Return to nursing home investment: Issues for public policy

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Because Government policy does much to determine the return available to nursing home investment, the profitability of the nursing home industry has been a subject of controversy since Government agencies began paying a large portion of the Nation's nursing home bill. Controversy appears at several levels. First is the rather narrow concern, often conceived in accounting terms, of the appropriate reimbursement of capital-related expense under Medicaid and Medicare. Second is the concern about how return to capital affects the flow of investment into nursing homes, leading either to inadequate access to care or to overcapacity. Third is the concern about how sources of return to nursing home investment affect the pattern of nursing home ownership and the amount of equity held by owners since the pattern of ownership and amount of equity have been linked to quality of care.

Introduction

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This article develops a theoretical framework for analyzing the sources of return to nursing home investment under typical State reimbursement systems. Inferences can then be drawn about the willingness of various types of prospective owners to supply capital to serve public patients and the amount of borrowing owners will prefer. While the distribution of ownership and amount of debt finance may have special meaning in an industry providing care to disabled individuals, this analysis can be applied to other situations where private capital is elicited for public purposes. The analysis revolves around a truism: If policymakers wish to support a certain level of nursing home capacity for public patients in a State, they must make nursing home investment sufficiently attractive to potential investors. If a potential investment is worthwhile to some class of investors, it will be more worthwhile to those in higher marginal tax brackets. This fact encourages high-bracket investors to bid against small investors and nonprofit organizations for nursing home investment opportunities, shaping the distribution of nursing home ownership. The analysis demonstrates that current reimbursement and tax rules generally encourage owners to minimize their equity and maximize debt financing of nursing home investments. The study also analyzes the problem implicitly faced by State reimbursement authorities: Who should set the reimbursement for capital and other costs so that there is access to care for Medicaid patients? Because of Federal tax laws, a return on equity capital equal to the market rate may "overcompensate" high-bracket investors, paying them more than is necessary to attract private capital; therefore, the States could shift some of the cost of desired nursing home capital to the Federal tax system. It is possible to speculate (1) that reimbursement and tax rules combined to overcompensate investors during the 1960's and early 1970's, when capital flowed rapidly into the nursing home industry, and (2) that recent slowdowns in the growth of the portion of nursing home capacity available to Medicaid patients have been due to severe restrictions on reimbursement and debt finance, that make potential investment much less worthwhile.

In the first section of this article, there is a description of the trends in nursing home capacity, ownership, and payment methods used to reimburse owners for the care of Medicaid patients. Then a model is presented and theoretical implications are developed. The final section translates these results back into a public policy context, indicating how changes in reimbursement methods and other regulations may have caused a dramatic shift in the profitability of nursing home investment; the implications of this shift for investment are suggested.

Nursing home growth, ownership, and reimbursement: Trends and controversies

Nursing home capacity and ownership shifts

After a period of explosive growth sparked by Medicare and Medicaid, expansion of the capacity of the nursing home industry has slowed considerably. The most comparable and recent statistics show this slowdown (Table 1), which appears to have intensified in more recent years, for which comparable data are not yet available. Direct limits on expansion of capacity, imposed by certificate-of-need programs, may have been responsible for some of this deceleration (Scanlon and Feder, 1980). Certificate-of-need constraints were imposed because of State concerns that the industry would grow boundlessly and would "create its own demand," soaking up Medicaid dollars without limit. However, some observers (Scanlon and Feder, 1980) as well as industry representatives cite the inadequacy of return as a potentially more important cause of declining growth: Investment in capacity to provide nursing home care is simply not as worthwhile as it was in the late 1960's and early 1970's. In part, declining growth has resulted from the policies of Medicaid reimbursement authorities, who, in seeking to control public expenditures, have limited the opportunities for profitable service to Medicaid patients.

In addition, although reliable detailed statistics on ownership are not readily available, the distribution of ownership of nursing home capacity may be shifting. While available national figures show nonprofit capacity holding steady at 30 percent of capacity over the early 1970's, more recent data from specific States show that any new facilities and new beds are somewhat more likely to be under proprietary ownership (Bishop and Stassen, 1982). And within the for-profit sector, ownership by nursing home chains may be increasing.

Both slackening growth of nursing home capacity and changing distribution of ownership are believed to

have implications for the availability of care for Medicaid patients. Scanlon and Feder (1980) argue that excess demand is pervasive in the Medicaid sector of the nursing home market, noting continual and widespread shortage of capacity to care for patients in need of nursing home services. The number of hospitalized Medicaid patients awaiting nursing home placement appears to be growing, draining Medicaid budgets and causing hardship for the inappropriately placed patients (Gruenberg and Willemain, 1980; Scanlon and Feder, 1981). The effect of ownership distribution changes is not so clear, but at least some observers feel strongly that nonprofit organizations provide more conscientious, higher quality care, and that owner-operators are more effectively involved in care provision than are corporate chains.[1]

Reimbursement methods

Nursing home reimbursement has been a difficult policy issue ever since public agencies began purchasing a significant portion of nursing home care from private vendors.[2] When the Medicaid program began in 1966, some States paid flat per diem rates for nursing home care, while others adopted reimbursement methods similar to Medicare, paying providers their average allowable cost per patient day. Encouraged by a *Federal statute* requiring "reasonable cost-related" reimbursement methods for Medicaid payors (Public Law 92-603, sec. 249, enacted in 1972), more States developed methods that paid allowable costs by category. As controlling long-term care expenditures became more important, some State programs set rules for determining allowable cost in a way that limited public expense. This meant that the revenue that could be gained through providing care to Medicaid patients was increasingly constrained. These constraints often took the form of ceilings on the reimbursement of operating costs. Although this had no effect on new revenues as long as owners reduced their costs concomitantly, State care standards limited owners' flexibility to decrease input costs. In addition, some owners were unwilling to lower inputs per patient day because of the preferences for high-input care of their private pay patients or their nonprofit boards. Limits on other cost categories were inspired by reimbursement "scandals," when the public and legislators felt that nursing home owners were making excess profits or were profiting from nursing home investments through underhanded schemes. For example, ceilings were imposed on the interest rates that would be permitted as part of allowable costs, to prevent certain owners from borrowing from related enterprises at excessive but fully reimbursed rates of interest.

Table 1
Expansion of nursing home capacity

Year	Number of nursing and personal care beds	Annual rate of change
Master facility inventory data [1]		Percent
1967	836,554	—
1969	943,876	6.2
1971	1,201,598	12.8
1973	1,327,704	5.1
1976	1,414,865	2.1
National Nursing Home Survey [2]		
1963	575,000	—
1969	881,000	9.5
1973-74	1,174,800	5.6
1977	1,402,400	4.5

[1]Based on data as reported in Vogel (1981).
[2]National Center for Health Statistics, years as indicated.

[1]See for example Shulman and Galanter (1976), Green and Monahan (1981), and Rango (1982). Vladeck (1980) reviews this controversy, and both Grimaldi (1982) and Buchanan (1981) offer arguments supporting the effectiveness and efficiency of proprietary providers.
[2]Dunlop (1979) reviews public payment for nursing home care, beginning in 1935.

The public and their nursing home policymakers in legislatures and public agencies also came to believe that individual and corporate owners would be more involved in actually providing good nursing home service if they held significant equity in their nursing homes; this further encouraged interest rate limits—designed to restrain the use of high-interest second mortgages—and led to direct limits on allowable borrowing. Under many reimbursement systems, profits are paid to proprietary nursing home enterprises in the form of a percentage return on net equity as computed from each nursing home's balance sheet. It is believed that this encourages owners to hold equity and also provides fair compensation for the use of capital. In fact, other methods of returning profits to owners, like flat fees per patient day or fixed percentages of operating costs, were judged to violate the "reasonable cost-related" criterion of Public Law 92-603 (sec. 249) by the Federal overseers of the State methods.

Reimbursement of depreciation expense also became a scandalous issue when it was discovered that certain owners were selling facilities to each other at inflated prices, increasing the basis for reimbursement of depreciation with each sale. As with the excess borrowing problem, Medicaid programs hurried to fill this loophole with new regulations. These regulations required owners to own facilities for certain lengths of time before resale or limited the amount of allowable total capital cost that could be depreciated per bed. One State rate system (Massachusetts) even prohibited any "step-up in basis" upon resale for reimbursement purposes, so that a new owner could receive no higher per diem payment in recognition of depreciation than the former owner, no matter what the sale price of the facility. These limits reduced achievable net revenue, and, in the case of the most stringent regulations on resale, increased the illiquidity and riskiness of nursing home investments by virtually destroying the resale market for facilities.

Some reimbursement scandals also carried overtones of concern about the other activities of corporate owners of nursing homes and about what was done with the cash flow derived from serving Medicaid patients.[3] For some regulators and for the public at large, this has led to a preference for owner-operators over chains, for equity-holding owners over borrowers, and for nonprofit enterprises over proprietary owners. The validity of these preferences will not be considered here. But the theoretical model developed below will attempt to dissect the implications of rate-setting regulations for these ownership preferences.

Nursing home returns

Today, shortfalls in the nursing home capacity available to serve Medicaid patients are not being filled by investment in new capacity. This is in sharp

contrast to the situation in the late 1960's and early 1970's, when nursing home capacity grew at very rapid rates. The expected returns available to investors considering investment in new nursing home capacity were sufficient to attract new investment 15 years ago, but are apparently not sufficient now. What accounts for this change? To answer this question, it is necessary to delineate the sources of nursing home investment returns, thus revealing how various potential investors can expect to reap benefits from a nursing home investment. It is also of interest to consider the attractiveness of a nursing home to different investor classes, from nonprofit enterprises and individual owner-operators to corporate chains and high-tax-bracket investors participating through real estate trusts. Differential compensation of nursing home owners has implications for the distribution of nursing home ownership. The presentation of sources of nursing home returns can also be used to consider two questions: (1) Why do owners hold so little equity in their nursing homes? (2) How can State Medicaid reimbursement systems be adjusted to elicit desired capacity investment for Medicaid patients at minimum cost?

Modeling the nursing home investment decision

To analyze profitability of investment in nursing home capacity to serve Medicaid patients, the returns to owners of nursing home capacity under typical reimbursement methods must be disaggregated. There are three sources of return to nursing home investors serving public patients:
- After-tax operating returns, defined as reimbursement revenues less cash expenses, including interest, after application of Federal and State tax rates.
- Tax savings due to depreciation.
- After-tax capital gains.

The allocation of total returns between operating returns and tax deductions affects who is most interested in purchasing an asset. To an investor whose marginal tax bracket (including Federal and State taxes) is 50 percent or greater, a dollar of deduction is worth as much or more than a dollar of revenue. For tax-exempt investors, such as pension funds and some insurance companies, a dollar of revenue is worth a full dollar, but tax deductions are worthless.

In a fully competitive capital market, with numerous investors having access to all investment opportunities, each potential investment must pass a net present value test: In order for the investment to be undertaken, the projected after-tax return streams must, at least for some investors, exceed the initial capital cost, when discounted at an appropriate required rate of return. Holding risk constant, required rates of return may vary among investors because of differences in investors' marginal tax rates; the relationship between required rates of return and marginal tax rates is discussed below. In effect, each investor uses the rate of return dictated by his or her

[3]A mid-'70s exposé (Mendelson, 1974) decries involvement by certain owners in nightclubs, handguns, and movie finance. See also Vladeck (1980).

own tax situation to test whether a nursing home investment is worthwhile. Since, under current tax law, an investment is seldom equally attractive to all investors on an after-tax basis, investment in nursing homes may be more attractive to some groups of potential investors than to others.

A competitive capital market also implies that all opportunities that pass the present value test for some investor clientele will be undertaken. This means that to avoid overcompensating investors, a public agency paying for nursing home care should set reimbursement and other regulatory policies to make the investment (including any tax shields or financing benefits) minimally profitable to some clientele. In addition, a public agency should set reimbursement minimally sufficient to meet the agency's demand for new capacity to serve its beneficiaries; in setting reimbursement policy, the agency directly affects the attractiveness of nursing home ownership to various groups of investors and, in effect, selects the investor type(s) that will be most likely to take advantage of the investment opportunities.

When considering an investment, potential investors simultaneously consider financing decisions that would maximize returns. In many cases, as will be demonstrated below, returns can be increased by selecting the optimal proportions for debt and equity capital and for owned and leased capital. Policymakers seeking the minimum public payment necessary to elicit desired investment should take these return-increasing decisions into account. In the nursing home case, leverage and lease-back arrangements, by increasing tax advantages, can often lower the return that must be paid directly by the public program to support desired investment.[4]

The present value test to be applied to nursing home investments may be specified as follows:
Accept if:

$$PV \text{ (after-tax net revenue from public patients less operating and interest expense)} + PV \text{ (tax deductions for depreciation)} \quad (1)$$

$$+ PV \text{(after-tax capital gains)} - PV \text{ (capital invested)} \geq 0$$

where PV stands for present value.

This means that the acceptability of the return stream of a potential nursing home investment to a particular investor depends on the net return from operations, dependent in turn on public reimbursement rate and on operating and interest costs; on the expected stream of Federal and State tax savings for depreciation; on expected after-tax capital gains; on

the amount of the investment itself, which must be foregone to purchase return stream; and finally, and most important, on the discount rate appropriate to the particular investor in question. The discount rate reflects the investor's expected return to alternative uses of funds calculated on an after-tax basis. Since this paper focuses on the returns necessary to attract private capital to serve Medicaid patients, it is assumed that the nursing homes studied will serve only Medicaid patients. This is a realistic simplification since capacity available to private or Medicaid patients must depend on the returns expected from each market segment.[5]

The net present value rule can be simplified using the Adjusted Present Value method (APV) developed by Myers (1974) and extended by Lessard (1979) and others. The method provides the means to value investments with complex tax consequences and capital structures in a competitive capital market. It has previously been applied to the evaluation of lease instruments and international project financing. In this paper, a variant of the APV is used, in which each component of the return stream is converted into an equivalent perpetuity or flow equivalent. The perpetuity formulation allows the return components to be analyzed in terms of reimbursement flows, tax flows, interest flows, and so on, which can be easily related to a market rate of return per unit of capital employed. Assuming investor tax brackets remain constant from year to year, the perpetuity formulation can be used to estimate minimum sufficient reimbursement.

The APV method permits total returns to be disaggregated and the components separately analyzed. It begins with the first term in eq. (1), the value of after-tax returns on public patient revenues. The flows associated with this term are the dollars received from Medicaid reimbursement, less cash expenses. Medicaid rates are paid per day of care provided. They may be computed using past (for retrospective rates) or projected (for prospective rates) average allowable costs per day of care. For this analysis, the distinction between prospective and retrospective rates is not important, but per diem flows must be expressed in returns per dollar of capital expense. This is usually a straightforward conversion, especially if the utilization of capital (beds) by Medicaid patients remains near a standard or projected level.[6]

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[4]This analysis focuses on debt finance. Grimaldi (1982) comments on the attractiveness of leaseback arrangements under certain reimbursement systems.

[5]The simplification is less realistic insofar as economies of scale allow public patients to be served as marginal patients in a segmented market (Scanlon, 1980); but economies of scale have not been found to be very important in this industry (Bishop, 1980).

[6]New Medicaid beds are likely to be filled given widespread excess demand for care. In addition under average cost reimbursement systems, if occupancy rates are low, allowable costs are simply spread over fewer days of care, raising the rate without affecting net return per dollar of investment.

The net operating cash flow, reimbursement net of operating cash expenses, per unit of capital, may be expressed as follows:

$$y = (\hat{p}c - {}_{\wedge}pc) + (\hat{i} - i)\, \alpha + \hat{d} + q\,(1 - \alpha),$$
$$\text{when } \hat{i} < i$$
$$= (\hat{p}c - pc) + \hat{d} + q\,(1 - \alpha), \text{ when } \hat{i} \geq i \quad (2)$$

where $\hat{p}c$ = reimbursed patient care cost per dollar of capital;

pc = patient care expense per dollar of capital $(\hat{p}c < pc)$;

$\hat{i}$ = interest payments per dollar of debt;

i = reimbursed interest rate ceiling;

α = proportion of investment financed by debt;

q = rate of return on equity paid by the Medicaid program;

$\hat{d}$ = reimbursed depreciation per dollar of capital.

With the above components understood to be subsumed in y, the present value rule can be restated as follows: The flows from the hypothetical perpetuities derived from operating returns, tax savings from depreciation, and expected capital gains must equal or exceed the investor's return requirement times his/her equity as a share of total invested capital. Thus, the net present value test for this investment becomes:

$$y(1 - x - s(x)) + d(x + s(x))$$
$$+ g(1 - x_{cg} - s_{cg}(x)) - (1 - \alpha)c(x) \geq 0 \quad (3)$$

where

y = Medicaid reimbursement net of operating expenditures (see eq. [2]);

$x, s(x)$ = respectively, the marginal Federal and State tax rates applicable to an individual's investment income or to a corporation or financial institution's investment income. Under the 1981 Tax Act, the variable x ranges from 0 for tax-exempt institutions to .5 for some individuals. As a function of the Federal rate, State tax rates, $s(x)$, are zero in States with no income tax, constant in States with a nonprogressive income tax, and increasing in x in States with a progressive income tax.

d = annual depreciation deductions (expressed as a flow equivalent, per unit initial capital);

g = the anticipated rate of property appreciation;

$x_{cg}, s_{cg}(x)$ = effective capital gains tax rates for State and Federal levels, respectively;

$c(x)$ = the investor's after-tax required rate of return as a function of his/her marginal tax bracket.

Some of the variables in this restatement of the present value rule are policy variables subject to State control. In particular, this is true of the return from reimbursement, y. Others, like the proportion of capital supplied by equity $(1 - \alpha)$, have been of concern to policymakers.

In the following discussion, these subjects are considered: First, how the required rate of return differs for investors in different tax brackets, varying the attractiveness of nursing home investment across potential investors; second, how the choice of capital structure (debt level) is affected by reimbursement policy. Then the nursing home's probable investor clientele is examined using the following argument: If reimbursement is set to make the investment minimally attractive to investors of some given tax bracket, investors in higher tax brackets will derive even greater value from the investment. Investors in higher brackets will, therefore, have incentives to bid the nursing home opportunities away from lower-bracket investors.

Rates of return and capital structures for investors

In general, the required rate of return, $c(x)$, to be inserted in the present value computation, eq. (2), for each investor, falls over some range as the investor's marginal tax rate x increases, subsequently, $c(x)$ may flatten out and even increase as x increases further. The dependence of required rates of return on marginal tax rates is best illustrated by considering investors' choices between taxable and tax free securities, for example, the choice between corporate (or U.S. Government) and municipal bonds.[7] Let the current yields on taxable securities be r_c and on tax free securities r_m; assume that tax exemption is valuable at the margin, hence $r_c > r_m$. For investors in low tax brackets (including the zero bracket), the after-tax return on taxable securities, expressed as $(1 - x - s(x))\, r_c$, will exceed the return on tax-exempt securities, r_m. The marginal cost of capital, $c(x)$, to low-bracket investors is the after-tax yield on their best investment opportunity, that is, $(1 - x - s(x))r_c$.

However, when the investors' marginal tax rate equals or exceeds a switchover rate x^*, tax exempt securities yield a higher return than taxable securities and their return, r_m, becomes the investors' relevant cost of capital. Finally, if the market contains tax-sheltered assets for very high tax-bracket investors, their own rate of tax savings from tax-sheltered investments becomes the test criterion for alternative investment opportunities. Thus, given three tax categories of assets, the after-tax required rate of return as a function of tax bracket is:

$$c(x) = \begin{cases} (1 - x - s(x))r_c & 0 \leq x \leq x^* \quad (4) \\ r_m & x^* \leq x \leq x^{**} \\ (x + s(x))r_{ts} & x^{**} \leq x \end{cases}$$

where r_{ts} is the marginal rate of return on tax-sheltered investments and x^{**} is the minimum bracket at which such investments are attractive.[8]

[7]The analysis here essentially follows Miller (1977) in that it postulates two types of assets, one taxable and one tax-free, and abstracts from the issue of risk. (See also Black, 1971; Black, 1973; Black and Scholes, 1974; Long, 1977; Miller and Scholes, 1978; and Constantinides, 1982.)

[8]In fact, the required rates of return must be adjusted for the riskiness of the nursing home investment. Nevertheless, the point that required rate of return decreases with the bracket remains valid.

In addition to being influenced by the investors' required rate of return, $c(x)$, the present value test, eq. (3), is affected by the investment's capital structure, represented by the amount of borrowing per dollar of investment, α. The capital structure decision normally lies with the equityholders, subject to constraints by lenders or by State and Federal regulators. It can be shown that investors will find it worthwhile to push debt finance to its upper limit whenever the return on equity paid by the reimbursement system is less than the market's return on taxable securities of equivalent risk, r_c. However, if return on equity, q, is greater than r_c, some investor categories will be overcompensated.[9]

This result presents a dilemma for State reimbursement authorities who would prefer a nursing home industry with significant owners' equity: It may be impossible, within the confines of the reimbursement formula, to achieve this goal without additional (inefficient) constraints.

Attracting nursing home investors

It is now possible to consider, for different investor groups, the rates of reimbursement that will make investment in nursing homes attractive. The components of reimbursement returns were delineated in eq. (2) earlier.

$$y = (\hat{p}c - pc) + (\hat{i} - i)\alpha + \hat{d} + q(1 - \alpha) \quad (2)$$

Consider first direct patient care expenses pc, which include nursing salaries, laundry and food costs, and the like. If the rate system pays the average direct patient care cost for each patient day provided, expenses will equal reimbursements with no net revenue gain or loss on operating expenses. However, if ceilings are imposed on allowable operating expenses, the net return per dollar of capital from this component of reimbursement can be negative.

Rate-setting formulas often reimburse interest expenses in full, so that $\hat{i} = i$. Under such circumstances, reimbursement and cash expense cancel out, with no net revenue: total interest expense per dollar of capital equals $\alpha_i i$, and reimbursement equals the same amount. When a ceiling $\hat{i}$ is placed on the reimbursable interest rate, as a number of States have done,[10] potential investors whose interest cost exceeds the ceiling must expect a cash loss equal to the difference between their actual effective interest rate times their borrowing per dollar of capital: $\alpha(\hat{i} - i)$. (This loss is mitigated by its treatment as an offset against taxable income; thus the after-tax impact differs for investors in different brackets.)

[9]Additional information on this topic is available from the authors.

[10]For example, Pennsylvania now limits allowable interest rates to three percentage points above the prime rate at the time the funds are borrowed. Grimaldi (1982) American Health Care Association (1978).

Typically, Medicaid rates include an annual repayment of a fixed proportion of the nursing home's recorded capital cost in recognition of depreciation.[11] Unlike patient care and interest expenses, which are at best a wash for investors, the depreciation component of the Medicaid rate, d, increases taxable net operating revenue without a compensating cash outflow. An entirely separate source of returns, recognized in another term of the present value equation, is the stream of depreciation tax deductions, $d(x + s(x))$.

The rate of return on equity, q, is the means by which many reimbursement systems attempt to pay a profit to proprietary owners. For example, a number of States follow the Medicare practice of paying a return on equity capital equal to 1.5 times the average interest on Federal Hospital Insurance Trust Fund certificates.[12] Reimbursement attributable to this source is limited by the amount of equity per dollar of capital, $1 - \alpha$.

The overall rate of return provided through the reimbursement system per dollar of equity invested can be designated as

$$\frac{y}{1 - \alpha^*}$$

where α^* is the optimum permissible amount of debt finance chosen by owners.[13] In general, because of the other return components associated with the investment, this return per dollar of equity can be below the market rate, r_c, on taxable investments of equivalent risk. To see this for low-bracket investors $(x \leq x^*)$, we apply the present value rule, (eq. 3), substituting appropriately for $c(x)$:

$$y(1 - x - s(x)) + d(x + s(x)) + g(1 - x_{cg} - s_{cg}(x)) - (1 - \alpha^*)(1 - x - s(x))r_c \geq 0. \quad (5)$$

This is equivalent to

$$\frac{y}{1 - \alpha^*} + \frac{d(x + s(x)) + g(1 - x_{cg} - s_{cg}(x))}{(1 - \alpha^*)(1 - x - s(x))} \geq r_c \cdot \quad (6)$$

The first term $\dfrac{y}{1 + \alpha^*}$ represents the net flow of reimbursement less cash expenses per dollar of equity, including return on equity, depreciation payments, and any returns on operations. The equation indicates that this first term can be less than r_c whenever the second term of the equation is greater than zero, that is, whenever any capital gains or depreciation tax sav-

[11]The Medicaid rates generally allow straight-line depreciation over a 30-year to 40-year horizon. For example, in New Jersey and Massachusetts, with a 40-year useful life, 2.5 percent of the initial capital cost is repaid through the reimbursement system each year; Connecticut and West Virginia use a 30-years life for nursing home facilities (Grimaldi, 1982).

[12]Some State programs do not pay a formal return on equity, but rather compensate owners for the use of capital by allowing them to retain a portion of the difference between approved and actual costs, under prospective reimbursement, for example.

[13]This is less than 100 percent even when more borrowing would be worthwhile because of constraints imposed by lenders and by Internal Revenue Service regulations. In addition, as noted above, some States have imposed limits on the amount of debt permitted.

ings are expected. If a State program wishes to set reimbursement to make investments worthwhile for certain low-bracket investors, the total return from reimbursement per dollar of equity, $\dfrac{y}{1 - a^*}$, need not be larger than r_c.

The present value-test, eqs. (5) or (6), can also be used to evaluate the impact of investor-tax bracket on the relative value of a nursing home investment. If a nursing home investment is just worthwhile to a low-bracket investor with tax rate $\hat{x}$ ($\hat{x} < x^*$), then it will be more worthwhile to another low-bracket investor with a higher marginal tax rate $\hat{\hat{x}}$ ($\hat{x} < \hat{\hat{x}} < x^*$).[14] Furthermore, in many real cases, for investors in the high-bracket range, the present value of the investment will continue to increase with bracket. This implies that high-bracket investors at the margin are likely to be willing to pay more than lower-bracket investors for the same nursing home investment opportunity. If the supply of investment opportunities is restricted (by certificate-of-need regulations, for example), then a natural "investor clientele" for nursing homes lies in the higher tax brackets.

It is not surprising, in light of these results, that individual owner-operators of nursing homes have found any profitable opportunities for expansion of nursing home capacity snapped up by more wealthy corporate and private investors. In like manner, a nonprofit organization will find that if a potential investment is worthwhile on a present value net flow equivalent basis (presumably not the only criterion used by nonprofit organizations, but a criterion examined by their potential lenders), then it would be even more worthwhile to for-profit owners. Therefore, if State agencies set reimbursement high enough to make nursing home investments worthwhile on this basis to nonprofit enterprises, investments will be all the more attractive to for-profit investors, who, unless otherwise controlled, will bid limited opportunities away.

Implications of the analysis

Nursing home investment, returns, and trends

This dissection of the sources of return available to nursing home owners can be used to organize insights into past and current developments in nursing home investment.* First, it demonstrates how some Medicaid reimbursement systems may have provided substantial overcompensation to investors in the early days of the Medicaid program, causing rapid flows of capital into this sector. The Medicaid agencies that reimbursed computed depreciation along with patient care and interest expenses found that their payments to owners combined with tax advantages from depreciation and capital gains made nursing homes a very attractive investment indeed. It is no surprise that the new investors were not the small owner-operators who had built nursing home capacity and provided care since the mid-1930's; nor were the new owners part of charitable enterprises that had also been active in providing

care in the past. Instead, the new owners were for-profit corporations and partnerships that could benefit from the cash flow, tax savings, and capital gains on real estate transactions.[15] With the availability of potential nursing home investments not yet limited by certificate-of-need, nursing home capacity grew rapidly in what appeared to be a low-risk situation with high public subsidy. Cost of care, interest, and depreciation for public patients were to be reimbursed by State Medicaid programs, while the Federal tax system further supported the investment by its favorable treatment of depreciation and capital gains.

Subsequently, during the seventies, legislative inquiries and investigative journalists [16] exposed the trends in profit and ownership of nursing homes as a scandal. Many implied that owners should not be in the business of profiting from capital gains on real estate and that cash flow derived from serving the elderly should not be diverted to other uses. Outside investigators also observed that knowledgeable owners held little or no equity in their nursing homes. Instead, public programs might pay interest expenses on second and third mortgages, and this also was seen as scandalous.

The irony demonstrated by the model of nursing home returns presented earlier is that if Medicaid rates of payment for nursing home care are such that low-tax bracket or nonprofit owners can serve public patients without loss, then the nursing homes are all the more attractive investments to higher-bracket investors who can better make use of the accompanying tax advantages. In addition, if the rate of return on equity is set high enough so that holding equity in nursing homes is worthwhile, owners will be substantially overcompensated, in the sense that the Medicaid agency could have attracted an equal amount of private capital into the nursing home sector at much lower public cost.

Reimbursement systems and accompanying regulations across the country were adjusted to respond to reimbursement and ownership scandals. First, certificate-of-need programs attempted to restrict directly the growth of nursing home capacity. Second, a number of ceilings on reimbursement and limits on opportunities for tax savings were imposed. Although it is not possible to separate the effects of these two simultaneous regulatory responses, it is likely that the recent slowdown in growth has been at least as much due to reductions in returns as to the impact of certificate-of-need processes. Investments that once would have been highly lucrative to many types of investors may now be barely worthwhile to those in high tax brackets and certainly not worthwhile to the

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[14]Additional information on this topic is available from the author.

[15]In some instances, investments are structured so that, while a corporation operates the nursing home, a real estate partnership actually owns the property. In this way, tax depreciation deductions can flow to the individual accounts of very high-bracket investors. The benefit of this form of ownership has been lessened by the lowering of maximum brackets on individual income under the 1981 Tax Act.

[16]For example, Moreland Act Commission (1976); U.S. Senate (1974); Moss and Halamandaris (1977); Mendelson (1974); AFL-CIO (1977); Vladeck (1980).

smaller owner-operators and nonprofit enterprises that some State planners appear to prefer over corporate chains.

The most common regulatory responses to abuses and scandals in the industry have been, first, to lower ceilings on reimbursable patient care costs, pc, while concurrently tightening standards on nursing and other inputs related to the quality of care. These actions have tended to increase expenses required for service to public patients. Second, interest rate ceilings, i, have been tightened while actual interest rates have risen. Third, some State Medicaid programs have restricted the amount of borrowing, a, they will support, as well as allowable depreciation per bed, d.[17] Fourth, restrictions on the resale of nursing homes as well as the softening of the resale market due to the fall in overall expected profits have reduced expectations of capital gains. Finally, rates of return on equity, q, have been pegged to other interest rates in the economy, but they respond with a lag, and thus have not kept pace with rising rates in the bond market, the relevant rate for the nonindexed flows. Overall, it appears that many factors have worked to reduce the expected profitability of investment in nursing home capacity for Medicaid patients. Most of these measures were justifiable responses to real abuses, but they may also have had the unforeseen side effect of making ownership of homes attractive only to certain high-bracket individual and corporate investors.

Meeting public policy goals through reimbursment

This analysis highlights once more the difficulties of using reimbursement as a means of meeting the multiple public policy goals for the nursing home industry, including access, quality, and cost containment.[18] The specific focus has been on policy goals concerning the amount, cost, and ownership of nursing home capital. An important lesson of this dissection of nursing home returns is that difficulties in achieving policy goals may be exacerbated by the methods currently used by many Medicaid programs to compensate owners for capital costs. Therefore, new approaches to capital compensation should be considered.

Cost control versus access

To begin with, the goal of public expenditure control competes with the goal of access to care for Medicaid patients. It appears that during the 1960's and early 1970's, reimbursement rates combined with tax advantages to produce high expected yields on nursing home investment so that many new nursing home beds were added. Not discussed here is the important secondary effect question: Did this addi-

tional nursing home capacity induce "unneccessary" Medicaid utilization and thus lead to excess public expenditures? Focusing instead on the return to investment itself, paid through the reimbursement system and the Federal tax system, it does appear that investors received (or expected to receive, had reimbursement methods remained constant) higher returns than were necessary to achieve a desirable supply of capacity to serve Medicaid patients. The direct reimbursement of computed depreciation and actual interest expense, both also tax deductible, made the nursing home an attractive source of after-tax cash flow, especially in the early years of a particular investment (Baldwin, 1980). It would appear that the nursing home sector could have attracted sufficient private capital while offering somewhat lower returns to potential investors: In effect, the State reimbursement systems were overcompensating investors, in part because they did not take into account the subsidy to nursing home investment available through the Federal tax system. As reimbursement loopholes were closed during the 1970's, the basic structure of reimbursement systems remained the same, so that ceilings were placed on interest rates, borrowing, and reimbursable depreciation. In addition restrictions were imposed on resales that would increase depreciation. This meant that more of a new facility's return had to come from tax advantages if the investment was to be viable. This may be seen as a positive step for control of Medicaid costs; however, it appears that the pendulum has swung too far, so that capacity to serve Medicaid patients is not expanding to meet needs.

An alternative to current reimbursement methods is to pay nursing homes a prospective rate that will yield profits to efficient, effective providers serving Medicaid patients, but that is not based directly on the actual capital structure, capital cost, or age of a particular facility. McCaffree and others (1978) and Grimaldi (1981) have suggested payment of a rate of return on total assets, and payment of fair rental value has also been proposed (Moreland Act Commission, 1976). While potentially disruptive in the short run, such approaches should turn attention away from real estate strategies and financial transactions and toward the provision of patient care as the means to achieve returns. A more radical alternative is to separate completely the ownership and operation of nursing homes, so that facilities are publicly owned but operated under private franchises. In this way, supply of capacity could be directly determined and capital costs would be paid directly by the public agency that owned the facilities (Shulman and Galanter, 1976). This would encourage access to care for Medicaid patients while controlling expenditures on capital.

Nonprofit owners versus cost controls

In some instances, public regulatory agencies prefer nonprofit owners over for-profit owners, and, if ownership is to be proprietary, owner-operators over absentee ownership by corporate chains or real estate trusts. This anaylsis suggests that, because of the

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[17]For example, in 1979 Indiana limited allowable interest reimbursement on loans to 75 percent of the facility's original value. Massachusetts actually penalized owners whose liabilities exceeded their assets by applying the rate of return on equity to this negative amount and deducting it from the Medicaid reimbursement rate.
[18]For a general exposition of this dilemma, Bishop, Plough, and Willemain, 1980.

higher Federal tax deductions of high-tax bracket investors, current reimbursement methods may work in opposition to these preferences. At any reimbursement level under the current system, higher-bracket investors are expected to bid investment opportunities away from low-bracket investors when opportunities are limited. In addition, if Medicaid programs are to have an adequate supply of capacity at minimum cost to Medicaid, the Federal tax incentives to higher-bracket investors are most important. It thus appears that a preference for low-bracket owner-operators can be realized only by directly subsidizing these owners or through direct regulation of ownership. Both strategies would have implicit costs since low-bracket investors must be paid more through the reimbursement system if their expected return stream from nursing home investment is to exceed their after-tax returns on alternatives.

The effect of the reimbursement system on potential nonprofit investors is not so clear since they, presumably, have goals beyond the maximization of the present value of returns. However, many current reimbursement systems actually pay less to nonprofit investors than to equivalent for-profit firms, because nonprofit investors do not receive a return on equity. It is ironic that a typical nonprofit organization would have more cash for philanthropic purposes if it sold its nursing home to a for-profit investor who could make use of the depreciation tax advantage and return on owner equity, while leasing it back to provide care.

Because preference for zero-tax-bracket nonprofit organizations or low-bracket investors has an implicit cost to public payors [19], it is especially important that the relationship between owner-type and quality of care be further examined. The conventional wisdom that nonprofit is better and small is beautiful may not be borne out, and, in fact, existing studies have not validated these attitudes. In order to assure better care, it may be most effective (1) to allow the market for nursing home investment opportunities to operate without hindrance, and (2) to work more actively through reimbursement incentives and other ways to assure good quality service to Medicaid patients rather than relying on a particular type of nursing home ownership.

Owner equity versus cost control

It has been shown that owners will tend to hold as little equity as possible unless the return on equity, adjusted for risk, exceeds the comparable risk-adjusted market rate; if the return on equity is this high, the reimbursement system is paying more for the use of nursing home capacity than is necessary to attract private capital to serve Medicaid patients. Again, a tradeoff appears between public costs and the preferences of public regulatory agencies for significant equity holding by nursing home owners. A

significant equity stake is believed to foster owners' involvement with patient care and stability of ownership. Perhaps the prescription to accompany this finding is that the link between equity holding and patient care must be examined more closely: Are there ways, other than through regulation of borrowing, to encourage patient care quality and owner stability? Once more, it is possible that complete divorce of ownership entities from nursing home operating enterprises should be recommended. Under such circumstances, the owners of nursing home bricks and mortar would be able to keep public costs down by financing their assets in the most efficient manner, without actual or imagined effects on patient care; it might then be possible to foster competition for franchises to operate nursing homes that would focus on ability to provide effective and efficient service rather than on ability to profit from real estate and financial transactions.

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[19]In the sense that private capital can be attracted at lower public cost if public programs are willing to take advantage of the Federal tax incentives offered to high-bracket investors, with the potential for lower after-tax required rates of return.

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