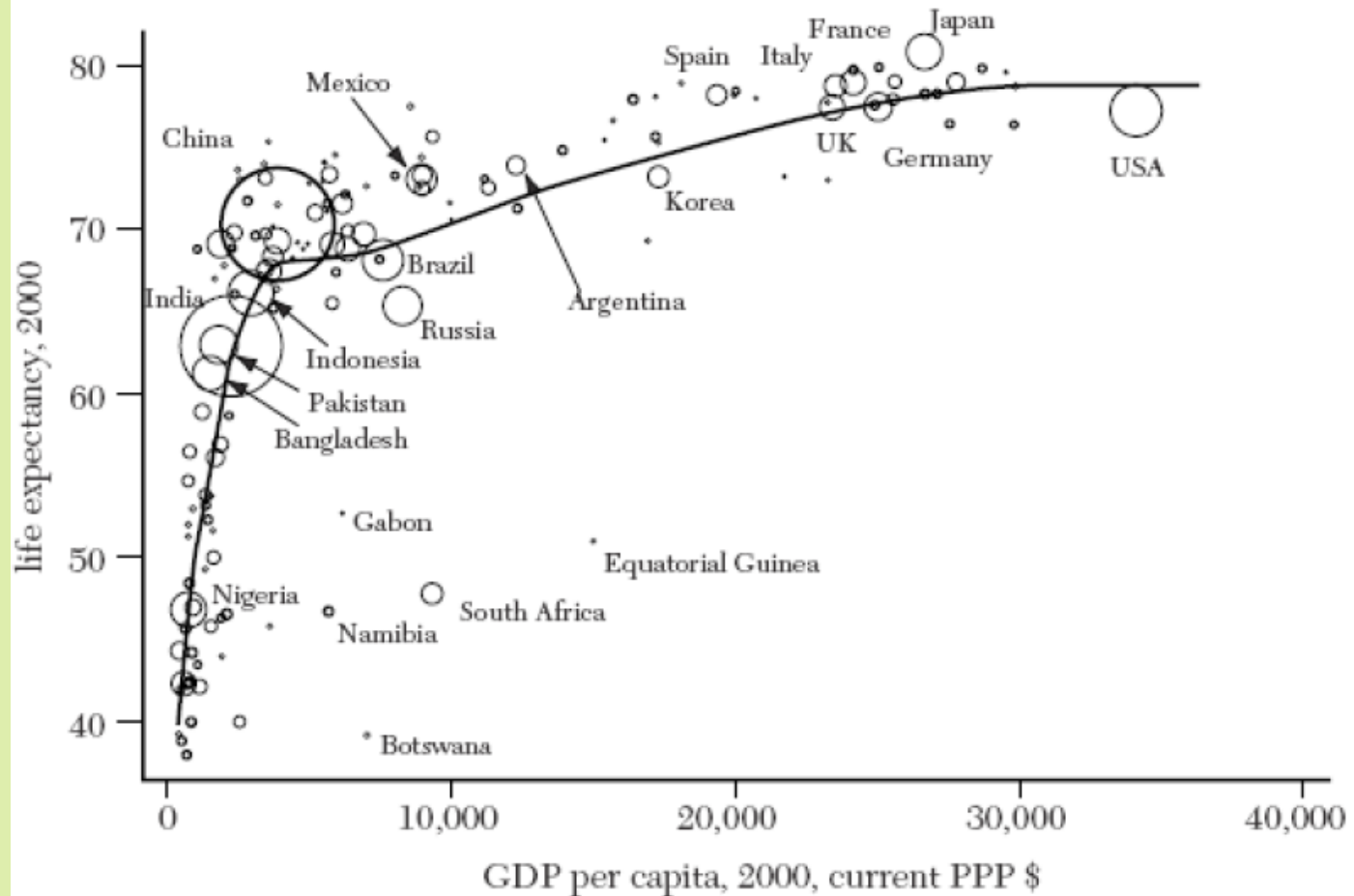
Outline

- I. What is the Commission on Growth and Development?
- II. Overview of health and income trends
- III. Evidence on the link between health and growth
- IV. Ways that health can enhance growth
- V. Health spending isn't enough: role of institutions and good governance
- VI. Conclusions

Commission on Growth and Development

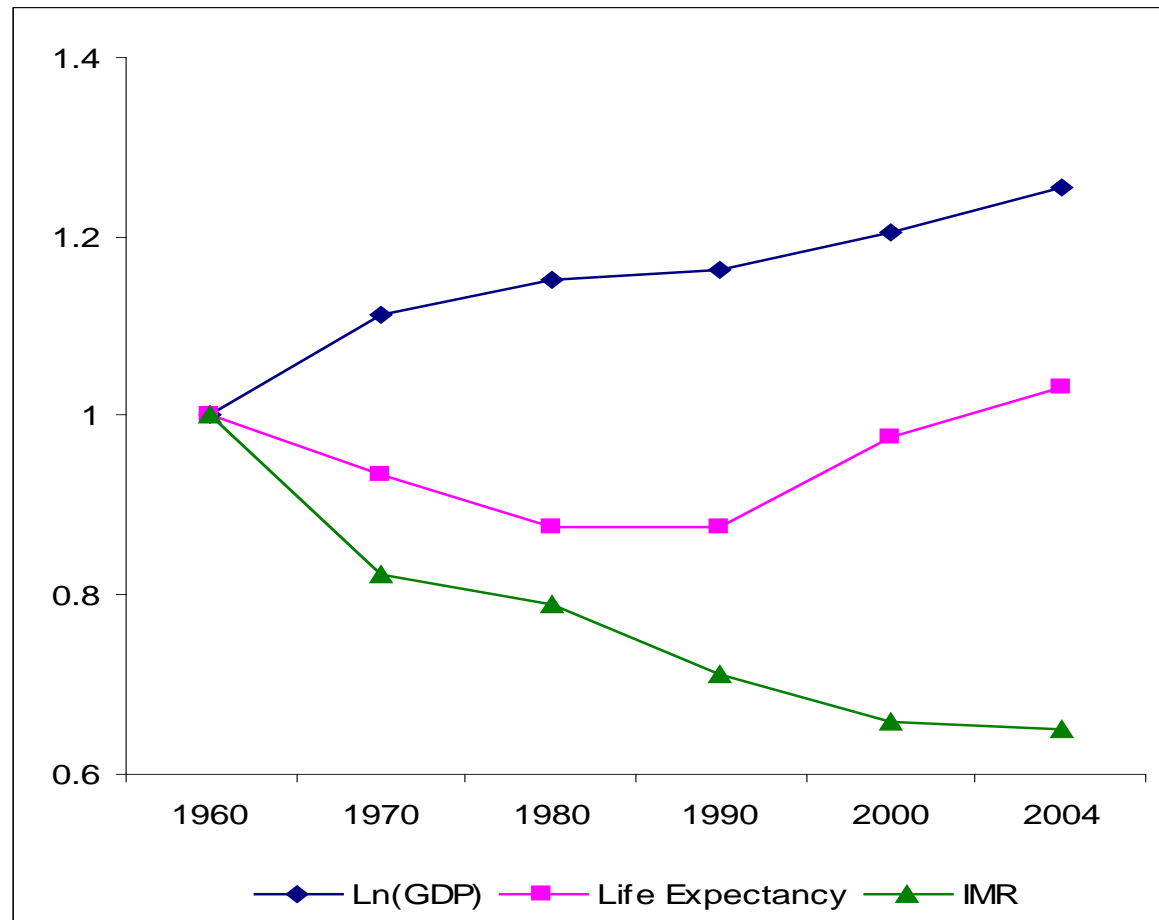
- World Bank initiated and hosted the Commission on Growth and Development
- Chaired by Michael Spence with 22 members
- Commission members are ex-heads of state, ministers of finance and leading academics
- Objective was to understand the policy imperatives of economic growth based on experience and evidence
- Financed by donors and the World Bank
- Health and Growth is one of the sectoral and special issue studies conducted by the Commission

I. Population Health and Income



Source: Deaton 2006.

Standard Deviations of GDP & Mortality



Source: Deaton 2006.

How Did We Get So Healthy? Some Historical Evidence

- **England and Wales since 1750**
 - nutrition important
 - public health somewhat effective
 - medical care insignificant
- **Fogel (1986)**
 - nutritional improvements contributed 40% to reductions in mortality since 1700 in Europe and North America
- **Infant Mortality Rate reductions in New York City 1900-1930**
 - caused by rising standards of living, higher education and lower fertility rates
- **Latin America: disease control facilitated trade across the Americas**

II. Health and Growth: Macroeconomic Evidence

- **Macroeconomic - cross-country evidence**
 - If better health causes income rises, then there may be large synergies to be exploited
- **Macro-empirical challenges:**
 - Can we empirically identify the effect of health on income, if income also affects health?
 - Can we measure health in a concise way that is both meaningful and generalizable across settings?

Measuring Health Is A Challenge

- Health measures either too vague or too specific; cross-country comparisons need comparable data
- Mortality a poor measure because it only happens once
- Infant mortality determined mostly by income, education and water
- Morbidity (illness) non-standardized and highly variable across individuals
- Health self-assessment unreliable and too subjective
- Effective cross country comparisons usually for single disease

Cross-Country Evidence

- Commission on Macroeconomics and Growth (2003)
 - Health promotes growth
- Sachs (2003), Bloom, Canning, and Sevilla (2004)
 - Geography (as a determinant of malaria)
 - But geography should affect income
 - Used “malaria ecology”
 - Lagged health variables, but may also affect income
- To show causality between health and growth, need to show that health affects income
 - Need a variable (instrument) that is correlated with health, but not (directly) influenced by income, otherwise the result is confounded

- Global innovations
 - New drugs and vaccines
 - Income and population increased in response to health changes
- Disease-specific interventions
 - Phased malaria eradication campaigns (Bleakley 2006, Cutler et al. 2005)
 - Significant impact on education attendance, literacy, adult earnings
 - Phased hookworm eradication in the southern US and Latin America
 - Improved school enrollment, attendance, literacy

Comparing Macro Findings

- Some cross country regressions report large impacts of health on income, but they do not control for reverse causality (income → health)
- Exogenous health changes and GDP decomposition find positive impacts, but much smaller effects
- In some instances effects can even be negative
- Bottom line, based on macro evidence:
 - Little consensus, impacts hotly debated
 - Vary widely with the kind of health indicator examined

III. Health and Growth: Microeconomic Evidence

- Examine interventions that improve health
 - Medical care and treatment
 - Improved nutrition and early childhood development

- Estimate impacts on outcomes
 - Productivity, earnings, labor supply
 - Schooling/human capital
 - Investment effectiveness of health care institutions

Nutrition and Worker Productivity

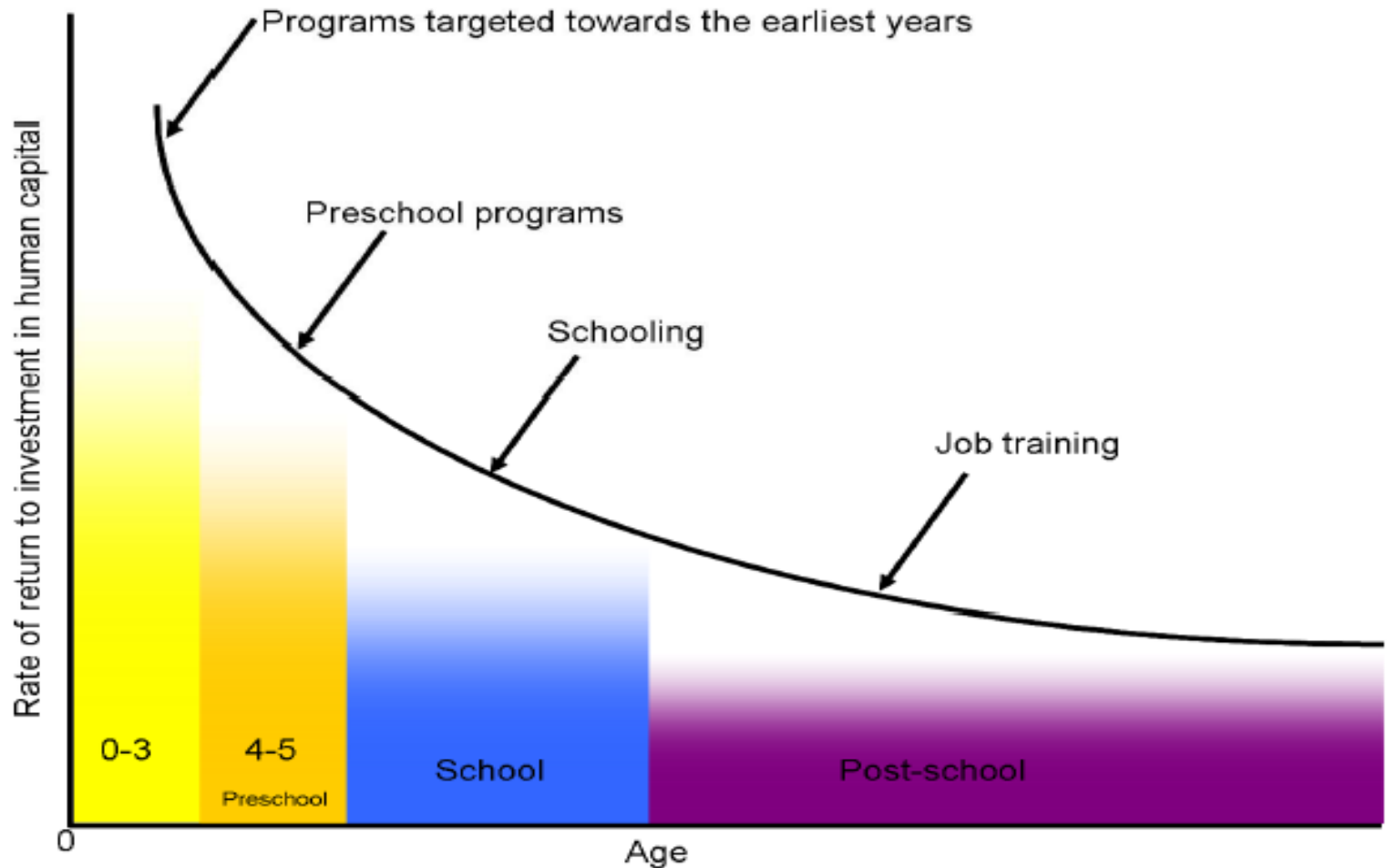
- Underlying biological mechanisms affect worker output and wages
- Randomized iron supplements shown to increase worker productivity
- Increased caloric intake has positive effects on productivity as well
- Strong link between direct investments in health and nutrition, and greater productivity and enhanced output

- **Stunting**
(indicator of long-term malnutrition)
 - Delays school entry, and reduces school enrollment, retention, and test scores
 - Physical growth lost in early years not regained subsequently; estimate 20% loss in adult income due to education deficits
- **Randomized school feeding program**
(Guatemala)
 - Short-term schooling, and long-term labor market impacts in boosting nutrition
- **Taller men earn higher wages**

Early Childhood Development: Reaching Disadvantaged Populations

- New neurological research shows the importance of early investments that reduce adult morbidities (diabetes, cancer, mental health)
- Work by economists (Heckman and colleagues) suggest importance of early intervention to:
 - Build strong foundations for learning and non-cognitive skills
 - Prevent early damage (e.g., stunting)
 - Avoid loss of potential that cannot be recovered
- Longitudinal evidence for the US and Canada strong and convincing

Early Childhood Development



Source: Heckman 2007.

IV. Public Spending and Health Status: Does It Matter?

- Declines in infectious diseases in the US over 1900-1973 period preceded emergence of effective treatments so income, lifestyle, public health mattered
- In the OECD health spending significantly improves health status, controlling for “lifestyle” characteristics (cigarettes and alcohol consumption)
- Health care enhances *quality of life and well being* (measured by increases in activity and mobility – and raises productivity)

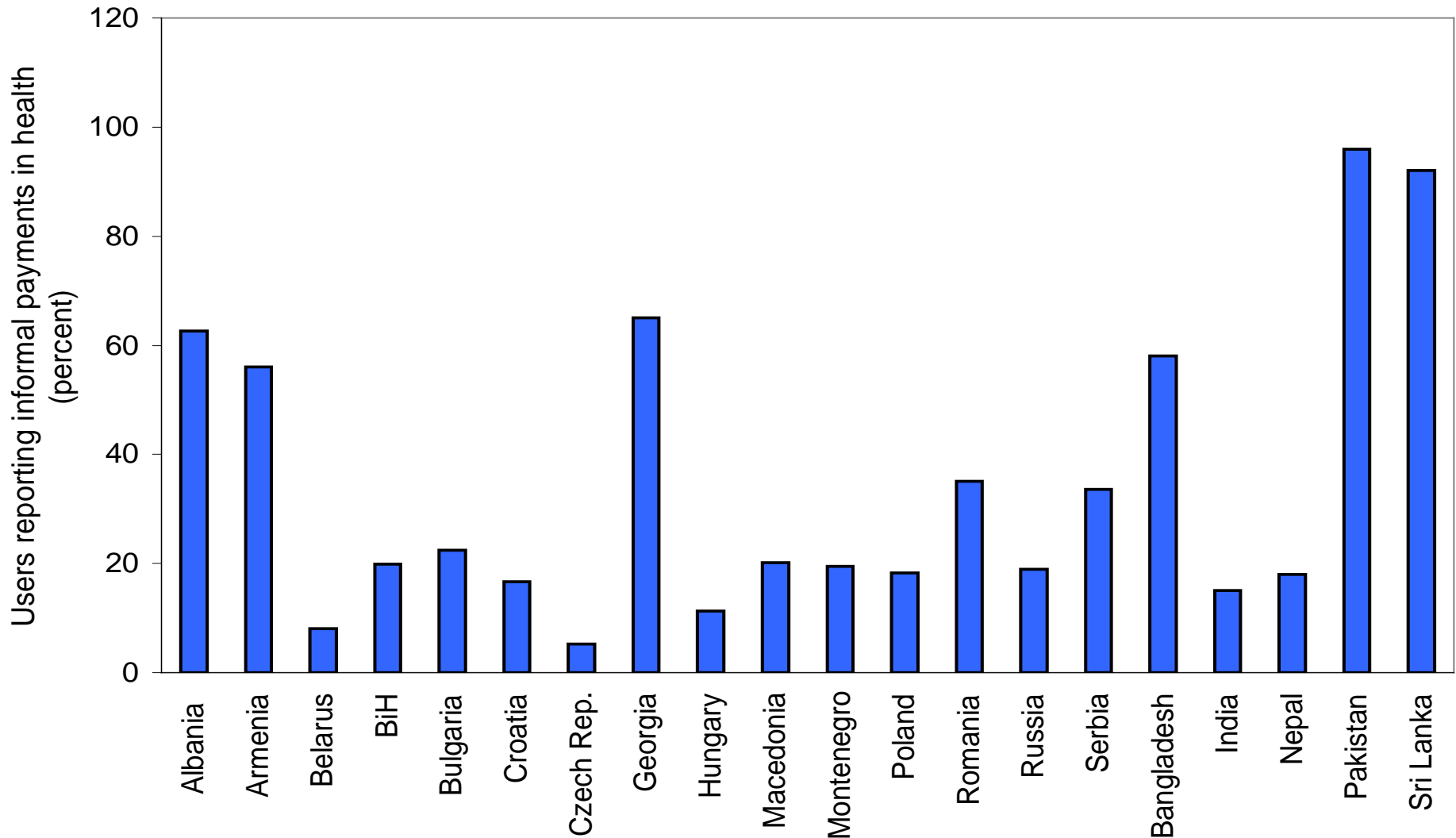
Institutions Matter in Health Care Delivery

- Ample international evidence that spending alone on health care will not ensure a healthier population
- Public systems in many countries fall short due to poor governance
- Lack of incentives and accountability mechanisms
 - Spending based on inputs and public sector staffing
 - Performance of health system not considered
 - Incentives overlooked
 - Accountability difficult and not enforced

Indicators of Poor Governance

- Under-the-table payments: undermine government incentives (e.g. DRGs)
- Counterfeit or substandard drugs:
 - WHO estimates that 25 % of drugs in low income countries are counterfeit or substandard.
 - The estimate for China is 30% (Hsiao year)
- Procurement abuses: collusion in bidding; raises cost and reduces quality

Informal payments in Health in ECA/South Asia, 2000-02



More Indicators of Poor Governance

- **Patients satisfaction**

Are patients satisfied? Evidence from Indonesia, El Salvador, and Turkey show similar results:

- Low quality of publicly provided health care
- Limited hours and long waits
- Lack of non-labor inputs
- High use of private sector by all income groups

Performance Incentives

- Mixed evidence on the impact of higher salaries
- Better provider incentives key:
 - Provider payment arrangements
 - Recruitment and promotion criteria
 - Management capacity, authority and rewards
- Formal fees have benefits for providers and patients

Institutional Incentives Drive Health Care Delivery Performance

- India: incentives raise productivity, training is not enough:
 - Better trained doctors exert less effort
 - Public sector doctors exert even less effort
- Argentina Plan Nacer & Philippines Pay for Performance – improve quality and incentives for higher productivity
 - Pay incentives for public physicians and hospitals raised productivity and quality
 - Accountability and audits critical to track funds
- Brazil's contracting hospital managers: autonomy and accountability

Accountability in Brazilian Hospitals Makes a BIG Difference in Performance

	12 contracted-out public hospitals	12 traditional public hospitals
Quality	median	median
General mortality	3.3	5.3
Surgical mortality	2.6	3.6
Clinical mortality	11.6	12.0
Pediatric mortality	2.8	2.6
Efficiency: Descriptive Statistics		
Bed turnover rate	5.2	3.3
Bed substitution rate	1.2	3.9
Bed occupancy rate	81	63
ALOS	4.2	5.4
ALOS surgery	4.8	5.9
Technical Efficiency: (discharges/bed)		
General	60	46
Surgical	71	44
Clinical	86	53
GYN/OB	96	58
Annual Spending (in R\$000)		
Expenditures/bed	177	187
Expenditures/discharge	2.9	4.3

Source: Adapted from La Forgia and Couttolenc (2008).

Key Features of the Successful Models

- Autonomous managerial authority
- Incentives for efficiency, cost containment and equity
- Flexible HR management: hire and fire staff
- Strategic purchasing & e-procurement
- Contract monitoring and enforcement
- Robust information environment
- Accountability of managers and staff

V. Conclusions

- Economic growth contributes to improvements in health, but the role of health as it affects growth is ambiguous on a macro level, but convincing on a micro level
- Public health investments in public goods pay off to individuals and society
- Medical technology can play a role in reducing mortality. In OECD medical technology improves morbidity and raises costs. But improvements in health status often lag

Conclusions (cont.)

- Health improvements raise well-being and individual and social welfare
- Targeted early childhood development pays off in 20+ years, but improves learning, productivity, incomes and adult health status
- Public health programs: technology exists but uneven performance
- Health care delivery uneven due to poor incentives and limited accountability undermining efficiency and effectiveness of health care delivery and thereby improvements in health status

Conclusions: Priority of Investments

- Essential investments:
 - Basic public health
 - Services for disadvantaged groups: nutrition supplements, targeted early childhood investments
- Effective institutions in health care delivery
- Preventive measures linked to behavior (smoking cessation, lifestyle improvements) – but works best if reach patients through services and outreach that respond to patient demand

Thank you!

www.growthcommission.org