EDITED BY
SHERRY GLIED
PETER C. SMITH

The Oxford Handbook *of* HEALTH ECONOMICS

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CHAPTER 1

INTRODUCTION

SHERRY GLIED AND PETER C. SMITH

Health policy is a central concern of most economies. In the developed world, the proportion of gross domestic product attributed to health services is growing rapidly, and traditional methods of financing health care are coming under strain. Increasing life expectancies are giving rise to new challenges for the long-term management of chronic disease. Health disparities, caused mainly by factors outside the health system, remain a policy issue in many countries, but there is a shortage of evidence on how to address them. The health care industry and providers of health care have delivered astonishing technological advances, but are also uniquely powerful interest groups, and there are often formidable pressures to adopt new technologies before proper evaluation is possible.

In low income settings an additional set of considerations applies. The problems of infectious diseases remain profound, yet there are also predictions of an imminent epidemic of non-communicable disease, driven by behavioral changes and increased life expectancy. Many countries continue to rely on out-of-pocket expenditure to finance most health care services, giving rise to widespread exposure to catastrophic health-care-related expenditure. The size and quality of the health workforce is a growing concern, driven by increased migration of skilled workers. Health system financing is often fragile, with many countries operating with very limited budgets and highly reliant on donor funds.

The discipline of health economics builds on the insights of microeconomic theory and has, over the decades, developed a substantial empirical basis. It has contributed significantly to addressing and understanding the profound health issues confronted in almost all countries, and has had a large impact on the development, implementation, and evaluation of health systems policy. As the chapters in this handbook attest, the discipline continues to investigate and shed light upon areas of interest to policymakers.

Any organizational scheme for a volume such as this will be to some extent arbitrary and contested. We have chosen to arrange the chapters into seven broad topic areas: the organization of health systems, determinants of health, institutions and problems of health care finance, institutions and problems of health care supply, assessing

performance, fairness, and more general overviews of the field. In this chapter, we provide an introduction to the contents by discussing four critical health policy questions, in particular highlighting novel insights and connections amongst the chapters.

1.1 Why are Some People Healthy and Others Not?

A fundamental and enduring question facing any student of health is why some people are healthy and others not. Medical science suggests that heredity, environment, behaviors, and fortune all play a part in determining underlying health. For policymakers, the question is what policy can and should do to address these differences. The consequent policy questions mainly concern the prevention of poor health (primarily by influencing behavior and environmental factors) and compensating for the consequences of health differences.

Perhaps surprisingly, economics has a played central role in improving our understanding of health determinants. The chapter by Kristian Bolin (Chapter 6) presents the economic theory of health production, originally developed by Michael Grossman, which envisions health as a capital stock, akin to a machine or, as Bolin points out, to education or human capital. Bolin emphasizes the similarities between health capital and human capital and the policy implications of this relationship. The theme of a connection between education and health surfaces again in the chapter by David Cutler, Adriana Lleras-Muney, and Tom Vogl (Chapter 7), who highlight the role of education, both as a direct input into health production, and as a measure of social rank. Cutler, Lleras-Muney, and Vogl note the co-evolution of education and health through the life-course. This idea is further elaborated in the chapter by Michael Baker and Mark Stabile (Chapter 8), who describe the determinants and role of investments in child health on later outcomes. Together, these three chapters provide a summary of the scholarly underpinnings—and remaining areas of uncertainty—underlying the recent policy focus in many countries on investments in early childhood.

Of course, investments in good health do not end in childhood. What people do—and do not do—as adults also has substantial effects on subsequent health. Overeating, smoking, and failing to exercise, or not making appropriate use of preventive medical interventions, can cause serious damage to outcomes. Observers are often perplexed by the evidence that people continue to indulge in unhealthy behavior, even when they understand the consequences of this behavior. Likewise, many people complain that policymakers and health systems place an inadequate emphasis on prevention, overspending on treatments for diseases that could have been avoided altogether at lower cost. The chapter by Donald Kenkel and Jody Sindelar (Chapter 10) takes on the first of these questions, describing how traditional and behavioral economics, and new empirical studies, have improved our understanding of the decision to engage in

dangerous behaviors. Kenkel and Sindelar's chapter devotes considerable attention to new econometric methodologies that have been used to assess the causal determinants of dangerous behavior. These methodologies are further explored in the chapter on health care econometrics by Andrew Jones and Nigel Rice (Chapter 37) at the end of the volume. Jane Hall (Chapter 23) addresses the complementary question about prevention policy decisions, often in very similar terms. She explains the continued skepticism among health economists about the maxim that an ounce of prevention is worth a pound of cure. Hall points out that questions about who benefits, and when, are critical determinants of decision-making about investment in prevention.

Infectious diseases remain a central preoccupation in many countries, and a global pandemic is an ever-present risk that transcends national borders. Ramanan Laxminarayan and Anup Malani (Chapter 9) set out the economic issues that arise in this highly complex domain. They point to the need to consider the often perverse incentives that occur when seeking to put in place mechanisms to control infectious disease. Careful policy design is needed to avoid the tendency for individuals, organizations and nations to "free-ride" on the preventive efforts of others.

The likelihood that, as these chapters suggest, some disease is a consequence of individual decisions to take risks or to under-invest in prevention, or education, raises challenges for the distribution of health care resources. Jan Abel Olsen (Chapter 34) takes on the question of which inequities in health outcomes are properly the scope of government policy. He argues that inequity can only be understood and addressed once the cause of the inequality is known.

All these questions, in turn, depend on having an understanding of what constitutes health. While clinical indicators for specific diseases are well-established, determining the optimal balance of resource allocation between prevention and treatment, or among persons whose illnesses arose for different reasons, requires health status measures that are comparable across conditions. Donna Rowen and John Brazier (Chapter 33) assess the current state of health utility measurement, closing with a discussion of the question of whose assessment of a health state should be used in economic evaluation.

1.2 What is the Best Way to Organize and Compensate Health Care Providers?

Medical care is, in large measure, a service industry, with services provided by highly skilled and well-compensated professionals. All health care systems—in developed and developing countries—struggle with the question of how best to deliver medical services. The health economics literature approaches these questions at three levels. One set of studies focuses on the supply and compensation of individual workers; a second set examines the design of intermediary organizations, including hospitals and insurers; a third set examines the question of optimal organization at the level of the system itself.

The first element of a health care system is the skilled workforce that provides treatment. Consistent with the centrality of the health care worker in the system, workforce planning was one of the earliest problems addressed by health economists. Till Bärnighausen and David Bloom (Chapter 21) trace the evolution of the economic approach to this question in their chapter, also addressing the role of the workforce in achieving health goals in developing country contexts.

Once health care workers have been trained, they must be compensated. Three chapters, by Thomas McGuire; Anthony Scott and Stephen Jan; and Jon Christianson and Douglas Conrad explore aspects of this compensation problem. McGuire (Chapter 25) addresses the economic literature on physicians as agents, illustrating this concept through reference to the situation where policymakers would like a primary care physician to provide a "medical home" for the patient. He concludes that certain forms of mixed payment systems are most likely to achieve this goal. Scott and Jan (Chapter 20) expand on this idea, examining the role of primary care providers in the health system. Scott and Jan emphasize the dual agency role of primary care doctors—as agents for their patients and, in many models, as agents for payers. These dual roles can create conflicting incentives. Both McGuire and Scott and Jan emphasize the role of incentives in affecting the volume of services. Christianson and Conrad (Chapter 26) turn attention to the question of how incentives might affect the quality of care. This chapter summarizes the growing literature on "pay for performance" schemes in a range of countries, noting the rather ambiguous results of many of these efforts.

In many contexts within the health care system, health workers operate as part of teams, in conjunction with one another, or with other types of workers. These situations are considered in the chapters by Pedro Pita Barros and Pau Olivera; Jose-Luis Fernandez, Julien Forder, and Martin Knapp; and Laurence Baker. Barros and Olivella (Chapter 19) describe the economics literature on the operation of hospitals using a framework based on the notion of "teams." They note both the distinction between ownership of hospitals (which may be public or private) and control of operations within hospitals (often the domain of health care professionals). They then turn to examining how teams operate within hospitals. Fernandez, Forder and Knapp (Chapter 24) consider the very different context of long-term care, where the care team often combines formal and informal workers. They highlight the complexities of incentives and financing in such situations. Baker (Chapter 18) turns to managed care organizations, which formally integrate different provider types. A focus of Baker's chapter is on the potential spillover effects of these arrangements on patients and providers who are not themselves part of the arrangements.

As the discussion above suggests, there are almost always multiple providers or multiple provider organizations within a health system. A basic insight of microeconomic theory is that, in situations of incomplete information, which are rampant in health care, competition among providers may lead to adverse selection, with better and worse risks sorted to different providers or insurance plans. This insight provides the basis of three chapters that explore what happens when multiple providers co-exist. Wynand van de Ven and Frederik Schut (Chapter 17) discuss alternative strategies for addressing

selection, and conclude that a system of risk-adjusted subsidies paid to insurers is likely to be most effective. Carol Propper and George Leckie (Chapter 28) scrutinize the empirical literature on competition between providers and, as selection theory suggests, find that the outcomes are highly varied, and that competition generates winners and losers among patients as well as providers. Richard Frank (Chapter 11) notes that problems of incomplete information are particularly salient in the context of mental health. He examines how different health systems have addressed the difficulties of allocating care between different types of providers and different types of patients.

Together, supply levels, payment incentives, and organizational structures determine much of the micro functioning of health systems. Two chapters consider how to compare the functioning of different health systems. Jim Burgess and Andrew Street (Chapter 29) describe econometric approaches to comparing the efficiency of health care organizations (at the level of the hospital, the insurer, or the system). Jack Triplett (Chapter 30) considers approaches to tracking changes in the productivity of a health care system over time. We do not yet have methods that allow a clear determination of system efficiency, but these chapters describe both the progress that has already been made and the steps that need to be taken to bring us closer to such an assessment.

1.3 How Much Should Society Spend on Health Care and Where Should Resources be Focused?

Given the manifest imperfections in the market for health services, and the heavy reliance in many countries on government funding, the question of determining the optimal level and mix of health services is a central policy issue. Michael Chernew and Dustin May (Chapter 14) describe the rapid growth in expenditure in most developed countries, and discuss the factors that have driven the growth, such as population aging, general economic growth, and the adoption and use of new medical technologies. They consider a range of strategies for slowing cost growth, including economic evaluation of technologies. Chernew and May also note the increased reliance on government funding. This gives rise to the particularly important issue of intergenerational equity, addressed by Louise Sheiner (Chapter 36). To what extent should the increasing health expenditure on (current) older people be funded by the current (younger) workforce, and will the current funding arrangements be sustainable in the future?

A particularly influential approach to cost containment developed by economists has been the application of cost-effectiveness analysis (CEA) to health technologies, as described by Simon Walker, Mark Sculpher, and Mike Drummond (Chapter 31). CEA is intended to help collective purchasers of health care (governments and insurers) to determine which interventions to prioritize, by ranking them according to the cost of each unit of "health benefit" they produce. In implementing this principle, uncertainty has

become a central concern, and Susan Griffin and Karl Claxton (Chapter 32) describe current approaches to handling the uncertainty inherent in all cost-effectiveness estimates.

The pharmaceutical industry plays a key entrepreneurial role in health systems, and has contributed to some major advances in health care. It has an unusual cost structure, resulting from very long, costly, and uncertain research and development processes, and policy instruments such as health technology assessment rules, patent rights, and safety regulations have a key influence on profitability and investment strategy. Patricia Danzon (Chapter 22) summarizes the literature, and considers the question of who should guide and pay for research and development.

Given the size of the health sector, policy decisions that affect it can have important macroeconomic consequences. William Jack (Chapter 5) summarizes a complex evidence base on the impact of health on income and well-being. There is strong evidence of a potentially strong impact of improved health on the productivity and well-being of individual workers. However, this "promise" of health interventions can be fully effective only if delivered efficiently and aligned (*inter alia*) with properly functioning education services and labor markets. Furthermore, the extent to which the individual benefits of improved health necessarily feed through to improved macroeconomic performance remains an open question.

Ultimately, many of the crucial decisions that affect national health spending are taken by politicians, and therefore reflect political as well as economic concerns. There is a rich tradition of economists exploring the many political influences on public policy decisions, including powerful interest groups, bureaucratic power, and electoral concerns. Carolyn Hughes Tuohy and Sherry Glied (Chapter 4) explore the relevance of this literature to the health domain, and confirm the powerful influence of politics on the shape of the health system.

1.4 How Should Health Care Services be Financed and Distributed?

There is a widespread belief that the design and operation of the health system can have a profound impact on the efficiency of health services and the health outcomes they secure. However, health systems arise for multiple reasons, not always consistent with economic theory. There is therefore a striking diversity in the organization of health systems around the world, with no clear consensus on many fundamental design issues. Bianca Frogner, Peter Hussey, and Gerard Anderson (Chapter 2) summarize patterns amongst developed countries, and Anne Mills (Chapter 3) describes the even greater diversity found amongst developing countries.

In practice, virtually all health systems rely in part on public financing. Åke Blomqvist (Chapter 12) describes what economics can tell us about the share of expenses that should be covered by the public plan and how those revenues should be raised. Peter

Zweifel (Chapter 13) challenges the economic role of public financing in health care, and asks whether a purely private insurance system, with redistributive income-based subsidies only, could satisfy policy goals. Mark Pauly (Chapter 16) describes the implications of third party financing, whether public or private. The key issue is that—in the absence of direct user payment for services—there is an incentive for inefficient moral hazard, or excess use of services.

Insurers—private and public—therefore seek to control moral hazard through the use of co-payments and other rationing devices. Erik Schokkaert and Carine Van de Voorde (Chapter 15) consider how user charges or co-payments are used in both developed and developing countries. There is a fundamental tension between controlling moral hazard and assuring access to needed services, especially amongst the very poor. Many health systems therefore seek to ration access to care using other instruments. In particular, Iversen and Siciliani (Chapter 27) examine the implications of using waiting times, rather than co-payments, as a rationing device.

Most systems of publicly funded health care, offering universal access to at least some subset of services, have been implemented with redistributive goals very much in mind. Eddy van Doorslaer and Tom Van Ourti (Chapter 35) examine how the success of this redistributive function can be measured, describing strategies used for measuring the inequality of the outcomes of a health care system in terms of use of care.

In concluding the volume, Alan Maynard and Karen Bloor (Chapter 38) survey the successes and lacunae of the health economics research endeavor. They point to the key role that funding agencies have historically had in directing research attention towards particular domains, but argue that the discipline has in recent years become more balanced in seeking to offer policy advice on most of the important elements of the health system. Without question, health economics has had some notable successes in influencing public policy for the good, for example in the design of payment mechanisms, the measurement of performance, and the assessment of health technology. It is to be hoped that such successes will be replicated and extended in the future.

CHAPTER 2

HEALTH SYSTEMS IN INDUSTRIALIZED COUNTRIES

BIANCA K. FROGNER, PETER S. HUSSEY, AND GERARD F. ANDERSON

2.1 Overview

This chapter focuses on the health systems of the industrialized countries that are members of the Organization for Economic Co-operation and Development (OECD)*. It begins with an overview of the various ways to finance health systems in industrialized countries. The chapter then explores the variation in health spending cross-sectionally and over time. The chapter concludes with a discussion of factors contributing to health spending and the tradeoffs to consider when controlling rising health care spending versus increasing productivity, improving health outcomes and producing quality care.

2.2 Comparing Health Systems

Health systems in industrialized countries differ on many levels. This section focuses on two important levels for health economists: (1) how health insurance revenues are pooled and (2) who provides health care services. While this typology is commonly used to group health systems into broad categories, it ignores the fact that all countries' health systems are unique, and most countries health systems are the result of historical evolution, political compromises, and many other factors.

* We will focus on 30 industrialized countries and exclude recent members: Chile, Estonia, Israel, and Slovakia due to the lack of historical data.

2.2.1 Pooling

Most health systems can be divided into one of two different financing arrangements: some have a single health insurance pool (single-payer) while others use multiple health insurance pools (multi-payer) (Hussey and Anderson 2003). With exception of the US, Turkey, and Mexico, OECD countries with either single- or multi-payer health systems are able to provide universal coverage (discussed further below). Within this broad rubric of single-payer vs. multi-payer systems there are many variations. Single-payer systems can be national in scope. Single-payer systems can be decentralized, with separate health insurance pools for different geographic regions such as provinces or states. However, these systems can be still classified as single-payer since all beneficiaries within each region are covered by a single regional insurance pool. The single-payer systems can be government-operated or operated by the private sector with regulations and oversight provided by the government.

Most multi-payer systems allow for some beneficiary choice of insurer; however, the entities establishing the insurance companies can have varying levels of private sector and government involvement. For example, the Netherlands mandates all individuals that work or live there to purchase a basic government-defined benefit package from a private insurance company after major reform in 2006. On the other end, Germany has several government-regulated, not-for-profit Sickness Insurance Funds that cover the majority of the population. In the US, individuals may qualify for public and/or private health insurance, with most individuals choosing from a long list of for-profit and not-for-profit insurance companies. Historically, the insurance pools in most multi-payer systems were organized by employer or other population subgroup.

Advocates of both systems identify distinct advantages of their system. Single-payer systems generally offer greater government control over the provision of care, since the insurance pool is able to exercise monopsony power within the region over the prices paid for services, which services are available, and other aspects of insurance design. These systems tend to emphasize equity and do not have to confront risk selection in insurance. Multi-payer systems, on the other hand, generally allow for consumer choice of insurer, which can drive innovation and competition. In multi-payer systems, the emphasis is on efficiency and choice. Multi-payer systems could also have the same monopsony paid as a single-payer system if they negotiate collectively.

Many countries have some combination of single- and multi-payer insurance. Single-payer systems typically have secondary private insurance providing one of three types of coverage: substitutive, supplementary, or complementary. Substitutive private insurance can replace single-payer insurance coverage for eligible individuals. Eligibility can be based on income, employment status, or occupation. Supplementary private health insurance provides additional coverage for services also covered by the single-payer insurer. An example of a country with supplementary insurance is Australia, where the government has encouraged the purchase of private insurance to reduce public expenditures. Complementary private insurance covers services not included in the single-payer insurance benefits. An example of a country with complementary insurance is Canada, where complementary insurance covers outpatient pharmaceutical costs and other services that are not covered under most provincial single-payer plans.

2.2.2 Provision of Services

Health systems can also be divided into direct or indirect provision of services (Abel-Smith 1992; Hsiao 2007). In systems with direct provision, a single integrated entity both finances and delivers health services. Providers are generally paid through budgets or some other type of resource allocation such that there is a large degree of public control over the provision of services. The amounts paid to providers and invested in capital and staff is also determined publicly. In systems with indirect provision, independent providers contract with purchasers. A government agency may act as the purchaser, or may use private intermediaries (Hsiao 2007). An indirect provision system allows for more competition between providers but provides less control over the provision of services.

2.2.3 Major Types of Health Systems

There are four main types of systems representing specific combinations of pooling and provision. While no country adopts any of these systems exactly, many countries do follow the models loosely.

1. *Social Insurance*. Public multi-payer systems with indirect provision are known as Social Insurance systems. (The prototypical Social Insurance is that of Germany.) Typically, Social Insurance systems rely primarily on payroll taxes as their primary source for health care revenues. Social Insurance was the first form of health insurance developed by Bismarck in the 1880s.
2. *National Health Service*. Centralized single-payer systems with direct provision are known as a National Health Service. (The prototypical National Health Service has been that of the United Kingdom although it has added more private sector and decentralization components recently.) Typically, National Health Service systems rely primarily on general taxation for health care revenues and control provision at the central government level.
3. *National Health Insurance*. Centralized single-payer systems with private provision of medical services are known as National Health Insurance. (The prototypical National Health Insurance system is that of Canada.) Typically, National Health Insurance systems rely on federal and state taxation to fund mostly private hospitals, physicians and other clinicians, and institutions.
4. *Private Insurance*. Some countries have private multi-payer systems with indirect provision. One example is the private insurance system is the US, but it is a unique case in many ways. Other primarily private insurance systems, such as Switzerland, have greater government control over pooling and purchasing than the US. In most industrialized countries with private insurance, insurance coverage is mandatory, the government provides premium subsidies for low-income individuals and cross-subsidization between insurance pools based on patient risk, and insurers are heavily regulated to prevent risk selection by insurers in areas such as the prices that are paid to providers for health services, minimum benefits, premium rating, and so forth.

2.3 Coverage

Most of the OECD countries obtained near full coverage (95 percent and above) of the population through public sources in 2008. The exceptions were Germany (89%), Turkey (67%), Mexico (71%), and the US (29%). In 2008, the Netherlands had 62 percent of the population covered by public sources with the remainder covered by private sources; under the Health Insurance Act of 2006, 98.5 percent of the population were now covered by private sources with the remainder uninsured (Westert et al. 2008). The remainder of the population in Germany is insured through private health insurance. Despite a combination of public and private insurance, the US continued to have 15.9 percent of population left without insurance coverage (DeNavas-Walt et al. 2006). This gap is expected to close under the Patient Protection and Affordable Care Act of 2010, which requires nearly all US citizens and residents to have health insurance by 2014 through expansion of employer sponsored coverage, federal insurance programs, or private markets with the help of tax credits. The remainder of the population in Turkey and Mexico were also uninsured. In 2003, Mexico passed a reform measure to provide universal health insurance by 2010 (Knaul and Frenk 2005).

2.4 Trends in Health Care Spending

This section surveys the differences in health care spending across the OECD countries followed by a closer look at demand and supply factors, including the role of health insurance.

The two measures commonly used to compare levels of health care spending across countries are health care spending as a percentage of the Gross Domestic Product (GDP) and health care spending per capita, adjusted for costs of living using purchasing power parities (PPP). Health care spending as a percentage of GDP employs an opportunity cost perspective—if more dollar resources are dedicated to the health sector, then less becomes available to other sectors.

Health care spending has been capturing a growing share of the GDP in all OECD countries between 1970 and 2008. In the median OECD country, health care spending was 5.1 percent of GDP in 1970 and increased to 9.1 percent by 2008 (Table 2.1). A persistent outlier in health care spending has been the US, where health care spending increased from 7.0 percent of the GDP in 1970 to 16.0 percent in 2008. The concern is that the US is allocating more dollars to health care but is receiving fewer real resources (Anderson, 2003). Denmark was also an early outlier, actually spending a greater percentage of its GDP on health than the US (7.9%) in 1970. By 2008, Denmark had similar health care spending levels as the median OECD country, the result of a very slow rate of growth in health care spending between 1970 and 2008. In 2008, France had the second highest level of spending in the OECD in terms of health care spending as share of the GDP (11.2%), even though it started around the median OECD level in 1970 (5.4%), the result of rapid growth in health care spending during this time period.

Table 2.1 Health Care Spending in OECD Countries, 2008

	Total health spending per capita (US$ PPP)	Total health spending, % GDP	Average annual growth, 1970–2008	Public spending, % THE	Private spending (excluding out-of-pocket), % THE	Out-of-pocket spending, % THE
Australia	3353	8.5	3.4 d	67.5	14.5	18.0
Austria	3970	10.5	4.3	76.9	8.0	15.1
Belgium	3995	11.1	5.0	a	a	20.5
Canada	4079	10.4	3.0	70.2	15.1	14.7
Czech Republic	1781	7.1	a	82.5	1.8	15.7
Denmark	3540	9.7	2.5 d	84.5	1.7	13.8
Finland	3008	8.4	3.7	74.2	6.4	19.4
France	3696	11.2	3.9	77.8	14.8	7.4
Germany	3737	10.5	3.1	76.8	10.2	13.0
Greece	2687	9.7	3.8 e	60.3	a	a
Hungary	1437	7.3	a	71.0	5.1	23.9
Iceland	3359	9.1	4.5	83.2	1.5	15.3
Ireland	3793	8.7	5.5	76.9	8.7	14.4
Italy	2870	9.1	a	77.2	3.3	19.5
Japan	2729	8.1	3.9 e	81.9	3.5	14.6
Korea	1801	6.5	a	55.3	9.7	35.0
Luxembourg	4237	6.8	a	84.1	3.5	12.4
Mexico	852	5.9	a	46.9	3.8	49.3
Netherlands	4063	9.9	3.1 f	a	a	5.7
New Zealand	2685	9.9	2.9	80.4	5.7	13.9
Norway	5003	8.5	4.6	84.2	0.7	15.1
Poland	1213	7.0	a	72.2	5.3	22.4
Portugal	2151	9.9	6.6 g	71.5	5.6	22.9
Slovak Republic	1770	8.0	a	67.8	7.0	25.2
Spain	2902	9.0	4.9	72.5	6.8	20.7
Sweden	3470	9.4	2.6	81.9	2.5	15.6
Switzerland	4627	10.7	2.9	59.1	10.1	30.8
Turkey	818	6.2	a	71.2	a	21.8
United Kingdom	3129	8.7	3.9	82.6	6.3	11.1
United States	7538	16.0	4.2	46.5	41.4	12.1
OECD median	3241	9.1	3.9	75.5	6.0	15.6

[a] Data not available [b] 2007 [c] 2006 [d] 1971 to 2007 [e] 1970 to 2007 [f] 1972 to 2008 [g] 1970 to 2006
THE = Total Health Expenditure

In the median OECD country, per-capita health care spending increased from $191 in 1970 to $3,241 per capita in 2008. However this does not adjust for inflation.[1] Again, the US has been a persistent outlier in terms of health care spending per capita, spending $351 in 1970 and $7,538 in 2008. Denmark was an early outlier spending $356 per capita on health in 1970, but by 2008 Denmark was spending at levels similar to the OECD median level ($3,540).

A limitation to the use of PPP-adjusted per-capita spending in international comparisons of health care spending growth is that any changes may reflect a change in the market basket of goods used to create the PPP index rather than true changes in the level of health care spending. Growth rates in health care spending are better compared using the average annual growth rates of health care spending adjusted for inflation and population growth. Using this measure, the average annual rate of health care spending growth was 3.9 percent in the median OECD country from 1970 to 2008 (Table 2.1).[2] The rate of health care spending growth was higher than inflation in every OECD country during the overall time period. Among the OECD countries, Denmark had the slowest growth at 2.5 percent (1971–2007) while Portugal had the fastest growth at 6.6 percent per year over the thirty-eight-year period. There is some evidence of convergence with the countries starting with higher initial spending levels growing slower than countries which initially spent relatively little on health care (Okunade et al. 2004).

2.4.1 Public vs. Private Spending

Health care spending can be divided into public and private spending. In 2008, approximately three-quarters of the health spending was from public funds in the median OECD country, while the remaining quarter was from private funds. Only in the US and Mexico did private health care dollars represent over half of the health care spending. Of the private health care dollars in the median OECD country, 72 percent were out-of-pocket expenses in 2008. Private health insurance is responsible for a small proportion of health spending in most OECD countries.

2.4.2 Specific Health Care Sectors

Three sectors of health care represent over half of the total health care spending in most OECD countries: inpatient hospital care, outpatient medical services, and

[1] A price deflator is not available when using purchasing power parities.

[2] The implicit price deflator was used to control for inflation (2000 = 100), which allows for changes in expenditures in response to changes in prices. The implicit price deflator is not based on a fixed basket of goods such as with the Consumer Price Index (CPI). Over the thirty-five-year time period, the implicit price deflator and the CPI closely follow each other, and eventually converge as the methodology to compute CPI has become more precise. Either could be used, but the CPI requires assumptions about a changing market basket of goods which may not be useful in international comparisons. The medical CPI could also be used, but given the limited availability of medical CPI deflators for other countries, this

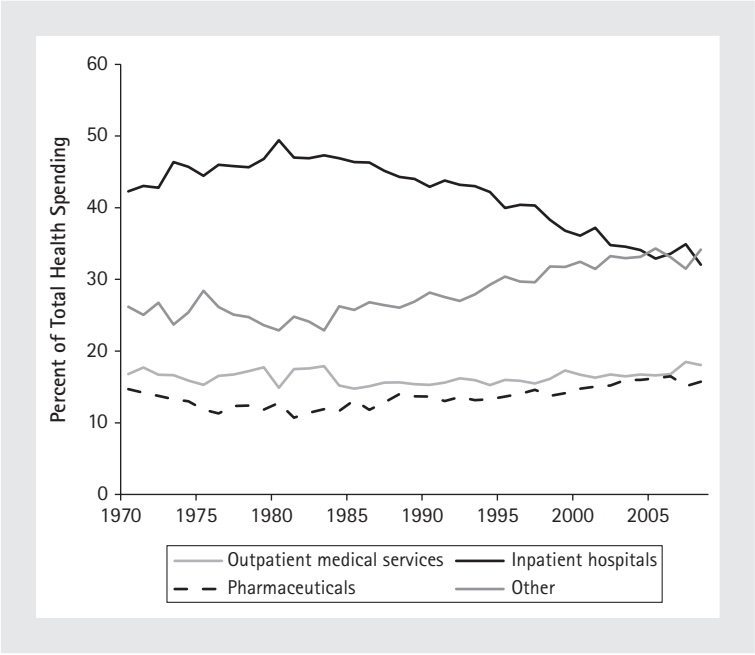

FIGURE 2.1 Health care sector share of total health care spending in the median OECD country, 1970–2008

Source: OECD 2007.

Notes: Category of pharmaceuticals includes other medical non-durables. "Other" includes day health care, dental services, other outpatient care, home health care, ancillary services, medical goods, therapeutic appliances and other medical durables, prevention and public health, health administration and insurance, and investment on medical facilities.

pharmaceuticals (Figure 2.1).[3] Inpatient hospital spending declined rapidly during this period from a median of 48.5 percent in 1970 to 32.3 percent in 2008. Medical services have maintained a fairly constant share of health care spending from 1970 to 2008. The median OECD country has seen a slight increase in the share of pharmaceutical expenditures from 13.5 percent in 1970 to 13.8 percent in 2008.

2.4.3 What Has Driven Health Spending Growth?

Researchers have attempted to identify the primary driving forces underlying the growth of health spending, and to account for difference in growth rates across countries. Per-capita incomes and population aging are commonly cited drivers. The remainder of the increase is often called excess health expenditures.

was not used. According to Triplett and Bosworth, economists believe that the CPI medical price index overstates the inflation of medical care, but believe that PPI (produce price index) may provide a better picture though it is hard to adjust for changes in the efficacy of treatment.

[3] Inpatient hospital care includes curative, rehabilitative, and long-term nursing care. Pharmaceuticals include over-the-counter medicines and other medical non-durables.

This section takes a closer look at each of the major demand and supply factors that could account for the increase in health spending. The discussion draws upon the typology used by Newhouse (1992) in which he identified demand and supply factors that were well-studied in the health care literature to account for the increase in health spending over time within the US. His paper has been replicated with more recent data (Cutler 1995; Smith et al. 2000) to help US policymakers understand the historical growth and project future growth of health spending. A similar analysis for other countries could not be identified within the literature. This type of comparison could provide a common baseline to better understand the differences in the rate of increase in health spending among industrialized countries, and to inform policymakers in other OECD countries. First, health spending growth is decomposed into the components attributable to per-capita income, population aging, and other factors ("excess"). Then the potential factors contributing to the "excess" portion of growth are examined.

2.5 Demand Factors of Health Care Spending

2.5.1 Income

Rising incomes have been one major driver of the demand for health care. Countries with higher incomes typically spend more on health care. National income can be approximated using real GDP per capita. Real GDP per capita increased by 120 percent from 1970 to 2008 in the median country of the OECD. During this time period, health spending per capita increased by 314 percent in the median OECD country, after controlling for inflation and population growth (Table 2.2). Health spending grew an average of 1.8 percent per year faster than GDP in the median OECD country, ranging from 0.7 percent faster in Denmark and 4.1 percent faster in Portugal (Figure 2.2).

The income elasticity of demand (e) is a measure of the impact of GDP growth on health care spending. The health economics literature has generally concluded that there is a strong positive relationship between GDP growth and health spending (Culyer 1989; Hitiris and Posnett 1992; Roberts 1999, 2000; Gerdtham and Jonsson 2000). However, consensus does not exist regarding whether a percentage increase in income results in a larger percentage increase in health care consumption, which would make health care a luxury good ($e > 1$); a smaller percentage increase, which would make health care a necessary good ($e < 1$); or the same percentage increase, which would make health care unit elastic ($e = 1$). The empirical estimate depends on many factors including the functional form, countries included in the analysis, choice of independent variables, and time frame. While there is disagreement, most recent studies using aggregate national data from industrialized countries have concluded that health care is a luxury good. Estimated

Table 2.2 Percentage Change in Health Spending and GDP, 1970–2008

	Real health spending per capita	Real GDP per capita	Scenario 1: income elasticity, e=1.2	Scenario 2: income elasticity, e=1.4
Australia	238% a	90%	108%	126%
Austria	389%	140%	169%	197%
Belgium	540%	125%	150%	175%
Canada	212%	107%	128%	149%
	b	b	b	b
Czech Republic	b	b	b	b
Denmark	141% a	97%	117%	136%
		b	b	b
Finland	299%	163%	196%	228%
France	323%	104%	125%	146%
Germany	220%	82%	98%	115%
Greece	297% c	126%	151%	176%
Hungary	b	b	b	b
Iceland	433%	177%	213%	248%
Ireland	662%	341%	410%	478%
	b	b	b	b
Italy	b	110%	132%	155%
Japan	314% c	132%	158%	185%
Korea	b	682%	818%	955%
Luxembourg	b	b	b	b
Mexico	b	91%	110%	128%
Netherlands	195% d	115%	138%	161%
New Zealand	199%	59%	70%	82%
Norway	449%	183%	220%	256%
Poland	b	b	b	b
Portugal	904% e	157%	188%	220%
Slovak Republic	b	b	b	b
	b	b	b	b
Spain	526%	144%	173%	202%
Sweden	169%	94%	113%	132%
Switzerland	195%	48%	57%	67%
Turkey	b	b	b	b
United Kingdom	334%	124%	149%	174%
United States	375%	112%	134%	156%
OECD median	314%	120%	143%	167%

[a] 1971 to 2007 [b] Data not available [c] 1970 to 2007 [d] 1972 to 2008 [e] 1970 to 2006

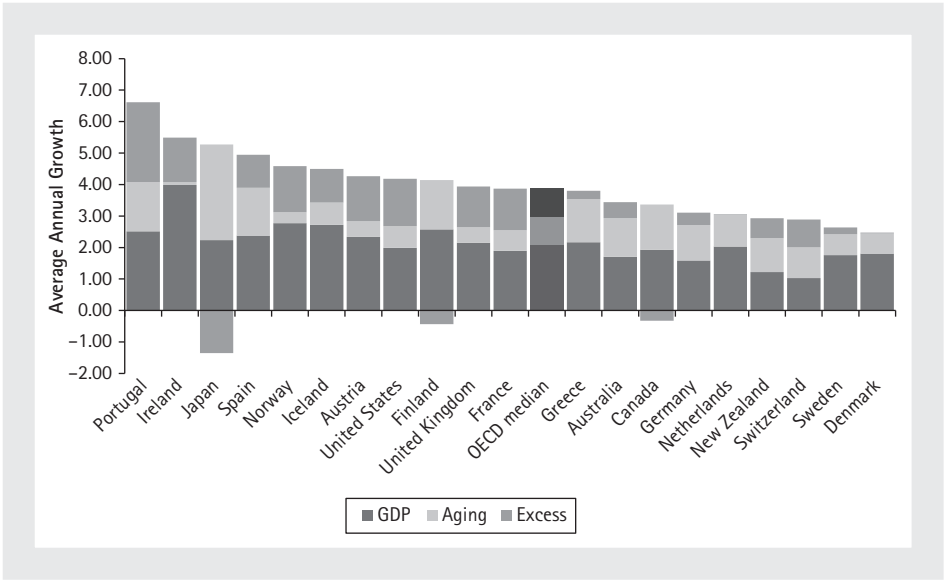

FIGURE 2.2 Decomposition of average annual growth in health spending into growth in GDP, aging, and excess in OECD countries, 1970–2008

Source: OECD 2010; White 2007.

Note: Data not available for Belgium, Czech Republic, Hungary, Italy, Korea, Mexico, Poland, Slovak Republic, and Turkey, Luxembourg.

values of *e* have ranged from 1.2 to 1.4 (Hitiris and Posnett 1992; Gerdtham and Jonsson 2000; Getzen 2000; Di Matteo 2003).[4]

Using the range of income elasticity values (1.2–1.4), the contribution of the growth in GDP to the growth in health spending is calculated in Table 2.2 (percentage change in GDP growth multiplied by the income elasticity value). This suggests that 143 to 167 percentage points, or approximately half, of the 314 percent growth in health spending over time was attributable to GDP growth in the median OECD country.[5]

2.5.2 Aging

The percent of the population over the age 65 increased in all countries from 1970 to 2008, increasing 40 percent in the median OECD country. The increase in population aging clustered around the median in most countries, although Ireland was an exception with almost no change in the proportion of elderly, and Korea and Japan had a near

[4] Studies using micro-data, usually in an analysis of only one country, tend to find elasticity values below 1. Thomas E. Getzen (2002), "Health Care Is an Individual Necessity and a National Luxury: Applying Multilevel Decision Models to the Analysis of Health Care Expenditures," *Journal of Health Economics*, 19(2): 259–70.

[5] Authors' best estimate with acknowledgement that the range is sensitive to choice in elasticity values.

threefold increase. The increase in the percent of the population over age 65 has been due mainly to a combination of increasing life expectancy and declining fertility rates (Anderson and Hussey 2000). Life expectancy increased by 8.8 years in the median country from 1970 to 2008, while fertility rates declined by 31 percent.

However, the growth in the proportion of elderly population is a crude proxy for the growth of health spending attributable to the elderly. Unfortunately, data on health spending by age cohorts is limited among OECD countries. One study (White 2007) compared the effects of aging on health care spending among twenty-one OECD countries. He calculated an index of health care spending by age using an US data source from 1970 to 2002 and then assumed that the spending patterns of the elderly among the countries was similar across countries.[6] The pattern of health spending among the elderly relative to a working population (18 to 64 years old) in the US has been declining slightly over time (Hartman et al. 2008).[7] When examining White's findings, the impact of the growth in aging populations relative to health care spending growth does not follow a clear pattern. However, the simplifying assumptions used in the calculation reduce the variation in the data and thus could be underestimating the effect of aging.

2.5.3 Possible Reasons for the Excess Growth

After accounting for growth in an aging population and income, the health care literature refers to the residual growth of health spending as "excess" growth (White 2007).[8] Figure 2.2 decomposes the average annual growth in health spending in each OECD country into growth from GDP, aging and excess, adjusted for inflation from 1970 to 2008. The excess growth rate in the median OECD country was 0.9 percent, and ranged from −1.4 percent in Japan up to 2.5 percent in Portugal. Three countries experienced negative excess growth (Canada, Finland, Japan, and the Netherlands) such that the combined effect of GDP and aging growth more than explains the growth in health spending.

There is no consensus on the sources of excess growth; however, the remaining sections discuss possible contributing factors. The factors listed in the health economics literature (Newhouse 1992; Cutler 1995) include: spread of insurance, supplier-induced demand and defensive medicine, factor productivity, and technology.

2.5.4 Spread of Insurance

The median OECD country had almost no change in the prevalence of health insurance coverage between 1970 and 2008 given that the majority of countries had universal coverage in

[6] Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the UK, and the US.

[7] The analysis uses data from 1987 to 2004.

[8] Also, accounting for inflation and population growth.

1970. In the 1970 to 2008 period several countries (Australia, Greece Italy, Portugal, Spain, and Switzerland) that in 1970 did not have full insurance coverage moved toward 100 percent public coverage of their population and this could contribute to higher spending. Also, benefit packages could have expanded over time. The limited data suggests an increase in the prevalence of private health insurance supplementing or complementing basic public coverage in some countries.[9] Increased health insurance benefits through the expansion of private insurance coverage could have contributed to health spending growth by increasing demand. In spite of this expansion of coverage we do not see any evidence that the spread of public or private insurance is a major reason for rising health spending across the OECD countries.

2.6 Supply Factors of Health Care Spending

2.6.1 Supplier-induced Demand and Defensive Medicine

Supplier-induced demand—the ability of providers to generate demand for their services—is a concept that has both advocates and skeptics. Numerous studies have found a positive association between per-capita spending and the supply of health care resources in the area (Welch et al. 1993; Fisher et al. 2003). Every OECD country had an increase in the number of physicians per 1000 capita between 1970 and 2008, although the rate of increase varied. The median OECD country had a 223 percent increase. As the supply of physicians has increased over time, it is possible that they have increased demand to expand their incomes. However, the relationship between growth in the supply of physicians (or other providers) and health spending growth depends on payment systems and other factors and has proven difficult to quantify (Labelle et al. 1994).

Often discussed in relation to supplier-induced demand is an increase in defensive medicine where a physician provides more services than necessary to prevent malpractice lawsuits. Measuring defensive medicine is difficult to confirm and quantify because determining which health services are "defensive" is difficult to determine. One study of the US Medicare system found that patients hospitalized for two diagnoses (acute myocardial infarction and ischemic heart disease) had lower hospital spending in states with certain types of tort reform (Kessler and McClellan 1996). However, the US Congressional Budget Office (CBO) was unable to replicate Kessler and McClellan's results using a broader set of diagnoses (Beider and Hagen 2004). Additionally, the CBO found mixed evidence for defensive medicine in the published literature. These divergent conclusions underscore the uncertainty around the contribution of defensive medicine to health spending.

[9] From 1995 to 2008, Australia went from 33% to 50% of the population with supplementary or complementary private health insurance, Canada from 56% to 68%, Denmark from 0% to 17.8%, Germany from 7% to 19%.

Assuming that defensive medicine contributes to health spending, determining how the practice of defensive medicine has changed over time within a country is difficult to assess. Similarly, determining how the practice of defensive medicine differs between countries that have very different legal systems is complex. A possible measure is the growth in malpractice claims and payments. One study compared growth in the malpractice payments over a four year period (1997–2001) among four OECD countries—Australia, Canada, the United Kingdom, and the US. The average annual real growth in total malpractice payments ranged from 5 to 28 percent (Anderson et al. 2005). The average payment per claim (including claims that were dropped or decided for the defendant) ranged from $4 to $16 per capita when averaged over the entire population. Given these factors, defensive medicine is unlikely to have been a major driver of health spending growth in the median OECD country.

2.6.2 Factor Productivity

The service sector, of which health care is a part, has been capturing a growing share of the economy in all industrialized countries, comprising approximately 70 percent to 80 percent of the total labor force. At the same time, the agricultural and manufacturing sectors have been shrinking. The "Baumol Cost Disease" theory (1967) separates the economy into two sectors, agricultural and manufacturing, which are progressive sectors—they rapidly adopt productive technologies and requires less labor input over time to produce the same material output—while services such as health care are stagnant sectors—they do not adopt productive technologies as rapidly and often require a human touch (Baumol 1993). With less labor required in the progressive sector of the economy, it is possible to shift labor into the less productive sectors.

Pauly (1993) interpreted "Baumol's Cost Disease" theory in the context of health care to say that a significant component of health care costs is due to the difference in productivity a person could have obtained in an industry other than health care. Thus, when comparing health care spending across countries, the differences in productivity of their manufacturing and agricultural industries should be compared. Based on a cross-sectional analysis, Pauly concluded that differences in the productivity in the agricultural and manufacturing sectors are not different across countries, and hence Baumol's theory does not explain the differential rates of growth of health care spending across the OECD countries. However, recent evidence analyzing long-run labor trends across sectors in OECD countries suggests that the shifts in labor due to changes in productivity could explain some of the differences in the rate of growth of health care spending (Hartwig 2008).

Another method to measure change in factor productivity is to compare changes in inflation. The US has a medical price index (MPI), which supposedly measures changes in the prices of services and goods related to health care. The MPI can be compared with a general price inflator (e.g., implicit price deflator) to see how much faster prices in the health care industry have been growing, and hence why health care spending has been capturing a growing share of countries' economies. However, price indices such as the MPI assume a fixed basket of goods. This does not provide an accurate representation of

health care markets, where the goods provided are constantly evolving. The result is a tendency for the MPI to overstate changes in costs of goods (Newhouse, 2001). Also, a comparable MPI is not available internationally. There is no consensus in the literature regarding the role factor productivity plays in rising health spending.

2.7 Technology

The general conclusion among health economists is that a major factor influencing the growth of health spending is technology (Newhouse 1992; Cutler 1995; Fuchs 2000). However there is disagreement concerning whether technology is endogenous (a result of increased health spending) or exogenous (where new technologies lead to increased health spending). One camp (Getzen 2000; Glied 2003) believes technology is endogenous through logical reasoning that health spending propels the investment into new technologies, which results in more health spending. Another camp believes technology is exogenous to health spending based on empirical analysis (Okunade and Murthy 2002). International studies suggest that the incentives created by the payment systems vary from country to country and this could influence whether technology is endogenous or exogenous and how it contributes to health care spending.

In economic analyses, technology is classified into several different types: (1) physical capital investment, which is the facilities and equipment used to provide health care; (2) human capital investment, which is knowledge translated into skills gained from education; and (3) labor augmenting technology, which makes labor more efficient.[10] In this section, we compare these three types of technology across OECD countries.

2.7.1 Physical Capital

Investment in physical capital is often measured as the number of advanced medical equipment such as MRIs and CT scanners (spending or depreciation data on capital equipment, which would reflect the value as well as amount of equipment, is typically not available). The number of MRIs and CT scanners varies widely among OECD countries, and the rate of adoption of these technologies has varied widely as well (Table 2.3). An alternative measurement is of investment in physical structures such as hospitals

[10] Here "efficient" refers to productive efficiency which is when the economy is operating at its production possibility frontier curve. In a simplified two good economy, the curve represents the maximum output given a combination of the inputs (goods) based on the technology and factors of production available at the lowest cost. Other common definitions of efficiency include Pareto efficiency whereby given a set of goods, the allocation is such that no individual can be made better off without making another worse off. Allocative efficiency is when a set of goods are allocated such that the net benefit of the individual has been maximized. Distributive efficiency is the allocation of goods such that the aggregate utility of the society is maximized, in other words the goods are allocated to those with the greatest need.

Table 2.3 Number of CT Scanners and MRI Units per Million Persons, 2008

	CT scanners per million persons	MRI units per million persons
Australia	56.0	5.6
Austria	29.9	18.0
Belgium	b	b
Canada	12.7	6.7
Czech Republic	13.5	5.1
Denmark	21.5	b
Finland	16.5	16.2
France	b	b
Germany	b	b
Greece	30.7	19.6
Hungary	7.1	2.8
Iceland	31.3	18.8
Ireland	15.1	9.4
Italy	31.0	20.0
Japan	97.3	43.1
Korea	36.8	17.6
Luxembourg	27.6	12.7
Mexico	4.2	1.5
Netherlands	10.3	10.4
New Zealand	12.4	9.6
Norway	b	b
Poland	10.9	2.9
Portugal	26.0	8.9
Slovak Republic	13.7	6.1
Spain	b	b
Sweden	b	b
Switzerland	32.0	b
Turkey	10.2	6.9
United Kingdom	7.4	5.6
United States	34.3	25.9
OECD median	19.0	9.5

[a] 2006 [b] Data not available [c] 2007

and other medical facilities. Generally, the percentage of health care spending devoted to this type of physical capital investments has declined in the median OECD country between 1970 and 2008.[11]

[11] France is the only country that increased the percentage of their total health care spending by one percentage point with physical capital investments. Physical capital investments are defined as gross capital formation.

2.7.2 Human Capital

In the labor economics literature, human capital is commonly proxied using years of education or wages estimated as a function of years of education, experience, and rate of return to investment in schooling. This form of technology is not commonly discussed in the literature on health care spending. However, the role of human capital is evident—as new procedures and techniques become available, more skilled workers (e.g. technicians and technologists) are needed to use the new technologies. Physical capital and human capital can also be considered complements, whereby technological advances are accompanied by increases in skilled labor with the necessary knowledge to operate the technologies (Goldin and Katz 1998). The number of skilled workers beyond nurses and physicians is not tracked reliably in OECD or other international data sources. However, limited evidence suggests that higher spending levels in the US may be due to a more skilled workforce than in other industrialized countries, but on the whole, healthcare wages does not drive health spending growth (Frogner, 2010).

2.7.3 Labor Augmenting Technology

In the macroeconomic literature, labor augmenting technologies improve productivity because fewer workers are required to produce the same or more output (Baumol 1967). An example of a labor augmenting technology that makes health care employees more efficient is the adoption of health IT systems. Health IT is only recently achieving widespread adoption among the industrialized countries with Canada, Germany, and Norway making significant investments in technology and infrastructure. While health IT systems have been operational for over a decade, the productivity benefits of these technologies have not been carefully studied (Anderson et al. 2006). Two studies in the US reached conclusions that health IT could, potentially, result in an annual net savings of approximately 4 percent but the Congressional Budget Office review of the evidence could find little evidence of cost savings in the programs that were operating (Walker et al. 2005; CBO 2008; Girosi et al. 2008).

2.7.4 Research and Development (R&D)

Underlying the discovery and development of the various forms of technology is investment into health R&D. For example, a MRI unit is a result of a culmination of discoveries by scientists and engineers about biology, computer imaging, nuclear physics, and basic mechanics. Another example of the role of health R&D is investment into higher education and creation of new knowledge embodied in human capital. The investment in health R&D is what Newhouse (1992) refers to as the "march of science" driving health spending. However, accounting for the influence of the health R&D investment on health spending is debated; the exogenous technology argument is that health R&D

investment levels are determined by external policy decisions while the endogenous technology argument is that as health spending increases, more money is invested into health R&D. Empirical studies of the role of R&D in health spending is difficult given the large lag time between the discovery of new ideas into the development of new technology; instead, the current literature uses proxies of health R&D such as MRI units and CT scanners.

2.8 Other Possible Factors

2.8.1 Chronic Disease

Chronic disease is creating a growing burden on health care spending. The cost impact of these chronic diseases on the growth of health spending is not available for most OECD countries, however, within the US, 85 percent of health spending was attributable to people with chronic diseases in 2006 (Anderson 2007). Measures of risk factors of chronic disease such as obesity, smoking, and drinking levels could provide insight into the future incidence of chronic disease and the burden on the health care spending. However, assessing the impact of these pathways on the historical growth of health care spending in all thirty OECD countries is beyond the scope of this chapter. Studies in the United States and elsewhere suggest that these factors are associated with a high percentage of the increasing prevalence of chronic disease.

Five of the most common chronic diseases (diabetes mellitus, chronic lower respiratory disease, cerebrovascular disease, ischemic heart disease, and malignant neoplasm) were estimated to contribute in a range of 19 percent and 28 percent of the change in overall nominal health care spending in the US between 1987 and 2000 (Thorpe et al. 2004).[12] When these five chronic diseases in the US were compared to a pooled group of ten European countries in 2004, the US had consistently higher prevalence and treated prevalence rates (Thorpe et al. 2007).[13] Given the prevalence and treated prevalence rates are lower in the European countries and the declining mortality rates (Table 2.4) as sign of improved health outcomes, the impact of these five diseases on health care spending levels in the typical OECD country is most likely lower than the contribution for the US as determined by Thorpe and colleagues (2004), although the impact is still likely to be significant. Historical information on changes in chronic disease prevalence and treated

[12] Based on authors' calculation of the contribution of heart disease, pulmonary conditions, cancer, cerebrovascular disease, and diabetes. The study included a total of 15 most costly conditions including mental disorders, hypertension, trauma, arthritis, back problems, skin disorders, pneumonia, infectious disease, endocrine and kidney. The sum contribution to change in total health care spending was 43% to 61%.

[13] Austria, Denmark, France, Germany, Greece, Italy, the Netherlands, Spain, Sweden, Switzerland. Treated prevalence is the product of physician-diagnosed prevalence and the proportion of individuals taking medication for the disease.

Table 2.4 Percentage Change in Mortality per 100,000 Persons for Five Common Chronic Diseases, 1970 to 2007

	Malignant neoplasms	Diabetes mellitus	Cerebro-vascular disease	Ischemic heart disease	Chronic lower respiratory disease	Five combined conditions
Australia	−18% a	−36% a	−79% a	−79% a	−91% a	−64%
Austria	−31%	28%	−80%	−50%	−71%	−51%
Belgium	b	b	b	b	b	b
Canada	b	b	b	b	b	b
Czech Republic	b	b	b	b	b	b
Denmark	−1% a	44% a	−51% a	−76% a	−89% a	−45%
Finland	−31%	−60%	−74%	−57%	−95%	−56%
France	−13%	−27%	−79%	−52%	−76%	−42%
Germany	−24% a	−49% a	−76% a	−41% a	−92% a	−48%
Greece	17%	−67%	−33%	4%	−99%	−16%
Hungary	9%	160%	−49%	−10%	−20%	−13%
Iceland	0%	68%	−66%	−68%	−67% e	−47%
Ireland	−9%	−12%	−76%	−59%	−95%	−52%
Italy	−12%	−32%	−68%	−59%	−91%	−46%
Japan	−12%	−49%	−84%	−54%	−81%	−59%
Korea	b	b	b	b	b	b
Luxembourg	−31% a	−42% a	−58% a	−67% a	−86% f	−52%
Mexico	6%	175%	−28%	52%	−66%	25%
Netherlands	−16%	−4%	−67%	−76%	−87%	−51%
New Zealand	−15% a	2% a	−69% a	−65% a	−93% a	−53%
Norway	−4%	41%	−73%	−70%	−74%	−50%
Poland	18%	16%	40%	28%	−95%	10%
Portugal	b	b	b	b	b	b
Slovak Republic	b	b	b	b	b	b
Spain	−1% c	13% d	−71% c	−21% c	−92% c	−38%
Sweden	−15%	−8%	−56%	−69%	−74%	−49%
Switzerland	−28%	−60%	−76%	−43%	b	−48%
Turkey	b	b	b	b	b	b
United Kingdom	−16%	−30%	−69%	−65%	−95%	−53%
United States	−10% d	−2% d	−71% d	−70% d	−69% d	−53%
OECD median	−12%	−8%	−69%	−59%	−88%	−49%

[a] 1970 to 2006 [b] Data not available [c] 1971 to 2005 [d] 1970 to 2005 [e] 1971 to 2007 [f] 1971 to 2006

prevalence is not available to make conclusions about its relation to differences in health spending growth among industrialized countries.

2.8.2 Other Supply Factors

The availability of the supply and utilization of health care resources may affect health care spending. A study of trends in the growth of various resources and utilization (e.g. acute care beds, hospital admissions, length of stay, acute care hospital days) over the last thirty-eight years suggests two notable changes in most OECD countries. The number of physicians per 1000 capita in the median OECD country has increased by about 220 percent, or an additional 1.7 physicians per 1000 capita. During the same time period, the length of stay for inpatient care has fallen by approximately 58 percent. While the data is limited in scope, the increase in the supply of physicians accompanied by a decrease in utilization of hospital care may be a reflection of efforts by health systems to shift care from costly inpatient settings to lower cost outpatient settings.

2.8.3 Waiting Lists/Rationing Care

Some believe that rationing care through supply control policies is another alternative to control spending (See Siciliani and Iverson in this volume for further discussion). The result of these supply constraints has been waiting lists in some countries. The impact of using waiting lists as a method to reduce or sustain health care spending is debatable. An OECD study showed that the health spending was greater in the seven countries without waiting lists versus twelve countries with waiting lists (Anderson et al. 2005). While there was a difference, many factors besides waiting lists could explain the spending difference ($330). Another study found that waiting lists are largely constituted by elective procedures; these elective procedures represent only a small proportion of total health spending in most countries (Anderson et al. 2005).

2.8.4 Quality of Care

Comparisons of health care spending do not reflect the quality of health care delivered. Higher quality care could be related to higher health spending; although, in some cases higher quality could be cost-decreasing (e.g., a poorly performed surgical procedure could result in a costly complication). Different OECD countries are likely delivering very different "products" of health care, but these differences are difficult to measure. International comparisons of the quality of health care are limited, but available evidence shows that quality is mixed, with no clear relation to the level of health spending (Hussey et al. 2004; Davis et al. 2007). No information is available on how the rate of change in health care quality compares in different OECD countries.

2.9 Summary and Conclusion

As OECD countries address the increasing level of health care spending they will need to examine the factors contributing to the increasing levels of health care spending. This chapter provides an overview of the factors generally considered to be the major factors contributing to rising health care spending and the variation in the levels of health care spending across the OECD countries. Each country will need to examine the list in terms of their own circumstances and evaluate which policy solutions are most appropriate for their own unique circumstances. However, many of the fundamental drivers of health spending growth are shared across countries: most notably, technological diffusion and the shift of the disease burden toward chronic diseases. Determining successful approaches to managing these drivers of spending while improving the quality and outcomes achieved should be a priority for OECD countries.

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CHAPTER 3

HEALTH SYSTEMS IN LOW- AND MIDDLE-INCOME COUNTRIES*

ANNE MILLS

3.1 Introduction

Low- and middle-income countries (LMICs)—the focus of this chapter—comprise all countries in the world outside the sixty high-income countries. They number in total 149, and not surprisingly represent an enormous range of country and health system contexts. They account for 84 percent of the world's population, 90 percent of the world's 2001 disease burden (Lopez et al. 2006), 24 percent of the world's GDP, and only 13 percent of global health expenditure. The health systems of the very poorest countries—say Democratic Republic of Congo or Nepal—differ enormously from those in high-income countries, but at the other end of the LMIC range, countries such as Mexico or Malaysia share many features and concerns in common with high-income countries.

This chapter is the only one in this volume which focuses exclusively on LMICs, and given the limited attention paid to economic dimensions of LMIC health systems relative to those in high-income countries, and the restricted evidence base, coverage in other chapters inevitably favors high-income countries. The aim of this chapter is to provide an economic analysis of LMIC health systems and policy implications, and to assist readers to interpret the relevance to LMIC settings of the more in-depth material in other chapters.

More specifically, the chapter aims to:

- Analyze the economic dimensions of health systems in low- and middle-income countries, including how they differ from those of high-income countries

* Many thanks to Yoel Lubell for producing the data for Tables 3.1–3.4, and Figures 3.2, 3.4, and 3.5.

- Identify distinctive characteristics of low- and middle-income countries that affect the policy recommendations that can be derived from the application of economic thinking to their health systems
- Identify key areas of debate that remain unresolved.

Given the diversity and number of LMICs, some structure for aggregation is needed in order to summarize their key features. One of the most commonly used classifications is that of the World Bank which is reflected in the chapter structure here: a grouping by income level into low income, lower middle income, upper middle income, and high income.

Geographical region is another common classification, recognizing that regions and geographically contiguous countries have some defining characteristics in common, such as a common broad cultural and historical identity and roughly similar economic structures, even if there may also be great differences such as those between South Africa and much of the rest of Sub-Saharan Africa. It also has the advantage that regions are widely used in common parlance (witness the current focus on Africa). The World Bank recognizes six regions to which LMIC are allocated: East Asia and the Pacific, Europe and Central Asia, Latin America and the Caribbean, the Middle East and North Africa, South Asia, and Sub-Saharan Africa. The World Health Organisation (WHO) uses a country classification based on the WHO regional governance structure, but sub-dividing WHO regions into two or three sub-regions based on stages of health development in terms of levels of child and adult mortality, producing a total of fourteen sub-regions.

Finally, political or institutional characteristics are commonly used to distinguish specific sub-sets of countries. For example, until recently countries in transition from planned economies were singled out as a group (e.g. countries of the former Soviet Union, China, and Vietnam). Most recently the term "fragile states" has entered the vocabulary, to indicate states that are weak in their institutional capacity, control of territory and ability or willingness to provide services to their people.[1] Low-income Countries Under Stress (LICUS) is another, similar classification, which can be broken down into four categories: countries experiencing prolonged political crisis; LICUS in fragile transition; LICUS with weak governance/slow progress; and LICUS with deteriorating governance.

All of these categorizations have value in understanding health systems and appropriate policies: income level is vital as reflecting the resources available to invest in health; geography reflects a broader range of factors which influence health conditions and affect how health systems function; level of health development highlights the health conditions which health systems must tackle; and institutional characteristics are important, as this chapter argues later, for defining which policies are relevant and understanding how particular policies might work in particular institutional settings.

This chapter hence presents data in two ways: by income level and by World Bank geographical region. These are both the most widely used classifications and those of the highest relevance for economic analysis. It should be noted that the averages presented are country-weighted not population-weighted, since a health system is a national entity,

[1] <http://www.gsdrc.org/go/topic-guides/fragile-states/terms-and-definitions> accessed January 4, 2008.

and the country average gives a better representation of experience across countries than a population-weighted average which is dominated by countries with large populations. To illustrate the key features of the countries that are the concern of this chapter, Table 3.1 provides summary information on selected health indicators and per capita Gross Domestic Product (GDP). It shows that average life expectancy ranges from 53 years for males and 55 for females in low-income countries to 76 and 81 in high-income countries. Infant mortality shows a more than fourteen-fold difference between low- and high-income countries, and TB a more than twenty-one-fold difference. In terms of regions, SSA consistently shows the worst health-related indicators. GDP per capita in US dollars differs nearly seventy-fold between low- and high-income countries.

Since purchasing power is poorly represented by exchange rate conversions of country financial indicators, GDP per capita is also shown adjusted for purchasing power parity, namely in international dollars, which adjusts the value of GDP to reflect more accurately the basket of goods and services it can be used to purchase within each country. Such an adjustment reduces the distance between GDP per capita, from a thirteen-fold difference between high-income countries and LMICs, to a six-fold difference.

3.2 Economic Dimensions of LMIC Health Systems

A health system comprises all the organizations, institutions, and resources that are devoted to producing health actions whose primary purpose is to improve health (WHO 2000). It can be analyzed in various ways, but here the prime focus is on the economic dimensions of health systems. Figure 3.1 enables these to be explored in terms of four key actors (the population, providers, financing agents, and government/professional bodies), five functions (revenue collection, pooling, resource allocation, service provision, and regulation) and the associated relationships and incentives. This section presents summary data and evidence to characterize the dimensions of the performance of the five functions.

3.2.1 Revenue Collection

Revenue can be classified by source (government taxes, social security payments, out-of-pocket payments, external grants and loans), whether these are public or private, and their level (Table 3.2). The lower the country income level, the higher tends to be the share of out-of-pocket payments (Figure 3.2) and the lower the share of revenue (e.g. tax, insurance premiums) which flows through financing agents. At the most extreme (e.g. highly fragile states such as those where government barely functions), virtually all revenue for health services may flow in the form of direct payments. Even in a country

Table 3.1 Selected Health Indicators and GDP Per Capita

Indicator	Life expectancy at birth: males	Life expectancy at birth: females	Infant mortality rate (per 1000 live births)	Tuberculosis prevalence (per 100,000)	GDP per capita US$ (2005)	GDP per capita (international $)
Low income	52.7	55.4	85.9	431	383	2499
Lower middle income	63.8	68.3	39.0	191	1686	6442
Upper middle income	66.7	72.9	21.3	104	4842	11,174
Low & middle income	60.3	64.6	52.3	262	2085	5245
High income	75.8	81.0	5.8	20	26,590	32,725
East Asia & Pacific	64.3	68.6	36.6	258	1779	6052
Europe & Central Asia	65.8	73.5	24.3	93	3038	9290
Latin America & Caribbean	68.7	73.8	24.5	94	3099	8410
Middle East & North Africa	65.7	70.4	38.9	130	2850	6126
South Asia	60.6	62.6	65.1	230	929	3137
Sub-Saharan Africa	49.4	51.6	91.3	482	1058	1994

Source: Health indicators from WHO data: <http://www.who.int/whois/database/core/core_select_process.cfm?countries=all&indicators-nha> accessed November 1, 2008. GDP data and country classification from World Bank: <http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers> accessed January 11, 2008.

Note: Means weighted by country.

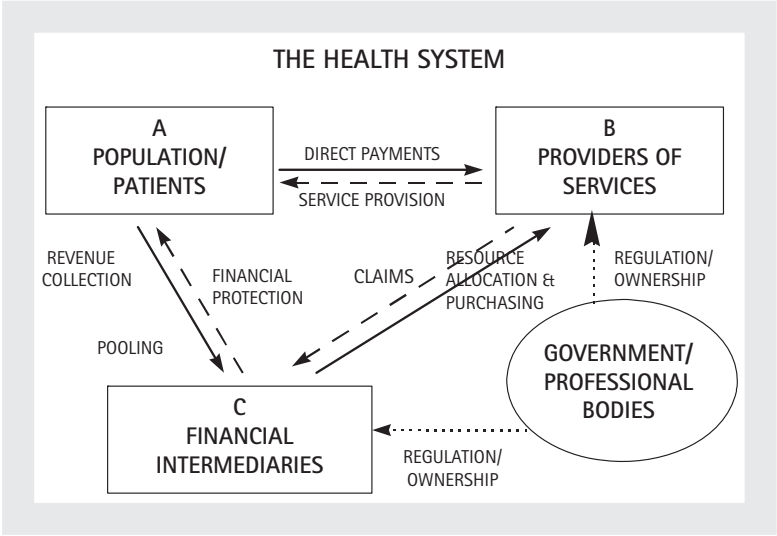

FIGURE 3.1 The health system
Source: Mills (2000).

like India, 83 percent of total expenditure on health is from private sources, and of this 94 percent is from out-of-pocket payments.[2]

External resources feature as an important element of total health expenditure in low-income countries, making up on average 23 percent. Despite this, per capita public expenditure is still extremely low—$12 in low-income countries on average, and $23 for per capita total health expenditure. Adjusting these values for purchasing parity does increase them, but even so total public health expenditure is far below the amount needed to finance a basic package of health services (WHO 2001).

3.2.2 Revenue Pooling

Pooling concerns the aggregation of pre-paid revenues. Prepayment (whether via insurance premiums or tax) allows for payment of health care costs in advance, though there may be some copayments required at the time of service use. Pooling means that members of the pool collectively share risks of needing health care.

The data in Table 3.2 on out-of-pocket payment demonstrate the very limited pooling in LMICs. In addition, pooling is limited by the fragmentation of risk pools, which is common in many countries. For example, there may be different risk pools for those people entitled to access Ministry of Health (MOH) services, those who are members of a compulsory social insurance scheme (or there may be multiple schemes for different industries), those who join voluntary private insurance schemes, and those who are

[2] WHO core indicators accessed January 4, 2008.

Table 3.2 Health System Financing

Indicator	THE as % of GDP	GHE as % of THE	Private expenditure on health as % of THE	GHE as % of total government expenditure	External resources for health as % of THE	Social security health expenditure as % of GHE	Out-of-pocket expenditure as % of PHE	Private prepaid plans as % of PHE	Per capita THE at average exchange rate (US$)	Per capita THE at international dollar rate	Per capita GHE at average exchange rate (US$)
Low income	5.2	43.9	56.1	9.0	22.5	6.1	85.0	3.0	23	79	12
Lower middle income	6.2	58.2	41.8	10.5	9.0	19.5	81.5	8.5	106	271	65
Upper middle income	6.4	63.0	37.0	11.3	2.2	35.8	80.5	15.5	346	639	220
Low & middle income	5.9	54.2	45.8	10.2	12.2	19.4	82.5	8.2	137	294	85
High income	7.6	70.8	29.2	13.9	0.2	36.6	75.6	20.1	2414	2288	1758
East Asia & Pacific	5.9	63.0	37.0	10.3	19.0	14.3	82.1	3.5	110	252	86
Europe & Central Asia		56.7	43.3	10.6	6.1	43.9	88.3	1.9	223	478	149
Latin America & Caribbean	6.6	55.5	44.5	12.7	3.0	28.2	79.9	19.3	210	458	119
Middle East & North Africa	5.9	54.6	45.4	7.6	4.8	17.7	88.5	9.3	164	326	83
South Asia	4.6	37.4	62.6	6.5	7.4	4.4	93.7	1.4	41	130	24
Sub-Saharan Africa	5.3	50.6	49.4	9.6	20.8	2.9	77.8	8.7	67	133	40

Source: Health indicators from WHO data: <http://www.who.int/whois/database/core/core_select_process.cfm?countries=all&indicators=nha> accessed January 11, 2008.

Notes: THE = Total Health Expenditure; GHE = Government Health Expenditure; PHE = Private Health Expenditure. Means weighted by country.

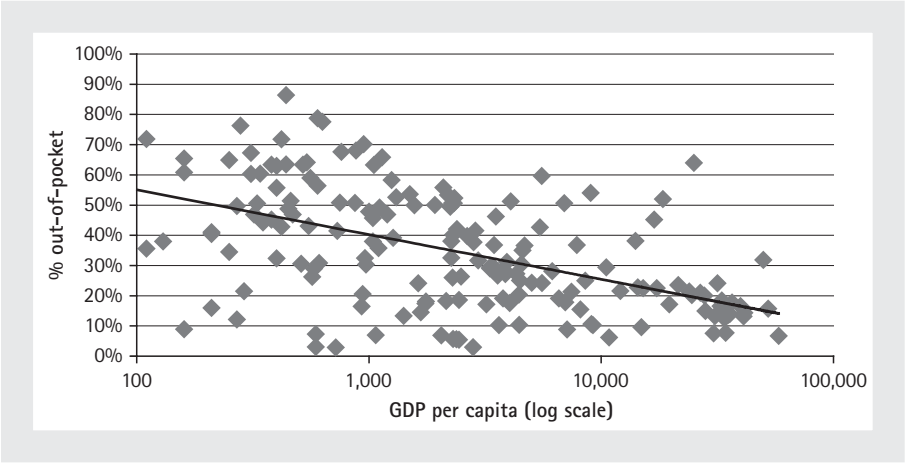

FIGURE 3.2 Out-of-pocket share of total health expenditure in relation to GDP per capita

Notes: Calculated using WHO data from <http://www.who.int/whosis/database/core/core_select_process.cfm?countries=all&indicators=nha> accessed November 1, 2008.

members of community-based insurance arrangements. Such fragmentation maintains gross inequities in access to health care and quantity and quality of services received. There are ways of addressing such inequities—notably through risk equalization funds, financed by contributions from the various risk pools, which compensate pools with higher than average risks. However, there are relatively few examples of such funds in LMICs, with some considerable concern on how well they function. For example, in Colombia, reforms introduced competition between insurers, with the insured being allowed to select their preferred insurer. To ensure that high risk individuals are not discriminated against by insurers, a redistribution fund receives contributions and distributes them to insurers as risk-adjusted capitation payments. However, Gottret and Schieber (2006: 264) argue that it is highly unlikely that the risk adjustment mechanism works well enough to prevent selection behavior by insurers. Public subsidies can also be used to compensate for inequities, but not unusually do so to an inadequate degree or even may accentuate inequities. Thailand, for example, ensures universal coverage of health care through a tripartite arrangement where civil servants have their own non-contributory scheme, those employed in the formal sector belong to the social security scheme, and the rest of the population are entitled to register for the universal coverage scheme. Per capita public funding in 2002 amounted to B1947 for civil servants and B1217 for the social security scheme (which cares only for workers not their dependents), whereas that for the rest of the population, which includes significant proportions of those with greater health care needs, notably children and the elderly, was only B1202. More generally, in countries where a substantial proportion of the population does not have physical access to public health services, public subsidies to existing risk pools may be at the expense of not devoting these funds to those who have no access.

Given the inequities which tend to be maintained by multiple pools (as well as the problems they create for health providers), and the difficulties of ensuring that what

might in theory be desirable competition between insurers does not produce undesirable consequences such as cream-skimming, some countries have chosen to create a single risk pool—for example, Costa Rica merged its general tax-funded national health service and its payroll tax-funded social health insurance in the mid-1990s, and Korea recently merged industry-related sickness funds and schemes for public sector workers (Kwon 2003). Entrenched interests can, however, make this politically difficult to achieve, as in Thailand where legislation permits the merging of schemes but politically it is not currently being pursued.

3.2.3 Resource Allocation and Purchasing

Ideally LMIC health systems should be characterized in terms of patterns of expenditure—for example, relative shares allocated to areas of spending such as primary care, hospitals, pharmaceuticals, public health, and administration. However, such information is unavailable in an aggregated form. An increasing number of countries are implementing National Health Accounts (Powell-Jackson and Mills 2007) but variations in expenditure breakdowns make it difficult to aggregate. In general, a high proportion of government health expenditure goes on hospitals, and within that a high share is absorbed by higher level hospitals (Hensher et al. 2006). Barnum and Kutzin found that all levels of public hospitals in developing countries absorbed a mean of 60 percent of recurrent public health expenditures, and across five countries (Belize, Indonesia, Kenya, Zambia, Zimbabwe) tertiary hospitals accounted for 45–69 percent of total public expenditure on hospitals (Barnum and Kutzin 1993). A more recent study, in South Africa, found that tertiary and regional hospitals accounted for nearly 60 percent of total public hospital expenditure, and tertiary hospitals alone accounted for nearly one-fifth of total public expenditure (Thomas and Muirhead 2000).

In terms of total health expenditure, pharmaceuticals account for a major share given their dominance in private out-of-pocket payments and in turn the dominance of such payments in total health expenditure. WHO data suggest that pharmaceutical expenditure accounts for 19 percent of total health expenditure in low-income countries and 25 percent in middle-income countries, in contrast to 14 percent in high-income countries (WHO 2004).

Few LMICs have well-developed arrangements for purchasing services. The language of purchaser/provider splits has permeated health sector reform discussions (Mills et al. 2000), but change has been slow on the ground. Most MOH funded and provided services remain hierarchical in their structure, though a number of countries have increased the degree of decentralized management (e.g. Tanzania, India, Indonesia, Philippines). Purchasing arrangements have been most explicit where donor-funded contracts—often with NGOs—have been employed to provide services in countries emerging from conflict such as Cambodia, Afghanistan, and the Democratic Republic of Congo.

Social insurance schemes in LMICs historically either were integrated (owning their own facilities—common in Latin America) or paid fee-for-service to providers.

Poor performance of the integrated form, and cost escalation encouraged by fee-for-service payment, has encouraged innovations in payment systems and especially experimentation with case-based payment and capitation in countries that have recently implemented universal coverage such as Taiwan, Korea, and Thailand (Mills 2007).

3.2.4 Service Provision

Service provision is easiest to characterize by inputs (beds, health workers) and by levels of utilization and coverage (percent of a target population receiving an intervention). However, only very crude data are available for LMICs on inputs, and data on utilization and coverage are extremely limited other than for some high priority services for children and mothers such as treatment of common illnesses, immunization and skilled birth attendance, where information is available as well on distribution by socioeconomic status.

Table 3.3 demonstrates that the density of health workers is very low, with for example, only 0.3 physicians and one nurse per 1000 people in low-income countries. SSA has the lowest density of physicians (one doctor for every 5000 people), and South Asia of nurses (one nurse for every 1430 people). There is an almost seven-fold difference in physicians per 1000 people between low- and upper-middle-income countries, and a nearly four-fold difference in nurses.

Figure 3.3 shows median coverage levels for key services amongst the sixty-eight countries which bear the world's highest burdens of child and maternal mortality. While immunization coverage levels are reasonably high given recent efforts and increased funding, many children and mothers are not receiving lifesaving interventions—for example, less than half of children with suspected pneumonia are taken to an appropriate health facility, and only 32 percent of children with suspected pneumonia receive antibiotics. Within overall low coverage levels, there are considerable within-country inequalities by socioeconomic group (Table 3.4). In low-income countries, children from the highest wealth quintile have double the measles immunization coverage of the lowest wealth quintile, and there is a seven-fold difference between highest and lowest wealth quintiles in presence of a skilled birth attendant at birth.

In many countries a very substantial share of utilization is in the private sector (as suggested by the high share of out-of-pocket payments in total health expenditure, though some part of these are to public providers). In low-income countries use of the informal private sector is especially common—outlets such as general stores, often unlicensed drug shops, and market traders. In the absence of a widespread network of public services, such outlets are often the nearest and cheapest source of treatment. Figure 3.4 shows that private sources of care were as frequently used for sick children in twenty-two SSA countries as public sources. While availability of drugs can be better in the private sector than in the public sector, there are also problems of inappropriate and poor quality drug sales (Goodman et al. 2004).

Table 3.3 Health System Inputs

Indicator	Physicians per 1000 population	Nurses per 1000 population	Midwives per 1000 population	Hospital beds per 1000 population
Low income	0.3	1	0.2	16.5
Lower middle income	1.2	2.6	0.3	25.3
Upper middle income	2	3.7	0.3	41.8
Low & middle income	1.1	2.3	0.3	27.4
East Asia & Pacific	0.5	1.8	0.2	22.3
Europe & Central Asia	2.9	6.1	0.4	63.7
Latin America & Caribbean	1.6	2.1	0.1	18.9
Middle East & North Africa	1.1	1.8	0.1	18.4
South Asia	0.4	0.7	0.3	12.6
Sub-Saharan Africa	0.2	1.2	0.2	15

Source: Health indicators from WHO data: <http://www.who.int/whois/database/core/core_select_process.cfm?countries=all&indicators-nha> accessed January 15, 2008. Country classification from World Bank: <http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers> accessed January 15, 2008.

Note: Means weighted by country.

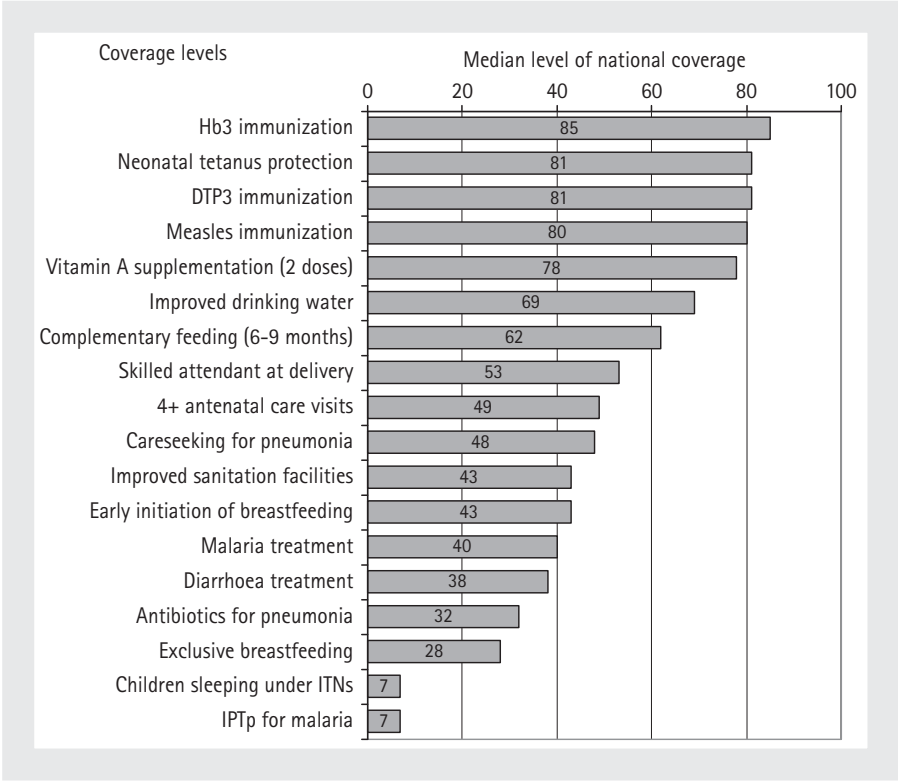

FIGURE 3.3 Median coverage levels for priority maternal, neonatal and child health interventions (68 priority countries)

Source: UNICEF 2008.

3.2.5 Regulation

Regulation in LMICs tends to be both partial and weakly enforced (Mills and Ranson 2005). The range of regulation tends to be similar to that in high-income countries, including control of professions, of facilities, and of pharmaceuticals. However, it is common for new developments in the private sector to remain unregulated (for example, private laboratories and other diagnostic technologies), and the information, systems and staffing to ensure regulations are followed are usually grossly inadequate, especially in low-income countries. Moreover, boundaries between public and private roles are commonly blurred—for example, many publicly employed doctors also do private practice, and even Ministers of Health may have commercial interests in health care or health insurance. Hence regulatory capture can be a major problem leading to weak enforcement (Mills et al. 2001).

3.2.6 Categorization and Evolution of LMIC Health Systems

High-income-country health systems have been categorized in terms of number of insurance pools, whether insurance is public or private, and whether provision is

Table 3.4 Inequalities Within Country Groupings

	Measles immunization coverage among 1-year-olds: ratio of highest-lowest wealth quintile	Births attended by skilled health personnel: ratio of highest-lowest wealth quintile*
Low income	2	7.2 (30)
Lower middle income	1.2	3.6 (13)
Upper middle income	1.2	1.4 (7)
Low & middle income	1.7	5.5 (50)
East Asia & Pacific	1.6	2.4 (2)
Europe & Central Asia	1.1	1.4 (5)
Latin America & Caribbean	1.3	4.8 (10)
Middle East & North Africa	2.3	1.5 (2)
South Asia	2.1	10.3 (4)
Sub-Saharan Africa	1.8	6 (27)

Sources: Health indicators from WHO data: <http://www.who.int/whosis/database/core/core_select_process.cfm?countries=all&indicators=nha> accessed January 15, 2008. Country classification from World Bank: <http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers> accessed January 15, 2008.

Notes: *Limited data: in brackets are the number of countries for which data were available in each group; ǂData combined from World Development Indicators 2007 and UNICEF Global Database on Treatment of Pneumonia; ǂ<http://www.childinfo.org/areas/ari/countrydata.php> accessed January 18, 2008.

public or private (see Chapter 16); or historically in terms of whether they are a "Beveridge" system (national health service funded from general tax and with public ownership of providers) or a Bismarck system (compulsory social insurance financed by employers and employees financing a combination of public and private providers).

Such models in general do not characterize well the health systems of LMICs, which on the whole are marked by fragmentation—of sources of revenue, risk pools, and provider organizations. Moreover, inadequate resources to finance universal coverage of a reasonable range of health services mean that access to services is highly unequal between groups covered by different arrangements.

Countries frequently have co-existing at the same time:

- A publicly funded, publicly provided health service, either officially free at the point of use (but often in low-income countries involving informal payment), or charging subsidized user fees; in many African countries church-run services effectively form a substantial component of this public network.
- Compulsory social insurance arrangements for some or all of those employed in the formal sector, often a minority of the labor force, and financing services either

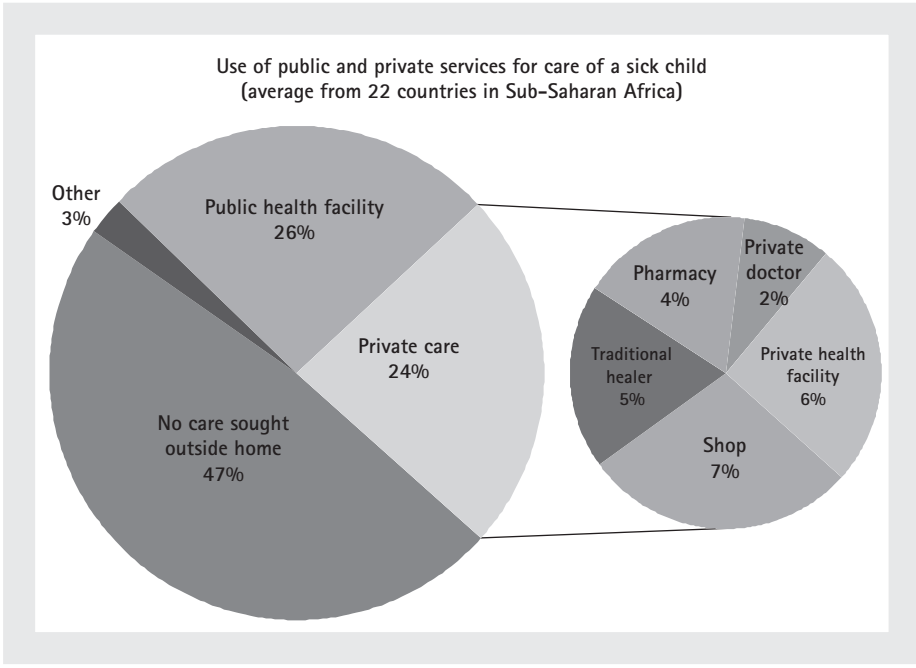

FIGURE 3.4 Use of public and private services
Source: Data from T. Marek et al. 2005.

though its own facilities (still common in Latin America) or through purchase of services (most common in Asia outside India)
- Special arrangements for specific population groups—for example, publicly funded services specifically for the armed forces, and employer-funded services for major industrial and mining enterprises
- Extensive private sector services, both more and less formal, funded through out-of-pocket payment.

Other features, less widely found, include:

- Private insurance arrangements, especially in upper-middle-income countries (in South Africa, private insurance arrangements cover approximately 18 percent of the population: 60 percent of the wealthiest quintile but only 2 percent of the poorest); some areas have seen a rapid expansion in private insurance, for example, the Middle East and North Africa (Gottret and Schieber 2006)
- High quality private hospitals serving foreigners (e.g. in India, Thailand)
- Community financing schemes, involving a great diversity of financing and provision arrangements ranging from integrated schemes (a hospital running its own pre-payment scheme) to NGOs which run an insurance scheme reimbursing some of the health care costs of its members.

The exceptions to this pattern are a few wealthier middle-income countries which have merged and re-organized funding and provision arrangements in the process of

providing for universal coverage. Even with these countries, however, inadequate resources tend to mean that arrangements are either not fully universal (for example, a substantial proportion of Colombia's population is still not encompassed by the compulsory and subsidized insurance regimes, and falls back on a publicly funded safety net), or co-exist with still substantial levels of exposure to out-of-pocket payments. Such payments can arise for three main reasons: copayments may be required to obtain services within the benefit package; the benefit package may be quite narrow, excluding certain services which then have to be paid for; or the quality of care of the providers available to the insured may not satisfy their preferences, leading them to patronize other providers for whom they must pay.

The data in Table 3.2 and Figures 3.1 and 3.2 suggest that as countries grow richer, the public share of revenue increases, and the out-of-pocket share falls, though at any given income level countries can exhibit very different patterns. With the exception of Thailand, virtually all countries that recently established universal coverage have done so on the basis of merging fragmented schemes and expanding compulsory social insurance arrangements, using general tax revenues to subsidize the inclusion of sections of the population outside the formal labor force (Mills 2007). Social insurance was also the chosen means to reform the financing of health systems in East and Central Europe following the collapse of the USSR, in part because these countries had a large formal employment sector making payroll taxes feasible and wished to move away from the state domination implicit in use of general tax revenues (Gottret and Schieber 2006). While achieving universal coverage with reasonable depth of service provision is heavily dependent on a country's income level, political and social factors must be supportive to increasing the government's role in health (Mills 2007).

There is some evidence from developing countries to suggest that while the public share of revenue may increase as countries grow richer, the public share of provision shrinks (Hanson and Berman 1998). This may in part be a response of private investors to demand from a growing middle class for medical care that is not satisfied by public services, and subsequent opening of access to private facilities to patients covered by public insurance. For example, Asian countries with universal coverage which until recently were classed as upper-middle-income (e.g. Korea, Taiwan) have a very substantial share of utilization which is catered for in the private sector. In Thailand, employees in the social security scheme must choose a hospital at which to register and have free choice between public and private accredited hospitals; over the first ten years of the scheme the share of private hospitals increased from 17 percent in 1991 to 49 percent in 2001.

3.3 Distinctive Characteristics of LMICs

LMICs share to a considerable degree some features in common which are likely to affect the policy recommendations that are derived from the application of economic thinking to health systems. These features are discussed here and their relevance drawn out. They concern the economic structure of countries; the strength of political and social

institutions including governance structures; management capacity in the public sector; and the influence of agencies external to the country. There is of course a spectrum of these features in LMICs, with some demonstrating highly under-developed markets and institutions, and others having institutions much closer to those in high-income countries. But it is important that these aspects of the country context are taken into account in policy prescriptions.

Many of these dimensions have been brought together under the general heading of "capacity" (Hilderbrand and Grindle 1994), which is considered to have internal and external dimensions. Internal aspects of capacity include human resources (skills and numbers), resource availability, the appropriateness of organizational structures and systems, and coordination between agencies involved in any particular task. External factors include the public sector institutional context such as civil service rules and regulations, and the broader societal context including the macroeconomic situation, government stability, and the richness of civil society institutions. This framework draws attention to the wider institutional factors that may hamper the effective functioning of health systems; it also indicates what types of reforms might be relevant in what types of settings.

3.3.1 Economic Structure

Four aspects of the economic structure of countries are important. First, the degree of poverty has a pervasive effect on health systems. At the household level, there is now a substantial body of evidence showing that for poorer groups, illness can readily lead to levels of cost that are catastrophic for household welfare, or alternatively the potential costs discourage households from seeking necessary care. Even a sequence of minor illnesses in children can be catastrophic in terms of diverting cash from other basic needs especially food, or putting households in debt to local money lenders. In one study, typical of many, around one-third of urban and rural households in an area on the Kenyan coast incurred monthly health-related costs exceeding 10 percent of household expenditure, half of these households were in the two lowest socioeconomic groups, and borrowing and gifts were the main strategies used to cope with costs (Chuma et al. 2007). In a similar, earlier study in Sri Lanka, Russell found that low but frequent illness burdens, often suffered by households with a chronically sick member or several young children, were a persistent shock to vulnerable households' income and assets, undermining attempts to save and invest or gradually pushing them into poverty (Russell 2007). He also found that low-income households had weaker social networks and could access fewer financial resources than better-off households. Hence in low-income countries, even more so than in the rich world, a strong case can be made for the provision of protection against financial costs and especially against the consequences of chronic illness. In the case of Sri Lanka, free hospital care appeared an especially important safety net: on the whole, primary care was affordable and often purchased in the private sector, whereas private hospital care was far more costly, leading people to use the public sector.

At the systems level, the poverty of a country severely affects its ability to collectively finance adequate access to health care. Historically it has been argued that a set of simple interventions would cost only a few dollars per capita per year. However, more recent costings of a package of high priority interventions, which allow for adequately funding both the package itself and the necessary support costs at higher levels, suggest that such costs are a substantial share of per capita income. For example, the costs of high coverage of the package of forty-nine interventions prioritized in the report of the Commission on Macroeconomics and Health amounted to $38 per year in low-income countries or 6 percent of GNP (WHO 2001). For least developed countries the latter would be 11.4 percent. These amounts greatly exceed current levels of government health expenditure and even total health expenditure, and do not include any allowance for expenditure on services outside the essential package—such as much hospital care. It is telling that those countries which have seen most rapid progress to universal coverage are the South-East Asian "tigers" which have experienced very rapid economic growth in recent decades. No country can afford all the health care it would like, but budget constraints in the developing world are of an order of magnitude different from those in high-income countries.

At the systems level, poverty has another consequence, which is that health worker remuneration reflects local income levels. Historically doctors and nurses have always been internationally mobile (for example, in the Caribbean—Walt et al. 2002), but the processes of globalization have made it easier for trained health workers to migrate to where salaries are higher and conditions of work better. Certain countries, such as Ghana and Malawi, have been especially affected by migration (Hongoro and McPake 2004). This issue has a number of consequences not just for human resource management policies within the health systems of low- and middle-income countries, but also for the health care delivery system. Task-shifting to lower levels of health workers, for example, is inevitable if the number of people on antiretroviral treatment is to be increased, and the scope for using community health workers is again the focus of attention (Haines et al. 2007). The issue of the health workforce is examined in greater depth in Chapter 21.

The second aspect of the economic structure of a country that is important, affecting especially health system financing, is the nature of the labor force. Developing countries, especially the poorest, are characterized by a small share of working age adults in the formal sector, and a large share in the informal economy. In some Latin American countries the informal share of the labor market is even growing (Gottret and Schieber 2006). A large informal sector makes it impossible to use payroll taxes as a major source of health care finance, and also hampers the government's ability to raise general tax revenue. Moreover, although the introduction of social health insurance in a country is usually accompanied by plans to extend it to the informal sector on a voluntary basis, the reality is that this proceeds extremely slowly (Mills 2007). Some see community-based insurance as the interim solution (Preker et al. 2002), but even here there are very few examples of schemes of any size emerging. Thus the structure of the labor force greatly affects the options available for collective financing. In addition, the informal nature of much income generation makes it difficult to target subsidies or exemptions to low-income groups since these cannot be easily identified.

The third aspect of the economic structure is income inequality. This is especially pronounced in middle-income countries, and has two consequences for health systems. One is that the buying power of the richer groups, given low quality public services, is focused on the private health sector, which then grows and attracts scarce physical resources such as doctors and nurses away from the public sector, further increasing disparities in quality between public and private services. The second consequence is that when different income groups use different services of different quality, this makes it very difficult to move towards universal arrangements. Leveling down is not an option, but leveling up is very costly. Moreover, large income inequalities may prevent the emergence of the social solidarity necessary to finance a universal system.

The fourth aspect is an under-developed private sector. This has a number of consequences. For example, it limits the scope for competition as a driver of efficiency and low prices in market arrangements. While this may be less relevant with respect to facilities such as hospitals, where a number of factors limit price competition in countries at all levels of development, it is certainly relevant to pharmaceuticals, and to the efficiency of the myriad suppliers of inputs to the health sector. Goodman has found in Tanzania, for example, that despite the apparent number of drug sellers in rural markets, there is a high degree of concentration, and high price mark-ups (Goodman et al. 2009). Another consequence is that limited private sector capacity limits the scope for deriving increased efficiency from contracting out services to the private sector. In a number of countries, attempts to contract out ancillary services such as security, cleaning, and laundry have been hampered by the very limited capacity of the private sector to respond (Mills 1997). More broadly, a small private sector is unable to serve as a source of financial and management expertise to the public sector—a strategy often used in rich countries when public institutions are considered to be in need of reform or of specific business skills such as financial management.

3.3.2 Political and Social Institutions

By definition, the less developed a country, the weaker tend to be its political, economic, and social institutions. These include the institutions of democracy and representation, of civil society, and of professional groupings. While these institutions do not function perfectly in the rich world, and indeed their very long history can inhibit change, nonetheless they form the backdrop to the relationships within health systems that help promote efficiency and equity. This argument is best justified through examples of where common health sector policies or reform prescriptions do not work as expected.

One common reform policy is that of hospital autonomy. Comparing public hospitals in the developing and developed world, the management of the former tends to be much more centralized. Given evidence of considerable inefficiencies, a standard policy prescription has been to increase the degree of autonomy, especially financial autonomy (Mills et al. 2001). However, there is some evidence that the introduction of such policies has harmed the access of the poor, since increased fees have been imposed without

proper implementation of exemptions arrangements (Hanson et al. 2001). In general, despite efforts to strengthen the governance structure of hospitals, the interests of the poor, and indeed of users in general, are not well reflected in the decision-structures of hospitals and there is little pressure on them to be seen to be serving the public interest.

Another example is that of capitation payment. It is well recognized that while capitation payment provides an incentive to keep expenditure within a budget, it also runs the risk of limiting quantity and quality of care to an undesirable extent, especially with capitation payment to commercial providers with incentives to maximize profits and select healthier patients. In high-income countries this has not been found to be a major concern given professional ethics and self-regulation. A study in Thailand—where capitation is the mode of payment used in the social health insurance scheme for all levels of care—found some evidence that private hospitals limited the quantity and quality of inputs for insured patients (Mills et al. 2000). In some instances—for example, use of generic drugs—this may have reduced costs with no harmful effects on quality of care. In other instances—for example, providing shorter courses of drugs to hypertensive patients—this may have increased non-compliance because of the need for more frequent visits. There was also some evidence of dumping more costly patients by discouraging them from registering the following year. Monitoring focused on structural quality, with no attention to process indicators or to encouraging the supportive broader institutional environment required to ensure ethical behavior. This would include quality assurance programs, and active medical councils ensuring high standards of medical ethics. In Thailand, at the time of the study, it was left to an active media to detect and publicize problems of medical care quality.

A third example is that of risk protection. The essential argument for insurance is that it reduces financial risk. However, Wagstaff and Lindelow (2008) found in China that health insurance appeared to increase out-of-pocket payment and the risk of catastrophic and large expenses. Given their data, they were not able to determine the precise reasons for this. However, other studies point to the very strong drivers to generate revenue in Chinese hospitals (Liu and Mills 2003, 2005), and thus as Wagstaff and Lindelow suggest, it is likely that at least part of the increased payment was due to providers exploiting their informational advantage and providing expensive medical care that the individual would not necessarily have chosen knowing its costs and benefits. In this case, although hospitals were ostensibly "public" they functioned in practice as income generating enterprises, without the normal checks and balances that professional self-regulation and a relatively informed patient population provide in a more developed setting.

More broadly, Schick (1998) has criticized the relevance of developed world public sector reforms to the institutional setting of developing countries. He argued, for example, that "in New Zealand, formal contracts and internal markets were feasible because the country had a robust market sector and established mechanisms for enforcing contracts" whereas in a developing country context, "it would be foolhardy to entrust public managers with complete freedom over resources when they have not yet internalized the habit of spending public money according to prescribed rules."

3.3.3 Management Capacity

Within the context of weak institutions, management limitations impose a major barrier to the capacity of the health system in developing countries to raise money for health and to translate inputs into outputs. Such limitations go well beyond simple numbers of managers or levels of education and training, to encompass information and financial management systems, for example.

Efficient performance of revenue collection systems is a major problem for tax authorities and social insurance agencies alike, though some forms of tax are less difficult to collect than others. It is common for enrollment in social health insurance schemes to fall well below the size of the target population, and in addition for non-payment to be a major problem. In Kazakhstan, for example, premium collection amounted to only 9–52 percent of expected revenues in different oblasts (Gottret and Schieber 2006), and in Colombia, evasion in the contributory scheme was the equivalent of 2.75 percent of GDP in 2000 (Escobar and Panopolou 2003). It can be argued that public care free at the point of use and funded by general tax revenues is a less costly and less managerially intensive way of collecting and spending money for the provision of health care than insurance arrangements, since the former avoids the need for enrollment, premium collection, eligibility checks at facilities and monitoring compliance with insurance regulations. Tax collection brings with it its own difficulties, though reform of tax administration has been one of the better performing programs of the World Bank (World Bank 2008).

Management capacity has also been shown to be a major problem in the implementation of policy changes (Mills et al. 2001). While most attention has focused on the adoption of appropriate policies, many of the reasons for poor health system performance have their roots in implementation problems rather than policy design deficiencies. For example, the commonly recommended policy of user fees with exemptions for the poor is stymied by the inability of virtually all countries to implement an effective exemption system, even when exemption criteria are simple—for example, children under 5. While it is true that lack of incentives to give fee waivers is a major problem, the solution, of reimbursing facilities for lost user fee revenue, depends on effective financial management—which was problematic in Ghana, for example, when this solution was tried (Witter et al. 2007). Poor performance of contracting out arrangements is another area where management capacity has been a limiting factor, explaining why anticipated benefits may be less than expected. In South Africa, for example, the government authorities relied on the contractor itself (a commercial company) to draw up the contract, and then failed to effectively monitor its performance (Broomberg et al. 1997). Most recently, the introduction in low-income countries of conditional cash transfers, where financial incentives are given to households and often also providers to encourage specific behaviors (for example, delivery in a health facility), have hit problems of implementation. Evidence of their success originates from middle-income countries, especially in Latin America, where management capacity is greater. Preliminary evidence from Nepal, for example, indicates as in Ghana, that weak financial management is the critical bottleneck in effective implementation (Powell-Jackson et al. 2008).

In addition to poor financial management, weak information systems have a pervasive effect on the functioning of the health system (Mills et al. 2001). Table 3.5 summarizes the findings from a four-country study (Ghana, Zimbabwe, India, Sri Lanka) on how weak information systems affected specific policies, namely increased autonomy for public hospitals, use of user fees (with exemptions) as a source of health financing, contracting out services to the private sector, and adequate regulation of the private sector. In all cases, poor information was a binding constraint on the operation of these policies.

The overall consequences of weak institutions and management capacity is indicated by analysis of the relationship between health outcomes and the World Bank's CPIA (Country Policy and Institutional Assessment) index, which assesses how conducive a country's policy and institutional framework is to encouraging poverty reduction, sustainable growth, and the effective use of development assistance. Analysis of the elasticity of health outcomes to government health spending found that spending had a larger effect on health outcomes in countries with higher CPIA scores (Wagstaff and Claeson 2004). Of the four elements in the CPIA index, public sector management was the weakest and had improved least over time (the others being economic management, structural policy, and policy for social inclusion) (Gottret and Schieber 2006).

While it is undoubtedly true that problems of institutions and management capacity demonstrate a gradient from low- to high-income countries, rather than there being two distinctly different groups of types of country, nonetheless the differences are such that policy prescriptions appropriate to high-income country settings may fail in low capacity settings.

3.3.4 External Dependence for Health Financing

External dependence is primarily a problem of low-income countries. Table 3.2 showed that 22.5 percent of total health expenditure came from external sources in low-income countries. The great majority of this (around 70 percent in an analysis by Greco et al. 2007) flows through governments (most of the remainder going to the private sector), suggesting that on average around 36 percent of government health expenditure is from external sources. This share can be much higher in certain favored countries—for example, probably over 70 percent in Uganda, Mozambique, and Cambodia. While flows of aid are an important income stream for health, they bring with them some major complications which can affect the performance of the overall health system.

Firstly, there is the problem of predictability. Aid finances activities which are usually not short-term, but commitments are time limited. Hence countries do not know whether funding is available in the long term, and flows of funds can vary considerably from year to year. Figure 3.5 shows the change over time in external resources for health in nine African countries. Such variation poses major planning difficulties, and is one of the reasons why absorptive capacity is a constant problem. It can also inhibit sensible policy change—for example, one reason why the shift to an effective antimalarial combination

Table 3.5 The Impact of Weak Information Systems

Policy	Identified weakness in information system	Impact of weakness
Autonomous hospitals	Cost accounting systems poorly developed and returns generally late and incomplete	Difficult to move towards performance-based budgeting without first strengthening systems
User fees and exemptions	Limited financial data available (e.g. revenues generated, exemptions given, spending profiles)	Weakens monitoring of: collection mechanisms, effectiveness of exemptions, and appropriateness of spending decisions
	Non-compliance with new financial information systems (Ghana)	
Contracting-out	Limited data on public sector costs or performance	Makes it difficult to evaluate wisdom of contracting-out service
Regulation	Absence of complete database on private providers	No list to use for conducting inspections of private providers
	Inadequate systems for collecting information on case load in private sector	Difficult to compile complete picture of health service provision and hence to develop policies towards the private sector
	Inadequate records kept by private sector providers	Difficulty of proving or disproving cases of medical malpractice

Source: Adapted from Mills et al. 2001.

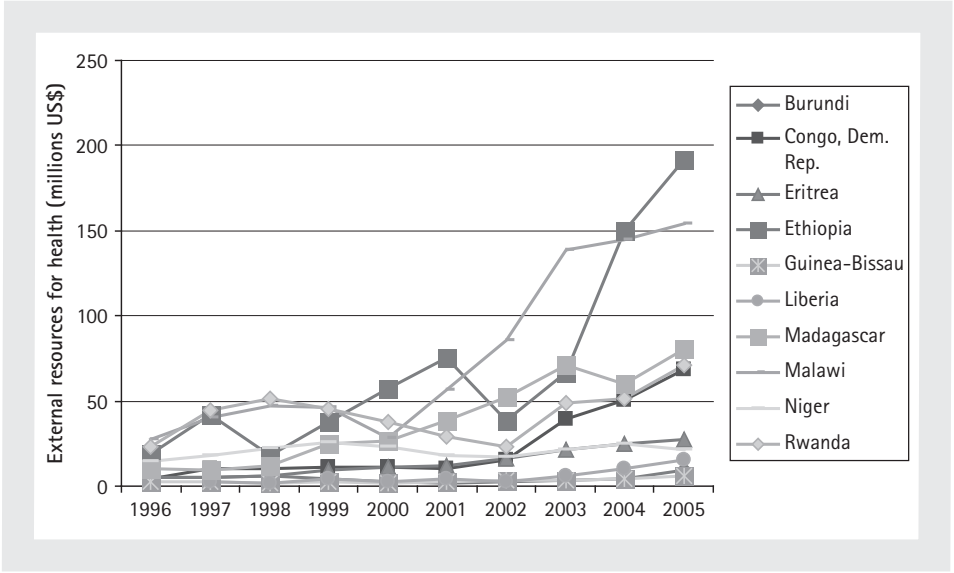

FIGURE 3.5 Volatility of external funding

Notes: Calculated from NHA data on % THE from external resources, available at <http://www.who.int/nha/country/en/> accessed December 1, 2008.

was delayed in Africa, despite a failing drug, was that the replacement drug was far more expensive and it was not clear how a switch would be financed in the longer term.

A second major problem is the fragmentation of aid flows. Despite the 2005 Paris Declaration on aid effectiveness, which agreed improvements in country ownership and harmonization of arrangements, progress has been slow in improving coordination of flows of funds. Acharya et al., for example, pointed out that Vietnam, a fairly representative aid recipient with aid flows of around 5 percent of GDP, had twenty-five official bilateral donors, nineteen official multilateral donors, and about 350 international NGOs in 2002 (Acharya et al. 2006). They collectively accounted for over 8000 projects, or about one project per 9000 people. Such fragmentation has pervasive system effects, over-burdening limited planning and management capacity, skewing incentives amongst managers and health providers in terms of where to direct their effort, and producing both duplication and neglect in service delivery, depending on which areas are favored by donors.

The third main problem is the effects of the politics of donor countries, which are an important influence on the type of aid, what it is for and who receives it. Recent years have seen massive attention given especially to HIV/AIDS, though also to other diseases such as TB, malaria, and polio. The disease specific concerns of key donors have clearly skewed resource allocation within countries—for example, a Rwanda government report stated that $18m was earmarked for malaria (the biggest cause of mortality and morbidity) and just $1m for the integrated management of childhood illnesses,

compared to $47m for HIV/AIDS, grossly disproportionate in a country with a 3 percent infection rate (MOH 2006). Moreover some 27 percent of total Government and donor expenditure was absorbed in administration, reflecting the proliferation of actors (twenty-one donors and over forty NGOs), the large number of discrete projects, and the perpetual need to re-negotiate in a situation of very short donor pipelines, with 55 percent of donor projects due to end within a year.

More broadly, health need often does not appear to figure large in donor decisions on which countries to support. An analysis of donor funding for maternal and child health showed that a number of very needy countries—for example, with maternal mortality rates over 1000 per 100,000 live births—received less funding for maternal and neonatal health per livebirth than countries with lower rates (see Figure 3.6; Powell-Jackson et al. 2006). Regression analysis of the determinants of this funding averaged over the period 2003–6 showed no relationship with degree of need as represented by disability adjusted life years lost due to maternal and neonatal deaths (Greco et al. 2008).

Dependence on external funding for the health system is of course just one dimension of a broader vulnerability of low-income countries, who have much fewer resources to cope with economic vicissitudes, and who face difficulties in competing in increasingly global markets for physical and human capital. The problems of outmigration of skilled health personnel, discussed earlier, is another manifestation of how this vulnerability affects the health system.

3.4 Unresolved Debates

Given the numerous challenges of financing and organizing the health systems of LMICs, and the weakness of information such as that available for high-income countries that would enable uncontroversial conclusions to be drawn on health systems performance and how this relates to different patterns of health system arrangements, it is not surprising that there are many unresolved debates.

Out-of-pocket payments and user fees remain a continuous cause of controversy. While the evidence is strong that payments discourage use of health care by the poorest (Palmer et al. 2004), and user fees at public hospitals can readily give rise to catastrophic payments where exemptions systems do not function (Patcharanarumol et al. 2009), on pragmatic grounds they are a contribution to health financing, and they are one of the more feasible sources of domestic funding for low-income countries where the contribution of social insurance is limited by the structure of the workforce and tax mobilization is weak. It is clearly more desirable to increase tax mobilization and devote more to health, but countries may not choose to spend increased tax revenues in this way, given the many competing demands on their budgets.

Universal arrangements versus targeting public assistance to the poor also remains a source of considerable controversy. Strong arguments can be put in favor of the

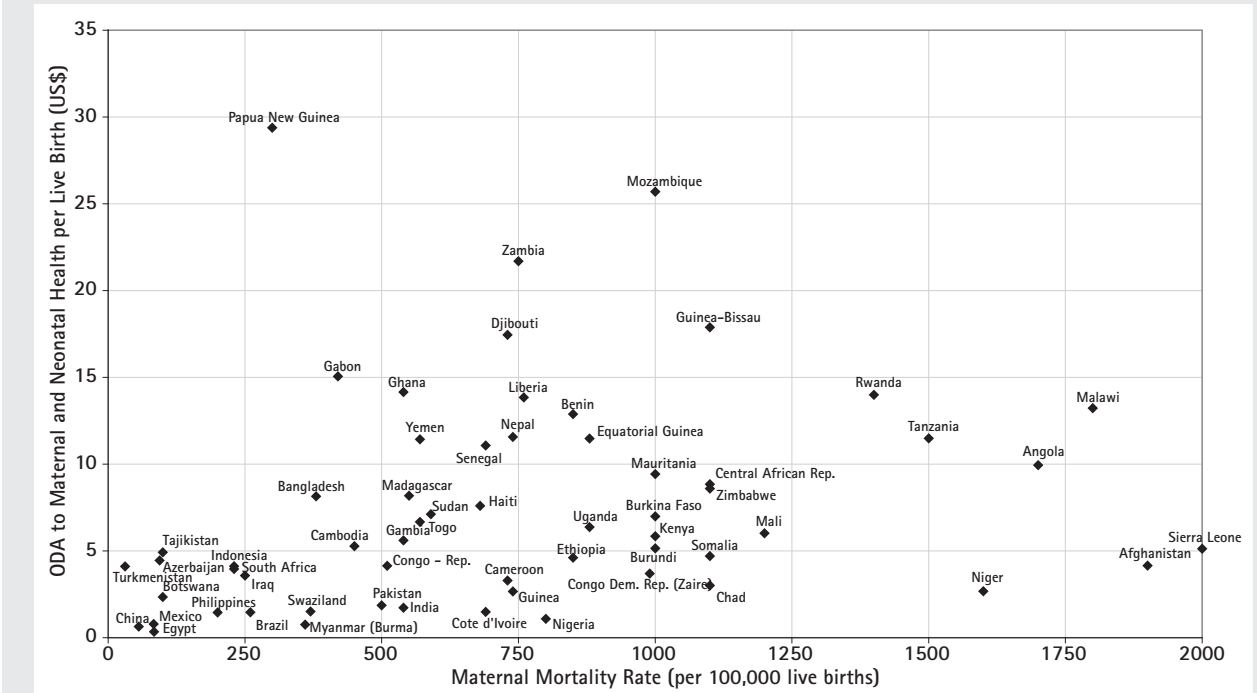

FIGURE 3.6 External funding for maternal and neonatal health in relation to need

Source: Powell-Jackson et al. 2006

Note: ODA = Official Development Assistance

importance of a well-funded, publicly led, and universal health system (Gilson et al. 2007), and indeed these arguments now appear well-accepted in middle-income countries such as Thailand. In low-income countries, however, resource limitations make it difficult to provide universally even a limited package of high priority interventions, despite the increase in external funding seen recently. The commonly recommended solution is to target resources on the poorest, but there is little evidence so far that such targeting can be done effectively, or that it is cost-effective relative to broader approaches to service provision (Hanson et al. 2007).

In LMICs with a reasonably substantial formal sector workforce, an interesting debate is developing on whether social health insurance or tax funding should be the basis for the financing of a universal health system (Mills 2007). In recent years, social health insurance has been the preferred financing source. However, Wagstaff (2007) recently argued that for a number of reasons, not least implications for the cost of labor, general tax revenues were a preferable source. Arguments seen historically in Europe between these two main sources of financing are being played out in the arena of LMICs, with the creation of a consortium to promote social health protection involving ILO, WHO, the World Bank, France and Germany.

As in high-income countries, pay for performance experiments are now happening in low- and middle-income countries on quite a wide scale, from conditional cash transfers to vouchers for specific services or products (e.g. insecticide treated mosquito nets), performance contracts for NGOs, and indeed performance contracts for individual health workers. While there is evidence from middle-income countries that pay for performance can stimulate use of preventive services, for example, the evidence base for low-income countries is extremely thin, and there have been no studies on whether it is more cost-effective to introduce these arrangements rather than, for example, strengthen more conventional approaches to service delivery (Lagarde et al. 2007).

Within service delivery, a key area of controversy is the role of the private sector. The private sector is a reality which many people use, either because they prefer it or because there is no alternative. It can be a useful source of care close to people's homes, but also can be a source of very poor quality care and can generate catastrophic payments, especially for the poorest. Recent initiatives have sought to explore how promotion of the private sector can benefit the poor in Africa (IFC 2007), but the evidence remains very weak to justify emphasizing either private finance or provision as the main solution to the health needs of the poorest. More broadly, the appropriate role of the private sector as a complement to the public sector is also controversial. On the one hand it can be argued that it provides a safety valve for the less poor, enabling public services to focus on serving the poor; on the other hand it can be argued that in the context of extremely limited human and financial resources, a private sector serving a reasonably substantial share of the population absorbs more than its fair share of resources and makes these unavailable to the rest of the population, in contrast to universal arrangements where all population groups share the same services.

Finally, perhaps the greatest challenge with respect to health system design lies in fragile states, where by definition governments lack the capability to play a leadership

role. Issues such as sources of financing, decisions on priority health services, who should provide services, and trade-offs between seeking short terms gains versus creating longer term sustainable systems, are even more difficult in this context. But there is a gross lack of evidence in this area to guide public policy.

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CHAPTER 4

THE POLITICAL ECONOMY OF HEALTH CARE

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Government is everywhere deeply involved in health and health care. The large government role exists, in part, as an efficiency-enhancing response to the market failures described elsewhere in this volume. Government is also important in health care because of the importance accorded to the redistribution of health resources for equity reasons, also described in the volume. Regardless of why government is involved, the presence of government as an actor in the system introduces a distinctive set of forces on how it operates.

There is a substantial literature on political economy in economics but it is only sporadically applied to health care (Mueller 2003). The political economy of health and health care is also of interest to political scientists, but in this literature, too, its presence is less than proportional to the size of health care in government activities.

This chapter describes the role of government in the health care system and the factors and forces that determine how that role is played. In so doing, it examines how theories of political economy drawn from both economics and political science have been and can be applied to this sector. It first describes the scope of government in health care, and then examines how theories of political economy can be applied to the sector. The chapter then examines the implications of these theories for political choices under three headings: interest groups, voting behavior, and institutions.

4.1 Scope of Government Involvement in Health Care

Governments play several roles in the health care system. Here, we focus on four broad categories of government action in health care markets, linked to corresponding market failures: health care as a merit good; information gaps; infrastructure as a public good; and externalities.

4.1.1 Health Care as a Merit Good

The first of these roles deals with health care as a merit good, which should be distributed among the population through some concept of equity (essentially, some version of the view that access to health care should depend upon need—see Olsen, Chapter 34, this volume). While the distribution of health care delivery varies considerably, every developed country, and most developing countries, implement policies to redistribute resources designed in some way to increase the equity of distribution of health care. Moreover, public redistribution of resources associated with health care has long historical precedent (e.g., Dutch almshouses, the English 1601 Poor Law, poor relief for the sick, etc.). Redistribution in health care may focus on providing a minimum standard to those with low incomes (Pauly 1971). A substantial literature argues, however, that health care redistribution seeks not only to maintain minimum standards but also to "limit the domain" of inequality in health care receipt (Tobin 1970). This focus on reducing inequality calls for government to play a role both in determining the optimal level of subsidy for lower income groups and also, potentially, in constraining the health care purchasing decisions of those with higher income (Lindsay 1969; Glied 1998).[1] Governmental constraints on those with higher incomes may also result from short- to medium-term considerations of potential feedback effects. For example, under conditions of constrained supply of health care providers and facilities, allowing higher income consumers unlimited choice of services may limit the provision of more essential care to those with lower incomes. Governments may therefore deem it necessary to constrain choice, at least until the supply constraint can be relaxed.

The redistributive "work" done through public insurance or in-kind health care benefits reduces income inequality over and above the effect of cash transfers. However, once actual utilization over the full life-cycle is taken into account, the redistributive impact of government health care programs is reduced, though not eliminated (Garfinkel et al. 2006; Glied 2008b).

4.1.2 Information Gaps

A second longstanding function of government in health care is to redress information gaps through regulatory action. The complexity of biological processes means that consumers face very high information costs in assessing the health implications of various goods and services, and may be vulnerable to undue influence from providers. Initially, government regulation of health care focused on protecting the safety of consumers. Many of the earliest incursions of government into the regulation of product quality were in the sphere of health (for example, the regulation of food and drugs

[1] In Canada, for example, private insurance for publicly provided services is either banned or effectively tightly constrained. The degree of constraint varies by province (Flood and Archibald 2001; Tuohy 2009).

dates back to the 1920s). This protection also extended to licensure and regulation of the health care professions. The information gap between providers and consumers of health care services means that consumers must enter into an "agency relationship" with providers, trusting them to act in the consumer's best interest, as discussed in Chapter 25, in this volume. The typical mode of regulating this agency relationship has been for the state to recognize the authority of professional self-regulatory bodies and progressively integrate them into the governance apparatus of the state (Starr 1982). In effect, this establishes a "second-level" agency relationship between the state and the professional body.

From an economic perspective, much of this regulatory function has an explicit or implicit redistributive component. In many arenas, private organizations offer complementary systems of quality validation (the "Good Housekeeping" seal of approval; specialty society certifications; and hospital quality approval organizations such as the Joint Commission on the Accreditation of Healthcare Organizations). The requirement that purveyors of health care associated goods and services meet minimal government standards in order to practice seeks to protect those who would be unaware of, or unwilling to pay a premium price for, privately accredited goods and services.

The regulatory functions of government extend beyond ex ante development and enforcement of quality standards. Governments also develop and maintain the legal infrastructure that enforces ex post quality standards through liability regimes. The rules governing the liability of health care goods and services providers (products liability and malpractice litigation, in particular), have been a focus of economic study, especially in contexts where these systems are very costly (see Chapter 22 in this volume).

Government regulatory efforts to address information gaps also extend to the health insurance market. The existence of asymmetric information between purchasers and sellers of health insurance provides a rationale for many forms of government intervention. To address the possibility that purchasers of coverage are unable to assess the viability of insurers, most countries regulate the solvency and financial practices of insurance companies. The existence of private information about health risks raises the possibility of adverse selection in health insurance markets, which could lead to the disintegration of markets for private insurance (Rothschild and Stiglitz 1976; Newhouse 1996).

Even observable information about health risks poses difficulties in health insurance markets. Rational consumers would presumably wish to be protected against the financial consequences of future deteriorations in health states. It is, however, problematic even in theory, and apparently unworkable in practice, to create viable long-term health insurance contracts (see Cochrane 1995 for discussion of the theory). Government regulation of private health insurance markets may offer a proxy for such long-term contracts by forcing the pooling of people with differing health risks. Finally, under many social welfare functions, society would also benefit from insuring people against bad health endowments (for example, being born with a genetic defect), and this is a role only governments are able to perform.

4.1.3 Infrastructure as a Public Good

A third set of functions of government involves making direct or indirect investments in health and health care infrastructure. This category includes investments in public health, such as the construction of water and sewage infrastructure; investments in health care facilities, such as hospitals and clinics (Hill-Burton funding in the United States); investments in the education of health care personnel; investment in information technology and communications infrastructure; and investments in health care research. Government makes indirect investments through conferring patents in the pharmaceutical and device sectors (Cutler and Miller 2005).

The tremendous importance of knowledge and technological development in generating improvements in health outcomes (Deaton 2004) implies that investment in such public goods is a critical government function. New health care knowledge that is not embodied in tradeable goods is a public good, whose benefits redound to those alive today throughout the world as well as to future generations. Without government subsidy, these goods will likely be under-produced in private markets (Glied 2008a). Certain investments in health care service delivery, particularly the eradication of infectious disease or of drug resistant organisms, also convey enormous benefits to future generations and are likely to be under-produced without public intervention (Philipson 2000).

4.1.4 Externalities

A final set of government functions involves the regulation and taxation of goods and behaviors that generate externalities. Both positive externalities—such as immunization practices—and negative externalities—such as second-hand smoke—arise in health care. In situations where transactions costs exist, the private market is unlikely to choose the right level of behavior to control externalities (Coase 1960). Governments can intervene through the direct regulation of such behaviors, and through Pigouvian subsidies and taxes.

Together, these functions mean that the government plays a very significant role in the health care sector. Across the OECD, government funds about 73 percent of total health care expenditures, and about two-thirds of expenditures on infrastructure (see Figure 4.1). As the discussion above suggests, even the share that is not directly financed by the government is heavily shaped by government regulatory and investment policy. No country has—and few have ever had—a purely market-driven health care system completely devoid of government influence.

Conversely, health care is an increasingly important component of the function of government. Across the OECD, about 15 percent of all tax revenue is devoted to health care—a proportion that is steadily increasing. Moreover, the distribution of tax revenue through health care requires much more regulation—of provider prices, organizations, quality—than many other forms of redistribution. It is, thus, likely that

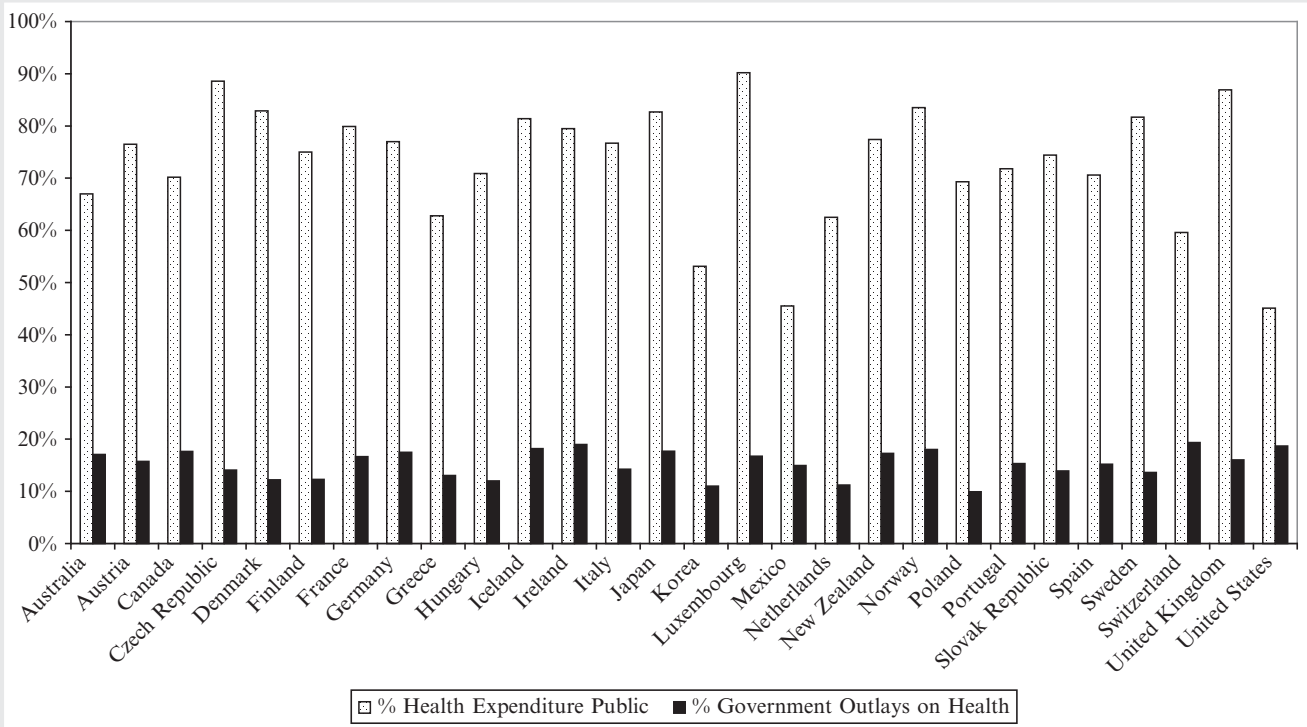

FIGURE 4.1 Government health expenditures as a share of all health expenditures and as a share of all government outlays, 2005

Source: OECD 2008.

a much greater share of the real work of modern governments is related to the health care sector.

4.2 Political Economy Theories Applied to Health Care

Economic theory suggests that the government's role in the health care system is a response to the various market failures described above. In most theoretical models, government is characterized as a benevolent and omniscient social planner that puts to right the failures of the market. In reality, of course, government, and the individuals working within government, are themselves actors facing incentives and constraints of their own. The particular nature of the incentives and constraints facing policymakers depends on details of institutional and policy design. A parliamentary government differs in its scope of action from a presidential one; a constitution places limits on the actions of either; proportional representation creates different incentives than does single-member-district representation; federalism creates a new set of interactions. The inherent structural differences of various governments create meaningful variations in how they respond to a more universal set of market failures. Furthermore, once particular policy frameworks are adopted, they subsequently channel the behavior of government as well as other actors. While economic theories of government behavior may have substantial and broad explanatory power, the actual form of government's role in a specific health care system can only be understood by taking account of the interaction of several key groups of actors within this institutional context.

Economists from Adam Smith on have considered the role of government as that of an actor in itself. The modern economics literature on political economy stems from the contributions of George Stigler, who developed the capture theory of regulation (1971), George Buchanan and Gordon Tullock, who developed the theory of rent-seeking behavior (1962), and William Niskanen, whose theories of bureaucratic behavior are noted below (1971). These and subsequent theories of government action do not map onto the framework of market failure delineated above. Rather, they describe how governments respond to the incentives and constraints they face, independent of the nature of the underlying economic problem.

The political science literature takes a different starting point, seeking to understand the distribution of power in the health care arena. Early studies focused on organized groups, principally the medical profession, as further discussed below. More recently, the role of institutions in shaping behavior has come to dominate the political science literature, much of which takes a comparative, cross-jurisdictional approach. Whether from an economics or a political science viewpoint, political economists seek to understand government policy toward health care as the outcome of the behavior of actors pursuing interests in the face of institutional incentives and constraints.

Very broadly speaking, there are four categories of interests in the health care arena: health care providers (including health care professionals and suppliers of goods, notably pharmaceuticals), recipients of care (patients and potential patients), third-party private payers for care (insurers) and governments. Theories about the interactions of those groups, and the implications of those interactions for the role of government, fall under three general headings, depending upon their principal explanatory focus: interest group organization, institutions, and the electoral system.

4.2.1 Theories Focusing on Interest Groups

These theories look at the capacity of each of the four broad sets of actors in the health care field (including government actors) to mobilize collectively in pursuit of their own interests. This approach dominated the early literature on the political economy of health care, focusing on the asymmetrical political and economic power enjoyed by certain interests in the area, especially the medical profession and later private insurers. This advantage arises from imbalances in the control of certain key resources and in the distribution of costs and benefits. As noted above, the acquisition of specialized knowledge gives health care providers control of a key information resource. The medical profession was, as Moran puts it, "the first great interest in health care to achieve effective organization; and as mass consumption of health care developed in the wake of the transformation of the curative efficacy of medicine, [doctors] emerged as the managers of the consumption process" (Moran 1999:186–7). As private insurance spread, private insurers came to acquire economic and political influence through their control of very large pools of private capital, both from premiums and by participating in equity markets. This was especially true in countries such as the United States in which government did not move early to occupy the field and rather adopted public insurance programs limited to certain groups within the population. Their key roles on the supply and demand side of the health care market respectively give doctors and insurers both strong incentives and substantial resources to mobilize for political action.

Various theories of the political economy of health care have addressed different dimensions of interest group organization and behavior: the asymmetric distribution of benefits and costs; capture; and oligarchy and policy networks.

4.2.1.1 *Concentrated Benefits and Diffuse Costs*

Economists are often disappointed to discover that legislatures rarely allocate resources on strict cost-effectiveness criteria. Rather, the legislative process appears to be disproportionately influenced by interest groups. Mancur Olson's (1971) theory of collective action, first published in 1965, suggests that interest groups are able to exert such influence because the benefits of action accrue to a narrow, well-organized group, whilst the costs are dispersed broadly across a diffuse group. The narrow, well-organized group can effectively monitor the behavior of its members to discourage free-riding. The substantial benefits of legislative action to each member further encourage the membership to

exert effort to gain legislative ends. By contrast, the dispersed, disorganized group who will pay the costs of the new legislation often cannot even identify the other members of their group, let alone compel their participation in efforts to stop the legislation. Each member of the group will incur only a minuscule cost because of the new legislation, so it is not in any individual's self-interest to exert much effort.

This theory suggests that disease specific interest groups may be able to expand public funding for a particular health condition, at the expense of the diffuse group of taxpayers.

Carpenter (2002) shows that FDA drug approval times are shorter for drugs with more active and wealthier disease-interest groups. Some evidence suggests that patterns of public research funding may also be influenced by interest groups. In particular, the composition of US Congressional committees with jurisdiction over the budget of the National Institutes of Health has been shown to influence the cross-state allocation of research funding (Hegde and Mowery 2008; Hegde, 2009).

This theory of the political economy of government action also provides an explanation of why governments often fail to devote sufficient attention to areas, such as public health, where their contributions may be most valuable. Mobilizing to protect public health requires costs that generate benefits—public goods—of service to the entire population. But these public health activities enhance efficiency most when they address issues where no-one can effectively be excluded from the benefits of government action. Indeed, public health is most useful when the potential beneficiaries of public health actions are unknown and may not even yet be born. Thus public health, by design, has no clear apparent constituency to support it (Glied 2008a).

4.2.1.2 *Capture*

A second theory of government behavior focuses on the interactions between interest groups and regulators. In the economics literature, interest groups are seen as "capturing" the regulatory power of the state (Stigler 1971). The economics literature on capture in health care has focused on the behavior of hospitals and physicians. Friedman and Kuznets (1945) call attention to the government-legitimated role of organized medicine as a factor explaining the exceptionally high earnings of physicians relative to other professionals. There is a continuing flow of empirical studies examining the role of licensure on earnings (see, for example, Kleiner and Kudrle 2000; Kugler and Sauer 2005; Timmons and Thornton 2008). Similarly, hospitals may use the regulatory process to control competition. This type of capture has been studied in the context of the "certificate of need" programs under which US states seek to regulate the level and nature of hospital capacity (Salkever and Bice 1978). Capture theory has also been invoked to explain the presence of mandated health insurance benefits (Jensen and Morrisey 1999). The strongest empirical study of benefit mandates (for psychologists' services) finds some evidence of regulatory capture, but also finds evidence that the mandate addressed the public interest (Lambert and McGuire 1990).

Much of the early literature in political science (and to some extent sociology) on professional regulation either implicitly or explicitly treated the incorporation of

professional self-regulatory bodies into the regulatory apparatus of the state as a case of the capture of the regulatory process by the regulated group (Gilb 1966). Somewhat later, the dominance of health care providers within various health care planning bodies established at the local and regional levels in a number of jurisdictions was also treated as a case of capture by (principally medical) professionals as a result of their information advantage and local elite status (see for example Marmor and Morone 1980). In the United States, the powerful role of the American Medical Association in the development and administration of the Resource-Based Relative Value Scale for the remuneration of physicians under the Medicare program has been portrayed as the effective capture of that process within the Health Care Financing Administration in the 1980s and 1990s (Vladek 1999).

More recently, changes in health care technology have created opportunities for other interest groups to capture key niches within the state. In particular the development of influential health technology assessment agencies, such as the National Institute for Health and Clinical Excellence (NICE) in England, offers considerable scope for capture by pharmaceutical and device manufacturers, and patient interest groups. A particular problem for such agencies is the need to find sources of expert advice that do not have direct or indirect links to interested parties. Even NICE, generally viewed as an international leader among such agencies in its analytic techniques and consultation models (Culyer 2006; Drummond and Sorenson 2009), has come under some criticism in this regard (Birch and Gafni 2007; House of Commons Health Select Committee 2008; Schandler 2008).

4.2.1.3 *Oligarchy and Policy Networks*

Another theme within the interest group approach to understanding the political economy of health care relates to shifts in the relative influence of different groups within the policy process over time. Broadly speaking, the political science literature moved from a focus on single interest groups to a focus on tightly linked oligarchies of private and public elites. The concept of "iron triangles" linking economic interests, bureaucratic actors, and politicians (another version of theories of capture) arose to describe and analyze these oligarchies. Increasingly, however, alongside this literature there emerged another line of analysis arguing that the concept of an iron triangle is incomplete and dated, failing to take account of the fluidity of the political process and the fracturing and re-alignment of interest groups. These analysts propose a concept of the issue network or policy network as a framework in which to map and understand the shifting alliances and balances of power over time (Heclo 1978). Yet others argue that there has been no general temporal shift from iron triangle to policy network, and that it is an empirical question as to which concept best describes a given arena (Marsh and Rhodes 1992).

The health care literature reflects this debate. The early literature focused almost exclusively on the disproportionate influence of the medical profession—as a cartel in the market (Kessel 1957) and a hegemon in the political arena (Garceau 1941; Hyde and Wolff 1954; Eckstein 1960). As other suppliers and private insurers assumed powerful

roles as well, the emphasis came to be on the oligarchic nature of the health care arena, marked by tight alliances of medical, hospital, and business interests with privileged access to and predominant influence over bureaucratic and political decision-makers (Alford 1975; Starr 1982; Wilsford 1991). As changing technology has given rise to new groups and sub-groups, the political economy of health care has become more and more complex, leading some observers (at least in the US) to remark on the factionalization of previously dominant groups and the rise of challenging interests. The result has been the emergence of policy networks within which these multiple groups compete and form shifting alliances (Peterson 1993). Some observers went so far as to describe this phenomenon as "hyperpluralism" (Schick 1995). In Britain, however, some see the persistence of "professionalized networks"—looser than an iron triangle but still exhibiting concentrations of professional power (Wistow 1992). Moran, observing both countries, sees a stronger role for the state than is implied by either the triangle or the network model:

> In a nutshell, closely integrated hierarchies dominated by professional and corporate interests, operating with a substantial degree of independence from the core institutions of the state, are being replaced: by looser, more open, more unstable networks; by networks in which professional and corporate elites still exercise great power but in a more contested environment than hitherto; and by an institutional setting in which the core institutions of the state exercise much tighter surveillance and control than hitherto.... [T]he turn to new modes of government has actually strengthened the core institutions of the state, and accentuated one of the defining features of the health care state—the intertwining of the institutions of the health care system and the state itself. (Moran 1999: 178–9)

4.2.2 Theories Focusing on Voting Behavior

In general, health care services delivered to individuals are private goods. The apparent interest in redistribution of health care resources, and perhaps in maintaining a level of equity in the distribution of these resources, means that governments have a role to play in the financing or direct delivery of these otherwise private goods. The economic theory of public provision of private goods focuses on how governments make determinations about the size of this redistributive function (Epple and Romano 1996).

In democracies, decisions about the size of the health care sector will be influenced by the behavior of voters. Suppose people vote on the level of health care services that should be provided by the public system. The level of health spending chosen will correspond to that selected by the median voter (where median reflects level of preference for such spending). If there is a distribution of demand for health care services, some voters will demand more health care services than the median and will, at the median choice, have an unmet demand for health care services (Epple and Romano 1996).

This unmet demand will consist, in part, of people with exceptionally poor health status and a correspondingly high need for public health care services. This group will

prefer that the form of overall redistribution be shifted toward health care services. This focused demand for increased health care redistribution is likely to be manifest through lobbying and capture, as described above.

Another portion of this excess demand is likely to reflect the positive income elasticity of health care demand. Numerous studies at both the individual, regional, and national levels suggest that the income elasticity of demand for health care services is positive—higher income people demand more health care services than do lower income people. Estimates of the elasticity range from 0.22 in individual analyses (Manning and Marquis 1996) to more than one in cross-national estimates (Newhouse 1977). The positive elasticity likely reflects a willingness (and ability) to pay more for a given *level* of health outcomes, as well as greater demand for health, medical quality, convenience, and amenities.

The positive income elasticity of demand for health care services suggests that a segment of unsatisfied voters will be higher income people who will be willing and able to purchase supplemental coverage to meet their excess demand. The existence of this contingent of voters may explain the surprisingly high prevalence of private health insurance within health care systems that devote substantial public resources to meeting the demand for equity in health care delivery (Colombo and Tapay 2004).

The public choice model of public provision of private goods (Epple and Romano 1996) suggests that allowing supplemental private purchase will generally lead to a reduction in public expenditures. The logic of this argument is that under a system that permits private purchase, higher income voters will prefer a lower level of public health care spending than otherwise, choosing to top up public spending with private purchases. Permitting private purchase will move the winning median voter down the distribution of health care service demand. The empirical evidence on private spending is consistent with this theoretical result. Tuohy, Flood, and Stabile (2004) find that the existence of private insurance tends to be associated with future reductions in public spending in analyses across the OECD.

A further implication of reduced public spending when private provision is permitted is that systems with mixed public and private payment will spend more on health care services (in aggregate) than will purely publicly funded systems. Mean income—which influences how much supplemental private insurance is purchased—is generally higher (often much higher) than median income—which, in voting models affects the amount of public provision. This pattern implies that the demand for privately purchased services will rise faster than public provision falls (Epple and Romano 1996). This increase in overall spending and reduction in public spending generally increases overall social welfare in voting models. Both private purchasers and some public purchasers—those with low demand for health care services—are better off in the scenario where some private purchase is permitted. Those who do not value health care highly will prefer the scenario with less public provision (and correspondingly lower taxes or higher spending on other programs). Public purchasers with low demand for health care will benefit as services are reduced and either taxes fall or social spending is diverted to programs they value more highly. However, to the extent that equity in the

distribution of health care resources is, itself, a contributor to social welfare (a possibility that is not incorporated in existing voting models), private purchase may diminish social welfare.

4.2.3 Theories Focusing on Institutions

All of the approaches discussed so far deal with incentives resulting from inherent characteristics of health care, and would seem to suggest that the actions of governments should be fairly similar across nations. But in practice we observe a good deal of cross-national variation in health policy. In fact, the behavior of interest groups and voters can be understood only in terms of the institutional context in which they occur.

Early work on the importance of the incentive structures embedded in institutions as a way of understanding the behavior of actors came from economics. Institutional economists such as Tullock (1965) and Niskanen (1971) viewed bureaucrats as akin to decision-makers within private firms, with the substitution of budget maximization for the profit-maximization motive, and paid relatively little attention to the relationship between bureaucrats and other actors in the system other than to view the latter as homogeneous "sponsors." The focus of these models is on the interests of "bureaucrats" in maximizing their influence on the level and nature of government output, where the concept of the bureaucrat is interpreted broadly to embrace all public sector actors with significant influence over the allocation of resources (Goddard et al. 2006). The essence of this approach is the belief that bureaucrats receive power and remuneration in proportion to the size of their enterprise, and will therefore seek to implement policies that maximize the size of their own enterprises and to undermine activities that are outside their direct control. They are able to do so because they have an informational advantage over their political counterparts.

It is not easy to find direct applications of this model to the priority setting process in the health care sector. However, the tendency for bureaucracies to maximize their own budgets and sphere of influence at the expense of other considerations is readily observed in the health sector, in which health ministries often find it difficult to persuade bureaucrats in other ministries, such as education, to adopt policies designed to improve health, because of the reluctance of each sector to relinquish control. It has also been argued that "street-level bureaucracy" plays a powerful role in the way in which policy is implemented (Lipsky 1980). The considerable degree of discretion accorded to health care workers ("street-level bureaucrats") in determining the nature, amount, and quality of benefits provided by their agencies has a powerful impact on the rationing of resources, and the factors governing their decisions may not be those based on cost-effectiveness principles (Hudson 1997).

Recent political science literature on the political economy of health broadens the focus to consider the importance of institutions in shaping the behavior not only of government actors but of all actors in the health care arena. Much of this literature draws

comparisons across nations, in order to demonstrate the importance of different institutional structures and policy frameworks in shaping political and economic behavior. Three principal and inter-related themes emerge: relations among branches of government; relations among levels of government; and historical institutionalism and path dependency.

4.2.3.1 *The Role of Institutions in Concentrating Authority—Relations Among Branches of Government*

Some institutional structures elevate the role of government actors, giving them the capacity and the incentive to make decisions and take action accordingly. Other structures make government much more open and vulnerable to the influence of particular actors whose interests are in promoting or thwarting different courses of action. The contrast typically made in this regard is between parliamentary systems, which strengthen the executive, and congressional systems marked by separation of powers and "checks and balances," providing multiple routes of access and multiple "veto points" for interest groups. Britain and post-1958 France are examples of parliamentary systems with strong executives. (In the French case the executive is strengthened by the existence of a political-bureaucratic elite with common training and similar career paths and a weak judiciary; in the British case it is strengthened by the "Westminster" model of executive control of the legislature reinforced by party discipline.) The United States, on the other hand, is the principal example of a separation-of-powers congressional model. Many political scientists have explored the role of such institutional differences in explaining cross-national variation in the pattern of development and the content of health policy. For example, studies of French health care policy (Wilsford 1991; Immergut 1992) show how the institution of a strong executive under the constitution adopted in 1958 enabled government to enact controls on doctors and hospitals that had been impossible under previous constitutional regimes. Numerous studies of American health care policy show how the existence of multiple veto points stymied attempts to adopt national health insurance throughout the twentieth century (see for example Steinmo and Watts 1995). And Britain provides the classic example of the ability of a unitary state with a Westminster parliamentary system to take decisive action in initially establishing the National Health Service in 1948 and then drastically altering its formal institutional structure in the early 1990s (Hacker 1998; Klein 2006).

It should be noted that the concentration of authority has several flip-sides. The concentration of authority also concentrates accountability—it makes it difficult for governments to deflect or spread the blame for unpopular decisions and may therefore make government actors particularly risk-averse (Pierson 1994: 33). It can drive opposition into protest movements and "direct action," as in the case of France (Wilsford 1991). Or it can shift opposition to the implementation rather than the legislative phase of policymaking, as in the case of the "internal market" reforms of the 1990s in Britain (Tuohy 1999).

4.2.3.2 *The Role of Institutions in Concentrating Authority—Relations Among Levels of Government*

Many health care systems rely on multiple levels of governance. The Canadian, Australian, German, Italian, Swedish, and Swiss health insurance systems all make extensive use of subsidiary levels of government in both the financing and delivery of services. In the United States, the Federal Medicaid program involves both Federal and State governments. Even more unitary systems, such as the UK health service, use regional authorities, who are at financial risk, for some functions.[2] The introduction of multiple systems of governance adds further complexity to the political economy of health care provision, and multiplies the routes of access for interest groups and the veto points available to them.

Economists have developed a substantial literature on the topic of decentralized public services, usually referred to under the banner of "fiscal federalism" (Oates 1999). This literature focuses on the optimal administrative level at which to vest powers of finance and purchasing of public services, and examines the consequences of alternative distributions of responsibilities. It therefore seems very germane to recent debates on decentralization in health care, though to date there have been few English language analyses of the implications of the fiscal federalism literature for health system design (see Petretto 2000 for an exception).

While fragmentation of public funding between levels of government is very likely to affect variations in spending, the direction and magnitude of these effects are likely to depend on the specific arrangements. In theory, there are a number of possible effects. Under some circumstances, the existence of multiple levels may generate overprovision or inefficiency of services. A system in which sub-national governments make decisions about the quality and level of care, provider payment, and eligibility, and the national government pays a share of costs, as exists in the US Medicaid program, is likely to generate "moral hazard" and escalating spending. Furthermore, local jurisdictions often jealously guard local capital infrastructure such as hospitals, which can be considered symbols of local municipal prestige. A decentralized system might therefore lead to a system of dispersed facilities that fails to secure the economies of scale and scope offered by more concentrated patterns of infrastructure (Levaggi and Smith 2005).

Under other circumstances, however, multiple levels of government may lead to under-provision. A system where national governments provide a fixed payment to sub-national governments which then pay the full marginal dollar (such as Canada for physician and hospital services and Australia for hospital services) may lead to underfunding at the sub-national level, particularly if there is competition for taxpayers among sub-national governments. A further possibility under decentralization is that

[2] In the UK, moreover, substantial authority has been delegated to sub-national governments in Scotland, Wales, and Northern Ireland since 1999 (Greer 2004).

there is an under-provision of certain "public goods" such as medical training and research, as jurisdictions seek to free-ride on the efforts of others. Under either set of circumstances, no level of government can claim full credit for spending increases but each level can "pass the buck" and shift blame for spending cuts to the other, making it more likely that federal systems will reduce spending in times of general fiscal constraint, other things being equal (Pal and Weaver 2003: 12). Finally, if sub-national governments systematically compare their performance to one another, competition among governments may lead to improved performance. Empirical evidence for each of these hypothetical effects is mixed: In practice, which of these dynamics pertain at sub-national levels depends upon the institutional structures at each level, and the resulting relationship between government and interest group actors (France 2008; Tuohy 2009).

4.2.3.3 *Historical Institutionalism and Path Dependency*

The most recent trend in institutionalist analysis is to recognize the importance of institutions and policy frameworks in shaping government action not only at a given point in time but *over time* (Oliver et al. 2005). The argument here is that government actions taken at Time T establish the context for subsequent decisions made at Time T+1. Once a policy has been established, various groups come to have a stake in that policy, and interest structures therefore become embedded in it in ways that make it difficult to change. In other words, because the costs of exit from a particular course of action rise as actors invest in that course, policy becomes set along a particular path of development with relatively few branches (Pierson 2000). Only large and relatively rare conjuctures of forces external and internal to the health care arena are sufficient to shift the line of development onto a different path. These moments of major change are marked by the "high politics" of ideological and partisan conflicts and swings, and cannot be understood by focusing on the health care sector alone. The policy frameworks established during these moments shape the subsequent behavior of actors and effectively determine the repertoire of policy options available.

Several studies (Barer et al. 1995; Oliver et al. 2005; Klein 2006) apply this approach to single-nation studies to show how changes in health policy were brought about at different points in time and how they affected subsequent behavior. Others extend this mode of analysis by employing comparisons across nations. Tuohy (1999), for example, shows how the varying health policy experiences of Britain, the United States, and Canada in the 1990s can be traced to the "logics" of the health care systems established during propitious moments for large reform in each nation in 1948, 1965, and1966, respectively. Wilsford (1994) combines a path-dependency argument with a "veto points" analysis as discussed above. He argues that systems with multiple veto points such as that of the US require much greater (and more rare) conjunctures of forces to shift paths, whereas systems with more concentrated state authority, such as that of Britain, require less extraordinary occurrences to enable new paths to be chosen.

4.3 Concluding Comments

Health care now represents an important focus for political discourse in many countries, and policymaking is therefore frequently subject to forces that classical economic analysis fails to recognize. This chapter has sought to highlight the important dimensions along which political influences occur, and has therefore addressed territory that lies at the interface between economics and political science.

Models of political economy offer a formal and structured way of considering some of the wide range of influences on policymaking, and offer a rich and challenging research agenda in both low- and high-income settings. Approaches that consider the organizational context within which policy is made, and that broaden the range of incentives considered when applying the concept of "rational behavior" to relevant interested actors, may offer useful insights into how policy decisions emerge in the health care context.

Among the insights offered by these politico-economic approaches are the following. Inherent features of health care, such as highly complex and specialized knowledge bases, the high value placed on health, and the concentration of benefits and diffusion of costs under health insurance, give certain groups not only high stakes but also competitive advantages in influencing policy outcomes. Some groups control resources that are fundamental to the functioning of the system. Health providers, especially physicians, enjoy a hefty information advantage. The prevalence of insurance, both public and private, creates large pools of capital and gives those who control those pools substantial influence. Other groups, such as those suffering from life-threatening illnesses, may have a strong claim on public attention and sympathy. But institutional features affect the ability of interested actors to deploy these advantages to affect policy outcomes. For example, federal structures and congressional systems allow more points of access and, conversely, more veto points than do unitary structures and Westminster parliamentary systems. Moreover, institutions establish incentive structures in themselves by giving those who hold institutional positions a stake in defending and enhancing those positions. Depending on the details of their design, federal structures may create incentives that lead either to over-provision or to under-provision of health services. Finally, incentives are embedded not only in broad institutional structures but in specific policy frameworks themselves, which therefore become resistant to change. Broadly speaking, single-payer systems forge a tight axis between health care providers and governments, social insurance systems create networks of intermediary organizations, and systems based on private markets make coalition-building a much more complex process.

Despite several decades of advances in the application of economics to health and health care, described elsewhere in this handbook, the discipline has sometimes had less impact on policy and practice than might be expected if decision-makers were to operate according to the assumptions of traditional economic theory. Hitherto this terrain has been under-researched by economists. We argue that it is nevertheless an important

area of study for all those interested in the context within which health policy is set, and the forces that give rise to policy outcomes.

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