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Government Contracting for Health Care

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I. Introduction

Around the world, the governments of developed nations finance health services. Such financing may be justified or rationalized on efficiency grounds in some instances. In other contexts, distributional or political considerations play the major role. The central questions of this paper are: Given government financing, when should the government provide the service "in-house" and when should it contract out? And if it does contract out, to whom and on what basis? These are salient questions in a range of countries.[1] Although the focus here is on health care, the analytic framework should prove useful for other contracting contexts as well.

To analyze our central questions, we draw upon the property rights theory of ownership (Hart and Moore 1990; Hart 1995; Hart, Shleifer and Vishny 1997). This theory, based on an incomplete contracting framework, is helpful because it tells us that ownership structure matters, but matters only when contracts are incomplete (Williamson 1985; Grossman and Hart 1986). Institutionally, contractual incompleteness is an inherent feature of health care (Arrow 1963; Ma and McGuire 1997). Uncertainty and its delinquent nephew, asymmetry of information, are extraordinarily important for health care. Together they produce problems of moral hazard, adverse selection, non-contractible quality, and costly consumer search. These factors accompany the supply-side market power wielded by highly trained medical professionals with their monopoly license, and by hospitals and provider networks in some markets (Arrow 1963; Dranove and Satterthwaite 2000). These features sour the economist's dream of paying for health services through an efficient contingent-claims market, or through complete *ex ante* contracts that specify the efficient quantity and quality of medical services for each possible medical condition for each different consumer. The incomplete contract theory of ownership highlights the link between incentives for innovation and contractual

[1] Several countries whose national health services once delivered all the care they paid for, such as Britain, have experimented with vertical dis-integration by separating the purchaser and provider functions, and increasing the purchase of services or rent of facilities from private providers. Most OECD countries combine public financing of the majority of national health expenditures with a robust private sector delivery system (often overwhelmingly not-for-profit). These experiences suggest that contracting out for health care is important for established market economies. Many countries transitioning from socialist central planning to predominantly market-based economies are moving towards similar systems of public financing and pluralistic delivery.

incompleteness, which bestows power upon those with residual control rights. This spotlight on innovation is particularly helpful given the undisputed importance of rapid technological advance in modern health care.[2]

A health care purchaser must take account of the 'health care triad' of patient, insurer, and provider. For simplicity, our analysis abstracts from this distinction between insurer and provider on the supply side, implicitly assuming the government contracts with an integrated insurer-provider such as a managed care organization (e.g., HMO or PPO). This formulation illustrates the distinctive institutional features of contracting for health care, many of which stem from the fact that health care, even when totally government financed, is overwhelmingly privately consumed. It is thus a salient example of a directed good (Zeckhauser 1990), as is education. Such goods differ in important ways from public goods (national defense, basic research) and limited or local public goods (local police services or road repairs). Though they may involve a limited element of externalities and public goods, their benefits flow overwhelmingly to individual consumers. All directed goods are by their nature redistributional.[3]

Any analysis of the optimal division of production responsibilities in the health-care sector among services financed by government must address two questions. First, what fraction of services should be produced by the government directly, by the for-profit sector, and the nonprofit sector? Second, taking as given these three fractions, which services should be in which sector? The first question is one of which ownership form delivers health services most effectively. This *absolute advantage* issue generates the most intense political debate.

The second question is one of the *comparative advantage* of different ownership structures for difference health care services. If the final allocation of expenditure levels across sectors is not in conflict, in what order should services be placed in the for-profit, nonprofit and government sectors? In theory, Republicans and Democrats, Labourites and Conservatives, Socialists and Christian Democrats, should be able roughly to agree on

[2] A recent survey of fifty leading US health economists found that 81 percent agreed with the statement that "the primary reason for the increase in the health-sector's share of GDP over the past 30 years is technological change in medicine" (Fuchs 1998: 227).

[3] The redistribution, of course, need not go to the poor. The monies could go to the schools, helping the young; to hospital services, helping the sick; or to 'high culture', which provides benefits to artistically-

this question, even if they are bitterly divided on the amounts they would like to place in the three sectors. Suppose economists agreed, for example, that public and private providers had a comparative advantage for severe mental and regular dental health services, respectively. Then even if policy advisors (e.g., to post-socialist economies) disagreed regarding what overall share of hospitals and clinics should be public and private, they would nevertheless agree that any privatization program should first apply to dentists and last to inpatient mental health facilities.

After identifying the comparative advantages of public, private nonprofit, and investor-owned providers, we then briefly go a step further, and consider the markets that bear and incentives that act on these structures. We argue that for health care, just as important as ownership *per se* are such factors as competition, payment incentives, and hardness of budget constraints. This implies that *how* to contract out, or how one is able to contract out, matters as much as whether or not to do so, and to whom.

Our analysis is motivated primarily by two sets of experiences. The first is that of the US (and to a lesser extent, other established market economies), both because it is familiar and because of plentiful coverage in the health economics literature. The second is that of the nations of Eastern Europe, where the health sector has been swept along with the broader economic forces unleashed by transition from plan to market. We focus on this region partly because comparative-advantage arguments are most relevant for systems undergoing changes, where the status quo dictated by history and ideology is eroding. Although the experiences of Eastern European nations are far from uniform, and the differences between the US and Eastern Europe are dramatic, these disparities make the similarities identified—the importance of payment incentives, competition, and hard budget constraints as much as ownership *per se*—all the more striking.

These similarities seem broadly applicable. Among the top twenty countries in the World Health Report 2000[4] health system assessment rankings[5] are countries with a

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inclined consumers, who are disproportionately represented among high-income individuals. Ordinary income transfers are a special and important case of directed goods.

[4] Drawing upon the experiences of the World Health Organization's 191 member countries, the Report emphasizes the importance of strategic purchasing, payment incentives and risk pooling, discussing organization of health service delivery without explicitly attending to, or making recommendations regarding, public versus private ownership.

[5] The WHO's assessment system is based on five indicators: overall level of population health; health disparities within the population; overall level and distribution of health system responsiveness (including

public share of financing both well above (Luxembourg, United Kingdom) and well below (Portugal, Greece) the average of the European Monetary Union (about 75%), as well as countries in which the private share of inpatient beds ranges from minimal (Norway, UK) to dominant (Japan, Netherlands) (see tables 1 and 2). Post-socialist Slovenia ranks neck-and-neck with the always capitalist US in overall health system performance (US #37, Slovenia #38), according to the WHO study.[6] Although the appropriateness and accuracy of the WHO assessment rankings are debatable (e.g., Blendon, Kim and Benson 2001), these comparisons nevertheless highlight the heterogeneity of purchasing and delivery systems—even among established market economies—and the widespread importance of government contracting for health care.

We focus on government purchasers of health care, and assume that the purchaser's sole goal is to maximize social welfare. The conceptual framework of comparative advantage should nevertheless be useful to other purchasers, such as employers, and can be adapted to different goals.[7] The focus on comparative advantage suggests that the purchaser may wish to contract with multiple ownership forms simultaneously. However, the administrative complications that may arise from such contracting, and the potential efficiency benefits of a mixed delivery system,[8] largely lie outside the scope of the analysis.

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patient satisfaction); and the distribution of the health system's financial burden within the population (WHO 2000).

[6] The poor US showing is attributable to low ratings on some measures—e.g., equity in distribution of health status, fairness of financial contribution—despite advanced medical capabilities and very high health expenditures.

[7] Private employers may place a higher value on cost control than does the government, or be less concerned about access and inefficient sorting of patients (because they can 'free ride' on public insurance programs and may wish to attract or retain only relatively healthy employees). An employer might also wish to encourage an employee to seek coverage through a spouse's employer (Dranove, Spier, and Baker 2000).

[8] For example, "yardstick competition" among ownership forms provides valuable information to the purchaser as well as incentives for the providers, as we discuss briefly under the section on competition for patients. A purchaser may find having a mixed for-profit and nonprofit hospital sector useful for measuring the amount of community benefits a nonprofit should provide to justify tax exemption; see Nicholson, Pauly, Burns, Baumritter, and Asch (2000). Hirth (1999) emphasizes quality spillovers from nonprofits operating in mixed industries. A mix of public and private providers may also be important for issues of legal accountability; Akula (2000) suggests that "when government is regulator and a major player but the delivery system is primarily private, accountability at the point of delivery remains high. The 'tone' of the relatively small public delivery system is perhaps best maintained by the spillover of standards and expectations shaped by the private system" (p.165). This latter point is closely related to professionalization and normative pressures for institutional isomorphism (DiMaggio and Powell 1983).

A final caveat needs mention. Although we focus on comparative advantage and government contracting, we recognize that the development of a nation's health care system more closely resembles a dynamic ecosystem, with public and private agents interacting over time within the social and political context to shape the delivery system. Our hypothesis is that the allocation of health care services across ownership forms will tend to reflect patterns of comparative advantage, except where there are impediments to its function. At times such impediments—such as regulatory barriers, the political economy of reforms, lack of access to capital for nonprofits, or other important social and ideological factors—may overpower comparative advantage in determining a system's historic trajectory.

The paper is organized as follows. Section II briefly summarizes empirical research on performance differences between government-owned, private for-profit, and private not-for-profit health care providers. Section III presents a simple conceptual framework for analyzing government contracting for health care when providers may differ in their preferences regarding benefits and costs. Section IV analyzes endogenous differences across ownership types and the effect of institutional and contracting characteristics, first for a single-source public or private provider and then with competition for patients. Section V presents suggestive evidence that the comparative advantage framework is helpful for analyzing the delivery of health services in many countries, with a particular focus on the US and Eastern Europe. Section VI concludes.

II. Performance Differences by Ownership Type

Although some studies find that performance differs between public and private providers, the evidence is far from conclusive. Sloan (2000) notes some troubling results showing lower quality of care in public hospitals, although findings are mixed regarding efficiency despite clear differences in mission.[9] Using 1980s Medicare data, Keeler et al. (1992) report that public hospitals have lower quality on average than private hospitals. However, "public teaching hospitals in 1986 had better process [quality] than private

[9] Studying over 600 German hospitals, Breyer et al. (1988) found that public hospitals were higher cost than FPs. Yet studies in the US tell a different story. Granneman et al. (1986) found that local and state government hospitals have about 8% lower costs than private NPs. Zuckerman et al. (1994) report public

hospitals, and the city-county hospitals had generally high quality, perhaps because most were large and teaching hospitals" (p.1714). A recent study of heart attack patients treated in Veterans Health Administration hospitals compared with Medicare patients found that VHA patients had more coexisting conditions yet no significant difference in mortality from Medicare patients, suggesting at least equivalent quality of care (Peterson et al. 2000).

The paucity of definitive differences between public and private providers could be considered surprising, given the myriad constraints imposed on public facilities. Government-owned hospitals usually have less autonomy than private hospitals, especially with regard to employment and compensation, which could hamper efforts to attract and retain the most capable clinicians and managers. Public hospitals also usually cannot turn away patients (Sloan 2000).

Many studies of ownership effects examine differences in *community benefit*—defined to include such unprofitable services as charity care and bad debt, care for public program beneficiaries, community services such as 24 hour trauma centers, programs for special needs populations, teaching and research,[10] etc. Public hospitals, along with major teaching hospitals, provide a disproportionate share of community benefits according to virtually all definitions of that term.[11] Public facilities clearly form the backbone of the US hospital 'safety net'.

Studying short-term acute care hospitals in California and Florida, Zeckhauser, Patel and Needleman (1995: 107) find significant evidence of 'sloughing' by private providers, that is, when public hospital beds are abundant, they reduce rates of uncompensated care. More recent studies find similar results.[12] Such evidence suggests

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hospitals to be just as efficient as private NPs. Koop et al. (1997), using panel data, find that government hospitals are more efficient than their private counterparts.

[10] To what extent knowledge itself constitutes a community benefit (as opposed to a broader public good) is less clear.

[11] For example, the Medicare Payment Advisory Commission (2000) reports that the uncompensated care to cost ratio for urban government hospitals in 1998 was 9.8 percent and for rural government hospitals 4.7 percent, compared to 4.5 percent for voluntary and 4.2 percent for proprietary hospitals (p.190). The largest single category for uncompensated care is for public major teaching hospitals (12 percent, compared to 5 percent for private major teaching hospitals).

[12] For example, Currie and Fahr (2000) look at charity care of California hospitals between 1988 and 1996. They find that in response to higher managed care penetration, public hospitals end up with higher shares of uninsured patients and higher fractions of the charity caseload admitted from the emergency room (suggesting sicker patients).

that government health-care facilities act as 'providers of last resort' for uninsured, low income, or otherwise disadvantaged patients. Studies of privatization of US public hospitals confirm that conversions often lead to less uncompensated care.[13]

Much of the US literature on health care ownership sets aside public hospitals to focus on for-profit (FP) and not-for-profit (NP) providers. Some scattered evidence seems to support the view that NPs attend more to non-pecuniary aspects of health care, such as community benefits, than do their FP counterparts. For example, "for-profit hospitals are more likely than nonprofits to pressure physicians not to admit uninsured and Medicaid patients, and physicians report conflict over the treatment of indigent persons more often in for-profit than in nonprofit hospitals" (Gray 1997b: 40). For-profits also have been shown to engage in higher average levels of "upcoding" to maximize government reimbursement, such as by coding treatment for pneumonia as respiratory infection, which pays 50 percent more (Silverman and Skinner 2000). These results reinforce anecdotes about FP providers exploiting opportunities for fraud.[14]

NPs often provide more charity care and other community benefits than FPs, although whether NPs provide more community benefits than the value of their tax exemptions is controversial.[15] Part of the difference arises from systematic differences in location. Within the same market, NPs and FPs seem to behave similarly, as would be suggested by mimetic isomorphism (DiMaggio and Powell 1983) and competitive forces (see discussion below); but FPs tend to locate in communities that are more profitable to

[13] For example, Needleman, Lamphere and Chollet (1999) study hospital conversions in Florida between 1981 and 1996. After controlling for year, bed size, teaching status, and metropolitan location, they find that public hospitals had substantially higher levels of uncompensated care than private counterparts, and privatization to for-profit status of four public hospitals led to a large decline in uncompensated care. Desai, Lukas and Young (2000) examined 52 privatized hospitals in three states (California, Florida and Texas) between 1981 and 1995 (15 to four-profit status and 37 to nonprofit status). They found that (1) "public hospitals that privatized provided significantly less uncompensated care before privatization than did other public hospitals, both before and after privatization," suggesting some sorting by ownership form; (2) "public hospitals that converted to nonprofit status generally sustained their levels of uncompensated care"; but (3) "public hospitals that converted to for-profit status showed a significant decline in the level of uncompensated care they provided" (p.170).

[14] For example, the largest US hospital company, for-profit HCA, will pay criminal and civil penalties totaling over $800 million for submitting inflated bills to the government and paying kickbacks to doctors for referrals (*New York Times* December 2000).

[15] Some studies suggest that NPs provide more community benefits than the value of their tax exemptions, but there are wide variations, and "if FPs include the amount of tax they pay as community benefits, they generally would be found to provide more community benefits than NPs" (Shactman and Altman 1998: 199). Other recent studies find nonprofits seem to be falling short of expected levels of community benefits (Nicholson, Pauly, Burns, Baumritter and Asch 2000).

serve (Norton and Staiger 1994), so that comparisons based on national aggregate data can be misleading.[16]

Few studies find any consistent evidence of differences in cost, efficiency, or quality of NPs and FPs, or in their provision of charity care or public goods (Gray 1986; Pauly 1987; Sloan et al. 2001; Ettner and Hermann 2001). Zeckhauser, Patel and Needleman (1995) found FP and NP hospitals to be of similar efficiency and to offer similar services (including 'non-core' unprofitable services), with local market norms and historical presence or absence of NPs also important in explaining local variations. Kessler and McClellan (2000) analyze longitudinal data on nonrural Medicare beneficiaries hospitalized for heart attacks, finding that within a market, FP and NP behavior is very similar. Even goods and services that are (local and general) public goods, such as teaching and research, do not seem to differ systematically between investor-owned (FP) and non-investor-owned (NP) private hospitals.[17] Most experts would agree that "two decades of research has failed to provide definitive empirical evidence on the differences between for-profit and nonprofit health care facilities and on the social consequences of changes in ownership" (Blumenthal and Weissman 2000: 158). "Overall, the evidence suggests that for-profit and private not-for-profit hospitals are far more alike than different" (Sloan 2000: 1168).

III. A Simple Conceptual Framework

A government purchaser of health care must decide whether to provide services "in house" (i.e., through vertically integrated public facilities), or by contracting out to a private health plan, hospital, or physician group. Our analysis focuses on the contract between the government and the manager of the delivery institution.[18]

Throughout the analysis, we assume that all providers are a priori equally productive. We first illustrate the potential importance of *different preference trade-offs regarding cost and quality*, using figures. In the remainder of the analysis, however, we

[16] For discussion of the latter point, see for example Shactman and Altman (1998).

[17] In their study of three teaching hospitals sold to investor-owned hospital chains, for example, Blumenthal and Weissman (2000) found no measurable adverse impact of the ownership change on the hospitals' social missions, including teaching, research, and indigent care.

abstract from initial differences, and focus instead on providers with identical, or at least similar, preferences.[19] Thus, in this framework, *comparative advantage arises endogenously from the property rights structure of different ownership forms,* not from an assumption that public and private providers innately differ in their production capabilities or in their preferences regarding cost and quality.

Benefits (Quality), Costs, and the Purchaser's Objectives

Assume that a provider of a health service can provide patients with treatment benefits, **B**, which we also label quality. **B** is measured in dollar units, e.g., through willingness-to-pay. The cost of producing B is **C(B)**. Costs and marginal costs are both increasing in **B**.

The purchaser seeks to maximize social surplus, benefits minus costs, or **B-C(B)**. If contracts were complete, the purchaser would contract for optimal quality **B*** in exchange for payment **R**, where **R ≥C(B)**. **B*** is the level where an additional dollar's worth of benefits just costs a dollar to produce, or in the language of economics, where marginal benefit equals marginal cost. Figure 1a illustrates this result.

Assuming that public and private providers are equally competent and therefore have the same initial cost function, **C(B)**, the contract could be with a public or a FP or NP private provider, with exactly the same result. If patient benefits fall short of **B*,** the provider has to return some or all of the prepayment **R.**

The great challenge is that many aspects of quality for a health service are not contractible. Suppose instead that only minimum quality $\mathbf{B_{min}}$ is contractible, say because $\mathbf{B_{min}}$ is readily observable or a widely accepted norm. The purchaser would like to contract with the provider to choose quality **B*** greater than $\mathbf{B_{min}}$. However, the purchaser cannot enforce a breach of such a contract—firing the employee or "firing" the independent contractor by switching to an alternative provider (Klein, Crawford and Alchian 1978)—unless quality falls below $\mathbf{B_{min}}$. The provider therefore has a default option of always providing the basic service at the minimum acceptable level $\mathbf{B_{min}}$, at

[18] For simplicity, we abstract from the multiple layers of principal-agent relationships within the delivery institution, although similar incentive and contracting problems are likely to arise between each layer (e.g., between a health plan and its physicians).

corresponding minimum cost $\mathbf{C(B_{min})}$. Under this scenario, the purchaser will face the same contracting challenges of motivating **B*** for both public and private providers. Ownership in terms of control rights over the health service facility once again does not affect the outcome, unless we assume that different ownership forms foster a different preference trade-off between **B** and **C**. Preference differences are explored in the next subsection. A second possibility, examined in the remainder of the paper, is that purchasing takes place in a multi-period context in which post-contractual innovations are important.

Different Preference Trade-offs Regarding Benefits and Costs

Providers with the same cost function but different preferences will choose to produce different levels of benefits, as illustrated in Figure 1b. The figure considers three idealized types, which may or may not correspond to ownership forms (e.g., government, nonprofit, for-profit). Consider first a provider who values only net revenue, **R-C(B)**, as an economics text might posit. The indifference curves of such a provider would be horizontal, representing the desire to minimize cost under prepayment ($\mathbf{U^{minC}}$). Such a provider would choose barely to fulfill the letter of the contract by providing minimum quality.

In contrast, if a provider were altruistic, valuing quality as well as net revenue, the positive marginal rate of substitution between **B** and **C** would encourage the provider to choose higher (and costlier) points on the cost curve. In the figure, a provider with $\mathbf{U^{trade}}$ is willing to trade off between **B** and **C**. Depending on the level of altruism and concern with cost, the chosen combination of cost and quality could be below, equal to, or above the socially desired level.

A third class of providers may actually wish to maximize benefits, perhaps due to strong altruism, or because it reaps prestige from offering high quality services. In the figure, such a provider has preferences $\mathbf{U^{maxB,K}}$, implying that it would like to maximize benefits subject to a break even constraint **K**. Such a "gold plater" would have an indifference curve that is steeply sloped before the breakeven constraint binds (i.e., when

[19] The statement is qualified because our model of nonprofits does posit a different preference structure, albeit with for-profit preferences as a special case.

C<**R**), indicating willingness to increase cost considerably to achieve higher benefits. At the constraint, there is a downward kink in the indifference curve. Beyond this kink, where extra spending connotes negative net revenue, the provider continues to value quality, but is willing to pay much less per unit to provide it. Others have posited similar behavior by health care providers.[20]

The purpose of Figure 1b is not to characterize the preferences of different provider types. That would be of limited use, particularly since there is significant variability within types. Rather, it is to stress the importance of considering provider preferences when contracting capabilities are limited. However, we will not focus on differences in provider preferences or production capabilities in the remainder of the analysis, for at least two reasons. First, no ownership form has a monopoly on altruism. Second, a useful theory of ownership should explain why differences in efficiency arise. It seems unsatisfying to base a theory of the comparative advantage of public, private FP and NP providers on exogenous assumptions about how provider preferences and altruism correlate with ownership status, or how initial production capabilities differ between ownership types.

IV. Endogenous Differences Emerging Across Ownership Types

A useful theory of differences between public and private ownership should start by asking, would the same provider, with the same human capital, productive efficiency and altruistic concern for patients, act differently as a government employee or as an independent contractor? The property rights theory of ownership, based on incomplete contracts, suggests an affirmative answer. In this theory, ownership matters to the extent that changes over time in how a good or service is delivered, such as innovations in quality improvement and cost control, cannot be spelled out explicitly in a contract *ex ante.* Important opportunities for innovation will therefore arise after a contract has been negotiated, drawn and signed. Incentives for such innovations will depend crucially on who has control rights to implement, and capture the benefits from, those innovations.

[20] See for example the pioneering work of Newhouse (1970). More recently, Ellis (1998) analyzes the incentive for competing hospitals to "dump" unprofitable patients by assuming hospitals dump patients in relation to overall hospital profitability (not the profitability of individual patients) and must reach a

In the incomplete contracting approach, ownership is defined as the allocation of residual control rights over non-human assets, such as a hospital. Hart, Shleifer and Vishny (1997) develop this framework and apply it to prisons. The service (prison management) is assumed to be a public good. The manager receives a fixed payment, either a salary or a contracted price, contingent on delivery of the basic service for a specified period of time. In the Hart et al. model, private owners typically have stronger incentives to invest in cost and quality innovations, but may over-invest in cost reduction because they ignore the adverse impact on noncontractible quality. Their theory suggests that costs are always lower under private ownership, but quality may be higher or lower. Hart et al. presume prepayment. They do not explicitly model competition, choice of quantity of treatment per consumer, differences between FP and NP providers, soft budget constraints, or the contracting challenges arising from consumer heterogeneity. In this section, we develop a framework highlighting these characteristics, which are critical for health care contracting, but also relevant for other areas where government contracts.

Post-Contractual Innovations

Suppose that a health service provider faces two choices, each of which affects cost and quality: level of up-front cost-reducing investment **e** to undertake, and intensity of treatment **q** to deliver to each patient. An up-front investment in cost reduction costs the provider **e**, but decreases the marginal cost of producing quality. (In effect, the cost curve **C(.)** is shifted downward.) The provider must incur observable but not verifiable cost per patient treatment episode **C(e,q).** This cost**.** is decreasing in **e**, with decreasing marginal returns, and increasing in **q**, with increasing marginal costs. Patient benefits from treatment, **B(e,q)**, may be adversely affected by the quality-damaging side effects of cost reduction, and are increasing and concave in intensity of treatment over the relevant range.

Assume that the contract between the government and the provider is incomplete in the sense that only minimum quantity per patient, $\mathbf{q_{min}}$, is contractible. Treatment costs, quantity above $\mathbf{q_{min}}$, and cost innovations are noncontractible, albeit mutually

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minimum level of profit. Such a hospital would exhibit a kinked indifference curve, with extreme reluctance to incur costs beyond the break-even point.

observable. Implementation of innovations requires approval from the facility owner, and may not be forthcoming unless the purchaser agrees to pay additionally for them. The purchaser would like to encourage innovations, but does not want excessive cost control at the expense of (noncontractible) quality.

The Performance of Government, For-Profit, and Nonprofit Forms

Government ownership

Consider the likely outcome under direct government provision. The government purchases a health service for its beneficiaries by employing a provider G to run a public facility (e.g., a hospital). By choosing to provide the health service in-house, the government retains control rights over the nonhuman assets, such as the hospital or clinic. The job description of the provider G specifies provision of the basic service. The public provider may take initiative to control costs in ways not specified in the original contract, which may affect service quality. As a civil servant, however, G must obtain approval from her supervisor or other relevant authority before innovations can be implemented.

The government seeks to maximize benefits to patients, less prepayment R and any payments made when re-negotiating for changes not specified in the initial contract. Without renegotiation to obtain approval and compensate G, innovations are not forthcoming. With renegotiation, the net benefit from the improved service is split between government and G. We illustrate the effects of renegotiation using an arbitrary sharing formula, 50:50.

The public provider G is assumed to seek to maximize payment, including compensation for innovation, less the cost per case and the effort costs of developing innovations. Without renegotiation for permission from government supervisors, the public provider cannot implement **e** and therefore would not want to invest in cost reduction. Moreover, since the provider bears the cost of treatment **q** but receives no extra compensation for additional treatment, G would choose to provide minimum intensity of treatment.

However, since the government purchaser can benefit from encouraging an appropriate amount of cost control and intensity of treatment, renegotiation will almost

surely take place. By anticipating the surplus from renegotiation, G implicitly takes some account of how her choices of **e** and **q** will affect patient benefits from use of the service. However, G cannot reap the full rewards of her cost control initiatives. Indeed, given the constraints on government employee compensation, she may be able to reap no more than a tiny fraction of them.[21] As a result, although G internalizes the quality-damaging side effects of cost control, G may have stunted incentives for cost innovations. The latter is a cause for concern, especially in light of rapid advances in health technology. In a dynamic setting, even a slightly stunted incentive for innovation would lead to cumulatively low levels of innovation, so that such a provider ends up considerably behind the technological frontier. Since lack of control rights, and therefore stunted incentives for innovation, seems inherent to public ownership, a government purchaser of health services may wish to consider alternative purchasing strategies, such as contracting out to a private provider.

Private For-Profit Ownership

Assume a for-profit private provider Π seeks to maximize net revenues—prepayment less the costs incurred in treating patients and in developing cost-control innovations. Since Π owns the facility, Π can implement **e** without seeking the purchaser's permission. Π therefore has maximum incentives to reduce cost, both by investing in cost reduction innovations and skimping on treatment, irrespective of the negative impact on patient benefits.

From the purchaser's perspective, although the goal of cost control innovation is furthered by contracting out to Π, there is a significant mis-match in goals that may lead to excessive cost cutting, thereby damaging quality. The private provider has stronger incentives to invest in cost control; hence, $\mathbf{e}^{\Pi}$ will be greater than $\mathbf{e}^{\mathbf{G}}$, and the cost curve of the FP provider will lie below that of the public provider. In this case, contracting out is potentially much more efficient. Nevertheless, by retaining residual control rights over

[21] Partly this may be a function of the government budgeting process, wherein usually money G saves by coming in under budget one year is returned to the treasury. Although multi-year budgeting may help to alleviate the loss of cost control incentives associated with this phenomenon (as Guy Stuart has suggested), lack of longer-term control rights for government managers seems to be a fundamental characteristic of public sector provision.

the facility under G, the government can achieve greater fidelity to purchaser goals, i.e., more of the payment flowing into patient benefits rather than provider net revenue.[22] Even with identical preferences, public and private providers will make different investment choices because they have different claims on the returns from those investments.

This model suggests that the optimal ownership structure depends on the relative trade-off between higher fidelity under public ownership but greater productive efficiency under private FP ownership. Public providers have a comparative advantage for delivering services for which large adverse side effects may accompany aggressive cost control. By contrast, FP providers have a comparative advantage for services for which the quality damage from cost control is slight to nonexistent, or cost control enhances quality, or policies are available that ameliorate the incentives for or consequences of excessive cost control.

Quality Innovations

The basic framework presented above extends readily to allow for providers to invest in quality-enhancement innovations **i** as well as cost-control innovations **e**. Assume quality improvement investments increase benefits from treatment, but add to costs of care. Renegotiation occurs in the same way as it does for cost control innovations. Thus, the earlier result that a public provider has stunted incentives for cost control innovation will also apply to quality innovations. Indeed, public providers are not known for being on the cutting edge of either medical quality-improving or cost-reducing innovations.[23]

A FP provider, by contrast, can reap the entire surplus from implementing innovations because Π has sole control over the relevant nonhuman assets. However, quality-enhancement investments, unlike cost-cutting innovations, do not increase Π's net revenue unless additional payment is forthcoming, either from the purchaser or from

[22] Note that the fidelity of G arises from lack of control rights, not an assumption of innately differing preferences.

[23] Section II briefly reviews the empirical literature. Commenting on quality, the General Accounting Office reported to Congress that the "VA was slow to take advantage of changes in medical technology"; assessing cost-reduction, the GAO observed that "between 1975 and 1995, the number of community hospitals decreased by about 12 percent. During the same 20-year period, VA did not close any hospitals because of declining utilization" (GAO 1998: 5-6).

additional patients attracted to seek care with that provider. The purchaser will in general find it optimal to negotiate with a single-source private provider to enhance quality in exchange for additional payment. We assume that the bargain is struck so that half the surplus value generated from the quality innovation goes to the provider, half to the purchaser. This produces an outcome where, as in Hart, Shleifer and Vishny (1997), quality is higher than it would otherwise be, since Π anticipates renegotiation. However, since Π receives only half the surplus, Π's chosen level of quality enhancement **i** will typically still be less than is socially optimal, and may be no higher than that of public providers. This shows that private ownership, despite Π's greater control rights over the surplus from innovation, does not always lead to high levels of innovation.

Comparative Advantages of Public and Private FP Ownership

Comparing public to FP private ownership, the above analysis does not yield an unambiguous ranking of ownership forms. A FP private provider will always have greater incentive for cost control and thus lower cost for a given quality. However, a FP's excessive cost control may lead to large adverse impacts on noncontractible quality, counteracting the advantage of higher incentive for quality-improvement innovations. A public provider's incentives for innovations will generally be stunted compared to that of a FP private provider. Nevertheless, these stunted incentives are sometimes efficient (e.g., limiting quality-damaging cost control and skimping on intensity of treatment). The public provider will be less responsive than a private contractor—with less risk of over-zealous cost cutting, but also less incentive to pioneer quality breakthroughs and creative cost-control methods. Whether in-house provision is preferable to contracting out to a FP provider will depend on several issues: the characteristics of the health service(s) in question, the ability to specify desired quality and treatment intensity in the contract, the availability of complementary purchasing strategies (such as allowing patient choice of provider to motivate investment in quality enhancement), etc.

This comparison still leaves out an important option for many purchasers, the possibility of contracting out to a not-for-profit (NP) private provider. Does the NP ownership option present distinct advantages? Any attempt to answer that question requires a conceptual framework for distinguishing and analyzing NP ownership.

Altruism, Cost Control, and Nonprofit Ownership

The theory of nonprofit behavior stirs controversy (see, for example, Weisbrod 1977; Hansmann 1980; Rose-Ackerman 1996). Given the prevalence of nonprofits in the health sector, their behavior has been the focus of considerable theoretical work by health economists (Newhouse 1970; Pauly and Redisch 1973; Sloan 2000; Philipson and Lakdawalla 2000). The framework used here, based on the property rights theory of ownership, focuses on residual rights of control. Although residual control rights and residual income rights are often bundled together on a one-to-one basis, they need not be (Hart 1995). And they are not bundled in not-for-profit (NP) enterprises. Arguably NPs also seek to maximize net revenues or 'profits,' but instead of distributing those funds to shareholders, NPs allocate them to uses that firm insiders select, such as community benefit programs, 'contingency funds,' or higher employee perks. This suggests that NP providers have similar control rights to FP private providers, but have far less clear-cut claims to residual income, and may even have to distort surplus in order to channel it into forms they can appropriate (e.g., perks such as attractive offices rather than dividends).[24]

We posit that there are at least two characteristics of NP providers important for health care purchasers to consider: (1) NP ownership may develop as a signal of trustworthiness to consumers (Hansmann 1980); and (2) incentives for cost control may be diminished because residual income cannot flow directly into a NP provider's pocket (the celebrated 'nondistribution constraint'). We capture the first characteristic by assuming that NP ownership is associated with a degree of altruism, or agency on behalf of patients, that is at least as great on average as in FPs. In other words, *agency problems* between patients and NP providers are no greater, and sometimes less, than between patients and FP providers.

Our hypothesis is consistent not only with Hansmann's idea of NP status as a signal of trust but also with previous theory (e.g., Newhouse 1970) and empirical evidence (see Section II above). But two important caveats should be noted. First, a higher degree of fealty to patient desires is not always socially desirable from an *ex ante*

[24] In many NPs, it is not clear who the principals are; candidates include the board, employees, donors and clients.

point of view: altruistic providers indulge patient moral hazard more than their less altruistic counterparts, resulting in inefficient over-utilization. Second, there is no inevitable link between nonprofit status and high fidelity to patients. Competition may change the 'mission' of NPs so that they resemble FPs in all but name.[25] This factor could help to explain the overall similarity of NP and FP providers in competitive settings.

Recent empirical evidence lends credibility to the idea that NP and FP behavior is closest in competitive environments. For example, Duggan (2000b) examines how hospitals respond to financial incentives to treat low-income patients. He finds that compared to other NPs, NP hospitals in areas with many FP competitors are significantly more responsive to financial incentives. This finding is consistent with the idea that competitive pressure makes NPs more profit-oriented. Arnould, Bertrand and Hallock (2000) find that NP hospitals compensate top executives more according to profitability as HMO penetration in the hospital's market increases. Studying the tendency of hospitals to "upcode" Medicare reimbursements to obtain greater revenue, Silverman and Skinner (2000) find that NPs operating in heavily FP markets upcoded at very similar rates as their FP competitors.

Applying the property rights theory to NP providers, assume that the objective of the nonprofit provider, N, is to maximize utility from net compensation and from altruistic pleasure associated with patient benefits. Further assume that for a NP provider to reap benefit from the firm's net revenue, surplus must be distorted slightly (e.g., from cash to perks), implying that a fraction of the surplus gets dissipated.

Altruism on the part of a provider increases the incentive to provide socially optimal cost and quality innovations and combats incentives to skimp on treatment. For 'high' altruism, the provider takes full account of the impact of innovations and treatment intensity on patient benefits, and hence internalizes the full social marginal benefit. As Arrow (1963) suggests, a 'perfect agent' can balance the interests of patients and society.

[25] The NP label in fact may constitute a social loss, since society foregoes the services that could be purchased with tax revenues from the NP, and the NP, by avoiding taxes, may gain an unfair market advantage over FP competitors.

However, excess identification with patient interests can lead to over emphasis on quality at the expense of cost, encouraging dynamic moral hazard[26] and wasteful overuse.

The NP provider's lack of direct access to residual income can also lead to distortions. Unable to capitalize on the net revenue benefits of cost control and quality investment, N may over-emphasize quality (high **i** and **q**) at the expense of cost (low **e**). This problem may be acute in medical care, where quality is often associated with prestige and there is ample latitude to over-provide services.[27] The framework suggests that N has diminished incentives to invest in cost control, since N can reap only a fraction of the benefit generated by that investment. Therefore a NP, like a government provider, may invest too little in cost-reducing innovations. Renegotiation with the purchaser can move toward a socially preferred outcome, but cannot fully restore efficiency if the original incentives were distorted, because the provider receives only half the gain in surplus from renegotiation.

If this model of altruism and NP behavior reasonably approximates reality, then the comparative advantage of NPs lies in their ability to combine the flexibility of private ownership with the patient-centered concerns of the (public) purchaser. In a sense, NPs lie "in between" public and FP private ownership, with concomitant strengths and weaknesses. However, to pin down the full comparative advantages of different ownership forms, we must go beyond the simple setting used so far.

The Effect of Institutional Characteristics

A purchaser must decide not only with whom to contract for health services, but also how to structure the contract to offset the limitations of public and private ownership. Here we briefly consider both the additional instruments available to purchasers (e.g., payment incentives, competition) and their interaction with additional contracting challenges inherent in purchasing quality health care (e.g., patient heterogeneity and selection concerns, soft budget constraints).[28]

[26] Dynamic moral hazard refers to the tendency of (typically well-insured) patients and their providers to utilize new medical technology even if the health improvement benefit does not justify the cost.
[27] Monitorable and prestigious aspects of quality are often associated with technology, such as MRI machines and other cutting-edge equipment, rather than lower-tech aspects, such as time spent interpreting tests for each patient.
[28] These issues are discussed in considerably more detail in Eggleston and Zeckhauser (2001).

Payment Incentives

Different payment structures may be useful for aligning provider incentives with purchaser goals. For example, whereas prepayment such as capitation encourages limiting $\mathbf{q}$ (e.g., to $\mathbf{q}_{\mathbf{min}}$), FFS payment rewards high utilization. Indeed, FFS may result in excessive utilization stemming from provider indulgence of patient moral hazard or even "supplier-induced demand".[29]

Empirically, the correlation between disaggregated (fee-for-service) payment and higher cost emerges both at the broadest (national) and narrower (organization and individual physician) levels. For example, Gerdtham and Jönsson (2000), controlling for an array of economic and institutional factors for OECD countries, find a 17 to 21 percent higher average expenditure in FFS as compared to capitation systems. At the level of the individual clinician, capitation or salary payment is associated with less service use. In the US, after the prospective payment system (PPS) was introduced for hospitals, admissions generally declined, average lengths of stay fell, and some patients got dumped to non-PPS facilities, consistent with the incentives of case-based payment (see Table 7 in Cutler and Zeckhauser 2000).

Eastern European countries as well have seen significant reactions to payment incentives, although the evidence to date is mostly anecdotal. In Hungary, provider reimbursement reforms introducing aggregated pre-payment (capitation payment for family doctors and case payment for hospitals) "have had a *much greater impact on the character of service delivery than earlier changes in ownership*" (Preker and Feachem 1995: 35; italics added). Real health care spending in the Czech Republic increased by almost 40 percent in two years after open-ended FFS was introduced (Marree and Groenewegen 1997: 64). Private practice physicians paid on a FFS basis billed significantly more in every category of service than did state (primarily salaried) providers (Massaro et al. 1994). The expenditure-increasing effects of FFS proved so powerful that in 1997 Czech policymakers chose to revert to a global-budget method of payment.

How will provider response to payment incentives differ systematically by ownership form? Scant empirical evidence speaks to this issue. The above framework

[29] See discussion in McGuire (2000) and Cutler and Zeckhauser (2000).

suggests that by retaining residual control rights, government stunts a public provider's incentives for innovations compared to those of a FP private provider. Efficiency must be lost. But these stunted incentives sometimes produce the second best outcome achievable. Moreover, incentives can be adjusted by payment method. A pre-paid public provider may prove to be considerably less costly than an FFS private provider, with little difference in patient health outcomes. A public and NP provider's responsiveness to payment will be less extreme than that of a FP private contractor—with less risk of over-zealous cost cutting under prepayment or aggressive 'demand inducement' under FFS, but also less incentive for generally efficiency-enhancing initiatives.

Multidimensional Quality

When we recognize that quality is multidimensional, the ability of patients to monitor becomes a significant concern. If patients can discern some aspects of quality better than others, providers have the incentive to invest primarily in those aspects of quality that patients can recognize (e.g., amenities of care such as pretty waiting rooms or shorter waiting times), at the expense of those that they cannot (e.g., technical quality of care). This provider behavior resembles the problem of "teaching to the test" in standards-based educational reform. Provider professionalism and altruistic concern for patients can ameliorate these inefficiencies. For example, a highly altruistic NP would not exploit patients' imperfect monitorability to curb quality along less-observable dimensions.[30]

Some empirical evidence supports this conclusion. For example, in studying adoption of quality-enhancing technologies by kidney dialysis units, Hirth, Chernew and Orzol (2000) find that nonprofit and for-profit facilities differed in the cost-saving trade-offs made when adopting the new technologies. Nonprofits were less likely to lower technical quality of care, whereas for-profits tended to deliver lower technical quality of care but also offer more amenities (e.g., more dialysis stations). This behavior is consistent with our theoretical prediction that of the three ownership forms, FPs are most likely to respond to the incentive to exploit patients' imperfect monitorability of health

services by curbing quality along less-observable dimensions and promoting quality along more visible ones.

Competition and Selection by Patients

Can consumer choice promote appropriate outcomes in the health-care marketplace? First consider an ideal situation with homogenous, well-informed patients and perfect competition. Suppose that there is perfect monitorability, so that only providers offering efficient quantity and quality attract consumers. In other words, consumer choices of exit, voice and loyalty (Hirschman 1970) are perfectly capable of guiding and disciplining providers to provide quality care at reasonable cost. In this case, performance under all ownership forms would tend to converge.

Unfortunately, such ideal conditions are rare for health services. Competition bolsters financial incentives for patient-observable quality improvement (e.g., shorter waiting times), and tempers the incentive for cost cutting that damages patient-observable quality, especially among FP providers. But competition also bolsters the incentive to skimp on nonmonitorable dimensions of quality, and to cut costs in ways that are unobservable to patients (e.g., lower technical quality). The effect of competition on public and NP private providers is analogous, and these incentives can conflict with the altruism or role of back-stop provider often associated with these ownership forms.

These results suggest that when patients effectively monitor providers by observing and reacting to differences along all relevant dimensions (perhaps through the provider's reputation), competition for patients can be welfare-improving regardless of ownership form. In many cases, the most effective way for a public purchaser to harness competitive forces on behalf of beneficiaries is by contracting out to competitive private providers, both investor-owned and nonprofit. Yet not all health services are equally suitable for informed patient decision-making about treatment options.

[30] Indeed, a 'perfectly altruistic' provider might choose the same package of quality innovations among services that it would choose if there were perfect monitoring by patients. Such an outcome would be infeasible if losing patients to competing providers would compromise the NP's viability.

Heterogeneity and Selection of Patients

Even if all services could be monitored perfectly, mere competition for customers might not be efficient, since not all patients are equally profitable to serve. Competition might push providers to engage in sorting and discrimination—an inefficient process known as 'cream skimming' or 'risk selection'—to attract those who will be inexpensive to serve. One way to ameliorate incentives for creaming and dumping is to make selection partially contractible by adjusting pre-payments—case-based, capitation or premium payments—for observable and verifiable characteristics of enrollees (e.g., age, gender, diagnoses, or past expenditures). This process is known as risk adjustment. Accurate risk adjustment would allow a purchaser to contract out to competing private providers without fear of selection inefficiencies. However, risk adjustment is currently not widespread (Keenan et al. 2000), and is limited in accuracy. The incentives for risk selection can also be reduced by tempering payment incentives.[31]

Nonprofit and public providers are not immune to incentives for profitable patient sorting. Indeed, many transitional economies have discovered their susceptibility. For example, preliminary analysis (Benedict 2000) documents significant risk segmentation among competing Czech NP, FP and government insurers, although to what extent this reflects a welfare loss remains a question for further research. The Czech Republic was the first country in the region to implement a (simple demographic) risk adjustment system. Experience from other transitional economies suggests that selection is a concern even when virtually all insurers and providers remain government-owned.[32] Such entities still have revenue concerns, especially if they face a relatively hard budget constraint. But public ownership, by retaining ultimate control in the hands of state authorities, constrains public providers in their opportunities and flexibility to engage in risk selection.[33]

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[31] Examples include extra payment for high-cost conditions or treatments, or fee-for-service reimbursement for a share of all patients' expenditures (see Newhouse 1996).

[32] For example, in China anecdotal evidence indicates that fixed payment systems have led providers to refer costly patients elsewhere: "Administrators of a primary hospital openly admitted that they refused admission to patients who were seriously ill and referred them to secondary and tertiary hospitals" (Yip and Hsiao 1997: 249).

[33] In the US, for example, "both VA's strategic goals and the incentives it is creating through some of its restructuring efforts suggest that VA, like many community hospitals, is focusing its marketing efforts on attracting revenue-generating patients" (GAO 1998: 5). Congressional concerns that the VA was not appropriately maintaining its level of certain high-cost specialized services—such as treatment for spinal

Attention to these issues is critical for accurate analysis of the distributional and efficiency effects of ownership structure and competition not only in health care markets, but in any market where the cost of service depends on the individual served.[34]

Soft Budget Constraints

An organization enjoys a soft budget constraint if some institution (such as the government) will finance its deficit, enabling it to continue to operate despite consistently exceeding its budget (Kornai 1980, 1986, 1998; Maskin 1996). A soft budget constraint, if anticipated, can seriously damage efficiency. Expecting a bail-out, a firm can slack on performance. If so, a purchaser that fails to impose a hard budget constraint will end up with the wrong producers, the wrong consumption bundle, or both, in effect subsidizing inefficiency.

The combination of a government commitment to serve as a provider of last resort and the lack of control rights of government facility managers, suggests that soft budget constraints may present particular challenges to vertically integrated government provision. Indeed, empirical evidence supports the view that public health care providers face soft budget constraints. For example, Duggan (2000) studies the response of public, private FP and NP hospitals to a change in financing. He finds that "the critical difference between the three types of hospitals is caused by the soft budget constraint of government-owned institutions" (p.1343).[35]

In Eastern Europe, the legacy of soft budget constraints for government-owned providers continues to plague the reforming health care systems, including newly established social insurance institutions. For example, in several nations (e.g., Hungary and Croatia), any social insurance fund deficit is the legal responsibility of the government. Not surprisingly, this soft budget constraint has lead to sustained and sizable social insurance fund deficits in those countries, in contrast to others without such a

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cord dysfunction, blindness, amputation, and severe mental illness—fostered legislation to ensure that volume of these services did not decline below 1996 levels (GAO 1999b:13).

[34] An analogy can be drawn to educational policy, where concerns regarding market sorting—by student ability and income, similar to patient sorting—gives pause to policymakers otherwise eager to harness the benefits of privatization and competition, say through vouchers, to increase productivity, choice, accountability, and quality.

[35] See Eggleston, Miller and Zeckhauser (2001) for a theoretical model of provider behavior that explicitly includes the soft budget constraint phenomenon.

guarantee, such as Slovenia (Kornai and Eggleston 2001). In 1998, the Polish Finance Ministry carried out an extensive bailout of the Polish health sector, which had amassed debts equivalent to several billion dollars (ibid).

The tendency of government health care providers to operate with soft budget constraints suggests that FP and NP private providers have a comparative advantage in providing services for which the inefficiencies of persistent re-financing of deficits outweigh the benefits of reduced incentives for both quality-damaging cost control and inefficient sorting of patients. However, it is important to note that the susceptibility of public providers to soft budget constraints does not mean that public delivery systems will generally have higher expenditure than private delivery systems; in fact, quite the opposite is true. Public providers in many contexts (e.g., several Eastern European countries) must operate under chronic shortage of funding, even if a soft budget constraint precludes closure. A vertically integrated delivery system such as the UK National Health Service must compete with other sectors in the political arena for public revenues, and frequently is associated with lower percentage of GDP allocated to health care (see Table 2). By contrast, contracted private providers may become adept at political lobbying for additional funding (e.g., for expensive high technology), effectively softening the budget constraint on overall health spending (Blendon and Kim 2001).

V. Government Purchase and Pluralistic Delivery: Suggestive Evidence on Patterns of Comparative Advantage

To what extent do allocations of services across ownership forms in health care delivery systems correspond to the patterns of comparative advantage suggested by the above analysis? This is an important area for future research. We do not attempt any formal "test" of the theory here. Rather, our purpose in this section is merely to offer some suggestive evidence that (1) contracting out is an important policy question, and (2) the comparative advantage framework can be a useful guide for analysis of specific health sectors.

Government Purchase of Health Care

Close to half of total spending on health services in the US comes from public sources (Table 2). Governments in most other industrialized countries finance a significantly larger percentage of health spending, if (as is standard) compulsory social insurance contributions are counted as public financing. As shown in Table 1, public funds finance more than three-fifths of total health expenditures in high-income countries.[36] The public share of health spending averages almost three-quarters in the countries of the European Monetary Union, and comprises an average of 6.6% of GDP. These averages hide significant variation in the public share of national health expenditures, even across Western European nations (see Table 2).[37]

The starting point for the countries of Eastern Europe before 1990 was public financing and delivery of almost all health care, in line with the model of the USSR. During the past decade of post-socialist transition, state budget financing was being replaced by compulsory social insurance, supplemented by private financing. The latter, including formal out-of-pocket payments, private insurance, and under-the-table payments, represents a small but probably under-estimated share of health spending.[38]

Pluralistic Delivery

Ownership structures of health sectors are diverse, with public and nonprofit providers prevalent. In the US, almost every segment of the health care sector includes a

[36] High-income countries are those with income exceeding roughly $9000 per capita in 1998.

[37] Ideological factors presumably play a large role in determining this variation. There is little correlation between total health spending and the public share, i.e., between the first and second columns of Table 2 (a correlation coefficient of 0.01). There is a more significant, and negative, correlation between public share of financing and private share of inpatient beds (-0.4). (We omit the US in both calculations, since it is an extreme outlier). Among recent econometric studies, Kornai and McHale (1999) analyze the trends in public financing of health expenditures in OECD countries from the 1970s to the 1990s. Their fixed effect model finds a significantly positive relationship between per capita public health expenditure, income, and the elderly share of the population. Although the public share has been fairly stable, this consistency hides conflicting trends—an increasing public sector role associated with aging populations, offset by a decreasing time trend, which they speculate reflects "a long-lasting attempt to shrink the welfare state" (Kornai and McHale 1999: 17).

[38] Semi-legal "gratuity" payments to physicians are both prevalent and of significant magnitude, especially in Hungary, Romania, Poland and Bulgaria (Kornai and Eggleston 2001). Including such payments would increase doctors' incomes by 100 percent or more in Poland (Chawla et al. 1998) and 150 percent in Hungary (Bognár, Gál, and Kornai, 2000), and even these estimates are likely conservative. The prevalence of under-the-table payments is consistent with health care as a directed good, one for which the government pays, but a single individual is the overwhelming beneficiary. Given this property, it is to be expected that

mix of public, private for-profit, and private not-for-profit providers, although the mix varies considerably by medical service (see Table 3). The private sector dominates, except for psychiatric hospitals. Nonprofits play a particularly important role in the health sector, especially for hospitals, hospices, and blood banks. FPs represent only about 16% of community hospitals, and account for less than 12% of all hospital admissions.[39] Investor-owned firms represent about two-thirds of the nursing home market and 68 percent of non-hospital-based dialysis centers (MedPAC March 2000 Report for Congress: 137). For-profit organizations are also prevalent in managed care. The majority of HMO enrollees belong to for-profit HMOs.[40]

Ownership in the US health sector suggests a moderate pattern of comparative advantage. A government role in provision has been particularly strong for services with elements of a public good and/or large externalities. Examples include control of communicable diseases (tuberculosis or venereal diseases) and provision of substance abuse and severe mental health services, partly because of public safety concerns (Frank and McGuire 2000). Private ownership is common for services consumers can readily judge and plan for, such as health insurance and dental care, and much outpatient care. NPs fall in between public and FP private, dominating in areas such as blood banks where market failures are rife (e.g., asymmetry of information about the quality/safety of a donor's blood and problems of adverse selection if paying for donations), and/or the profit motive is symbolically objectionable (e.g., distaste for allocating God-given resources, such as blood, by the market).

This is not to suggest, however, that the ownership structure of the US approximates the ideal, even the ideal understood from a comparative advantage point of view. One may wonder, for example, how appropriate it is to have for-profits dominate among nursing homes, given the vulnerability of the residents, mostly frail elderly, and hence the opportunities for unobserved quality-damaging cost cutting for this service

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individuals will wish to voice their preferences, and that some governments will grant them latitude, even if they speak through semi- or il-legal payments.

[39] "If one includes the approximately 400 psychiatric, alcohol and chemical dependency, and rehabilitation hospitals owned by FP companies and the 350 NP and public hospitals that these companies manage, the [FP] sector accounts for almost 32 percent of U.S. nonfederal hospitals and approximately 23 percent of the beds" (Gray 1998: 208).

[40] Although Table 4 lists '~0%' public HMOs, there are public managed care organizations, if you count initiatives of the Department of Defense (DOD) and some other public purchasers.

(Hansmann 1980). FPs have an advantage in access to capital[41] and are much more responsive to it, which helps to explain their presence in nursing homes (which came upon the scene quite suddenly once the government agreed to pay for their services under Medicaid and Medicare), and in undertaking transitions more generally (e.g., closing surplus hospital beds). Nonprofit providers will only thrive in supportive regulatory and capital market environments (e.g., the Hill-Burton federal grant program for nonprofit hospitals in the US, a program not replicated for nursing homes).[42]

In Eastern Europe, private sector delivery has begun to develop, although its share of health service volume generally remains in the low single digits (Kornai and Eggleston 2001). The pace of reforms has differed across the region, partly for ideological reasons.[43] Privatization has been most extensive for dentists and pharmacies, whereas most inpatient care is delivered by public entities (Table 4). Entry by private providers has generally been allowed since the early 1990s, leading to the rapid growth of private individual and small group practice. A growing share of East European clinicians practice in both the public and private sectors.[44] Spending on private insurance is trivial except in Slovenia, where is constitutes 12 percent of total health expenditures.

Although converging to 'equilibrium' in Eastern Europe may take many years, the emerging ownership pattern seems to be broadly in line with comparative advantage. The private sector share has increased most markedly for those services where patients can discern quality and make informed choices among competing providers (such as dentistry and pharmacies); public ownership continues to dominate other parts of the delivery system (such as inpatient facilities and public health services). Caution is warranted, however, as there is considerable historical path-dependency in health sector

[41] "Areas in which demand is growing rapidly are likely to have high for-profit market shares since the capital market constraints faced by [nonprofits] make rapid expansion difficult" (Hirth 1999: 235). (Hirth therefore suggests using demand growth in a market as an instrumental variable for for-profit market share when studying ownership effects.)

[42] We are grateful for Robert Blendon and Minah Kim for this point.

[43] In some cases—primary care, dental and outpatient specialist practices in the Czech Republic, and individual practices in Slovakia and Croatia—privatization campaigns specified deadlines for privatization of providers in certain categories.

[44] For example, a survey in Krakow (Chawla et al. 1999: 10) shows that 1096 specialists employed in the public sector also spent an average of 10.8 hours a week on private practice.

development, and privatized delivery or financing can easily become institutionally entrenched even if it deviates considerably from principles of comparative advantage.[45]

VI. Conclusion

The distribution of public, private for-profit, and private nonprofit health care providers in any given country reveals the tracings of history and ideology, with the evolution of ownership patterns heavily path-dependent.[46] However, economic analysis of relative efficiency can and should play a role, at least in determining the *comparative* advantage of different ownership forms for delivery of different health services. Our application of the property rights theory of ownership to the distinctive features of health care contracting supports the following conclusions:

- Public (or sometimes private NP) providers have a comparative advantage for health services with some combination of the following characteristics: (a) hard to contract[47]; (b) involve pure public goods or high externalities; (c) are not monitorable by patients, in the sense that they can discern provider quality distortions; and (d) are highly susceptible to inefficient patient sorting. Examples might include care for the severely mentally ill, population-based health initiatives, blood banks, and long-term care for elderly.
- Private providers have a comparative advantage for services that combine one or more of the following features: (a) readily contractible; (b) quality monitorable by patients (directly or through provider reputation); (c) susceptible to competition; (d) not amenable to dumping of unprofitable patients, or for which risk adjustment of payment is feasible and reasonably accurate; and (e) incentives for rapid quality innovation are more valuable than low-powered incentives for quality-damaging cost control. Examples include elective surgery and most dental care, as well as the provision of drugs and many aspects of primary care.

[45] One example is the US "Medigap" system of supplementary private insurance for Medicare, which has very high administrative costs and would be more appropriately included in Medicare, yet is politically and institutionally difficult to change. We are grateful for Joseph Newhouse for this point.
[46] Eastern European countries, for example, are likely to continue to have a larger presence of state ownership in the health sector than economies that were never socialist.
[47] For some goods and services, "the government cannot fully anticipate, describe, stipulate, regulate and enforce exactly what it wants" (Shleifer 1998: 137).

- The profit status of a private provider is another key consideration. Our model supports prior analyses (e.g., Hansmann 1980) in the general view that NPs have a comparative advantage over FPs where expensive monitoring hampers competition as a device for quality assurance, and where contracting is not possible on variables critical in determining quality.
- For health care, ownership form can be important, but other factors are also critical: competition, payment incentives, and hardness of budget constraints (for both public and private providers). *How* to contract out matters as much as whether or not to do so, and to whom.
- The sorting of health care facilities among ownership forms in many nations appears to a considerable extent to respect principles of comparative advantage. Factors such as history and access to capital may impede this process. Focusing on comparative advantage and policy mechanisms that facilitate its operation can be effective and beneficial.

Our analysis focused on health care. However, most of the principles set forth apply to a wide range of services.

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Table 1. Public financing of health care, by income and world region

	Total Health Expenditure	Public Health Expenditure	
	% of GDP	% of GDP	% of Total Health Expenditure
Low income countries	4.20	1.30	30.95
Middle income countries	5.70	3.10	54.39
High income countries	9.80	6.20	63.27
East Asia and Pacific	4.10	1.70	41.46
Latin America and Caribbean	6.60	3.30	50.00
Middle East and North Africa	4.80	2.40	50.00
South Asia	4.80	0.80	16.67
Sub-Saharan Africa	3.20	1.50	46.88
Europe EMU	8.90	6.60	74.16

Note: Public health expenditure includes compulsory social insurance contributions.
Source: World Development Indicators, World Bank 2000.

Table 2. Public financing of health care in OECD countries, private share of inpatient beds, and WHO health system performance rankings

Country	Health expenditure as percent of GDP	Public health expenditure as percent of total	Private share of total inpatient care beds (%)	WHO Health System Performance Ranking (out of 191)
Luxembourg	7.0	91.8	n.a.	16
United States	13.9	46.4	66.8	37
Norway	7.5	82.2	0.1	11
Switzerland	10.0	69.9	n.a.	20
Denmark	8.0	83.8	0.7	34
Iceland	7.9	83.8	n.a.	15
Japan	7.2	79.9	65.2	10
Canada	9.2	69.8	0.9	30
Belgium	7.6	87.6	61.9	21
Austria	8.3	73.0	30.3	9
Netherlands	8.5	72.6	85.0	17
Australia	8.4	66.7	56.6	32
Germany	10.7	77.1	51.5	25
France	9.6	74.2	35.2	1
Italy	7.6	69.9	21.9	2
Finland	7.4	76.0	4.7	31
Ireland	6.3	76.7	n.a.	19
United Kingdom	6.8	84.6	3.7	18
Sweden	8.6	83.3	23.6	23
New Zealand	7.6	77.3	0.1	41
Spain	7.4	76.1	32.5	7
Portugal	7.9	60.0	21.7	12
Korea	6.0	45.5	90.3	58
Greece	8.6	57.7	29.6	14
Czech Republic	7.2	91.7	9.1	48
Hungary	6.5	69.1	n.a.	66
Mexico	4.7	60.0	25.6	61
Poland	5.2	90.4	0.2	50
Turkey	4.0	72.8	5.2	70

Sources: OECD Health Data 1999 and WHO 2000.

Notes: Countries are listed from highest to lowest 1997 per capita GDP (measured in purchasing power parity terms). Data are for 1997 or latest available year (n.a.= not available).

Table 3. Ownership Composition of the US Health Sector

Service	*Units/ Date*	*Private*		*Government*	
		Nonprofit %	*For-profit %*	*Federal %*	*State/Local %*
All Hospitals	Admissions/ 1997	68.1	11.8	3.7	14.0
	Outpatient visits/ 1997	63.4	7.9	11.7	15.2
Community Hospitals	Facilities/ 1997	59.3	15.8	0	24.9
	Beds/ 1997	69.2	13.5	0	17.3
	Admissions/ 1997	72.5	12.5	0	15.0
	Outpatient visits/ 1997	73.4	9.1	0	17.6
Psychiatric Hospitals	Facilities/ 1991	11	21	67	
	Beds/ 1991	3	6	91	
HMOs	Enrollees/ 1995	42	58	~0	
PPOs	Plans/ 1995	20	80	~0	
Blood Banks	Facilities/1990s	~100	~0	~0	
Home Health Care	Agencies/ 1991	36.7	40.6	22.5	
	Clients/ 1991	55.3	28.0	15.9	
Nursing Homes	Homes/ 1996	26.2	65.9	7.9	
	Beds/ 1996	24.1	66.7	9.2	
Hospices	Facilities/ 1991	88.1	5.0	5.4	
	Clients/ 1991	77.6	16.1	5.9	

Note: Numbers may not sum to 100% if a small "other" category cannot be attributed to one of these ownership forms. Community Hospitals are short-term hospitals excluding hospital units in institutions such as prison and college infirmaries, facilities for the mentally retarded, and alcoholism and chemical dependency hospitals.

Sources: National Center for Health Statistics, 1999; for home health agencies and hospices, data from the 1991 National Health Provider Inventory, as summarized in Delfosse (1995); for nursing homes, the 1996 Nursing Home Component of the Medical Expenditure Panel Survey, as summarized by Rhoades et al. (1998); for psychiatric hospital beds, Rose-Ackerman 1996, Table 4, p.710; for PPOs, Claxton et al. 1997, p.12; for HMO enrollment, Gabel 1997, p.135.

Table 4. Share of private health-care providers in Eastern Europe, 1997

Country	Inpatient beds	Primary-care physicians	Dentists	Pharmacies	Insurance (as % of THE[2])
Bulgaria	~0	Minor	82	70	<1
Croatia	~0	Minor	96	~100	<1
Czech Republic	9.4	95	~100	~100	<1
Hungary	~0	76	40[1]	~100[1]	<1
Poland	~0	Minor	~100[1]	93	<1
Romania	~0	Minor	~100	75	<1
Slovakia	~0	98	~100	100	1[3]
Slovenia[2]	~0	14	37	68	12

[1] 1998.
[2] THE = Total Health Expenditure.
[3] 1995.
Source: Kornai and Eggleston 2001.

Figure 1a. The Social Optimum

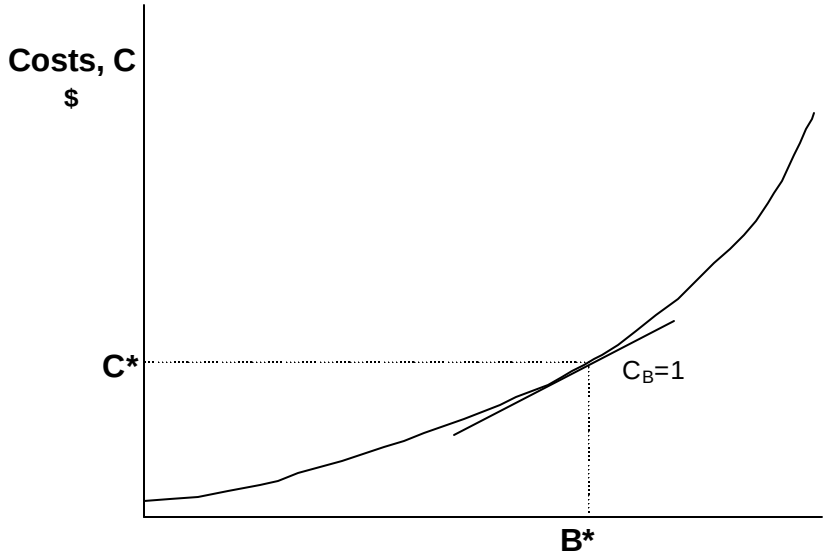
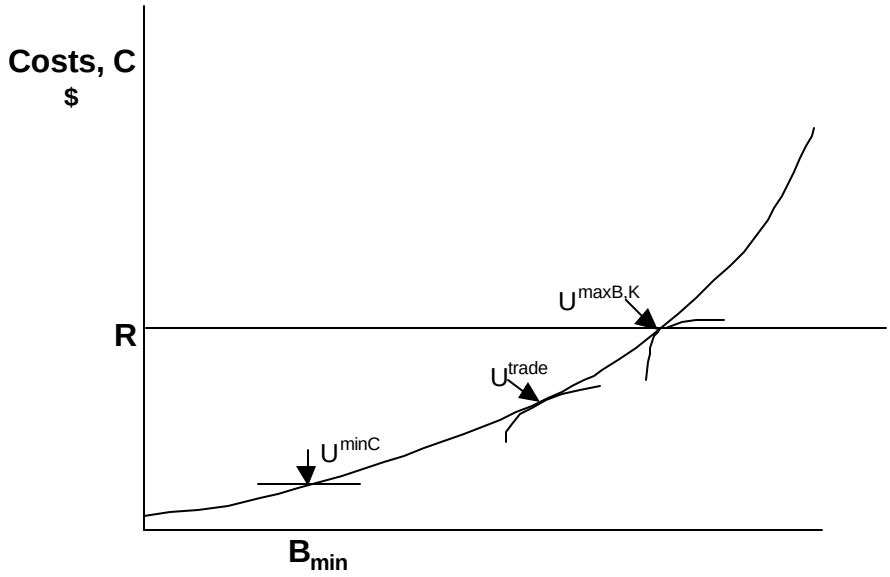


Figure 1b. Illustrative Provider Preferences



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