Cite this article as:
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Medicare payment and hospital capital: the evolution of policy
Health Affairs 3, no.3 (1984):49-74
doi: 10.1377/hlthaff.3.3.49
MEDICARE PAYMENT AND HOSPITAL CAPITAL: 
THE EVOLUTION OF POLICY

by Brian M. Kinkead

Prologue: The nation's hospital industry, a vast enterprise that consumes more than 40 percent of the total resources that are devoted to personal health services, will require a massive infusion of new capital in the 1980s for construction, repairs, and major equipment installations. Future policy directions on any issue are usually significantly influenced by incremental decisions made in the past. In this essay, Brian Kinkead sets out the evolution of hospital capital policy and the federal government's role in shaping it. Kinkead is well qualified for the assignment. He holds a doctorate in science from The Johns Hopkins University School of Public Health. At Hopkins, Kinkead worked at its Center for Hospital Finance and Management, an academic unit that has rapidly become a major repository for information on capital policy. Kinkead and Donald R. Cohodes, executive director for policy of the national Blue Cross and Blue Shield Association, are the coauthors of a major new book entitled, “Hospital Capital Formation in the 1980s,” which has been published by The Johns Hopkins University Press. Kinkead recently departed the academic world for Wall Street where he has taken a position as a hospital industry analyst for an investor service. Such services, which rate the creditworthiness of hospitals that seek to issue tax-exempt bonds, have rarely recruited analysts from academe or government. Kinkead’s arrival at the investor service reflects the concern of the rating service business in the new uncertainties that federal policies are creating in hospital finance. In a cost-based reimbursement environment, hospitals had little trouble paying the interest and principal of bonds which they issue. Under Medicare’s new prospective payment scheme, hospitals will be placed at economic risk for the behavior of their medical staffs. This new equation injects a degree of uncertainty in hospital finance that is having an unsettling effect on Wall Street.
At a time when Medicare capital payment policies are being examined for ways in which they can be revised and incorporated into Medicare's prospective payment system, it is illuminating to look at the history of existing capital payment policies. This article provides a historical perspective for the effort underway in Congress and the Department of Health and Human Services to develop a capital payment policy for Medicare consistent with the principles embodied in the prospective payment system. Opening with an analysis of the evolution of Medicare capital policy in the 1960s, the article then continues with an examination of how the ability of hospitals to fund capital investments changed with the inauguration of the Medicare program in July 1966 and the emergence of tax-exempt financing in the early 1970s. I conclude by assessing the implications of recent trends in hospital capital formation for future capital requirements and by discussing the significance of the movement toward multihospital systems.

The Evolution Of Medicare Capital Payment Policy: 1965-1967

What emerges from this review of Medicare capital payment is the conclusion that in the negotiations over Medicare in 1965 and 1966, capital payment became an issue of larger significance than the casual observer would expect, given the proportion of hospital expenses attributable to capital (depreciation, interest, and rent represented approximately 5.1 percent of the operating expenses of hospitals in 1965 and 1966). Of the many different elements constituting Medicare's reimbursement principles, those relating to capital costs became one of the primary focal points in the negotiations between the federal government and the hospital industry. Drawing upon the observations of participants, Herman and Anne Somers concluded that hospitals used the lack of consensus about the definition of capital costs to extract concessions from the government: "Most observers of the long reimbursement negotiations agree that the hospitals' drive to increase funds for capital formation colored and complicated every major dispute on payments. It intruded upon consideration of items, where it seemed relevant and where it did not, and proved to be the hospitals' most effective weapon in obtaining various liberalizations."

Medicare's capital payment principles consisted of essentially three elements: interest on borrowed capital, depreciation, and return on invested capital. A dearth of discussion about interest expense in the negotiations suggests that this element of capital costs elicited little or no controversy, despite the concern shown by some Blue Cross plans that interest costs were becoming substantial and that debt levels were becoming excessive. The only conditions attached to reimbursement for interest expense were that the interest rates incurred in loans be commensurate with those prevailing in the credit markets, that lenders be unrelated to borrowing...
institutions, and that loans be for a purpose related to patient care. In addition, reimbursement for interest expense would be reduced by the amount of interest earned by hospitals from their own investments (except where such investments were for the purpose of funding the replace-
ments of existing assets, such as depreciation funds).

That an allowance for depreciation would be paid to hospitals was already established policy when the Department of Health, Education and Welfare (HEW) began writing the regulations implementing Medicare. Congressional committee reports accompanying the Medicare legislation were unequivocal about this element of capital payment—depreciation was to be treated as a legitimate cost and reimbursed accordingly. However, there remained room for considerable disagreement about the assets on which this allowance would be calculated. The Bureau of Health Insurance (BHI), the office in the Social Security Administration (SSA) with the responsibility of writing the Medicare regulations, propounded the view that assets financed with Hill-Burton funds should be excluded from the base for calculating depreciation because their acquisition did not involve expenditures by recipient hospitals. The BHI also argued that to calculate depreciation from anything other than the historical costs of assets or to allocate depreciation payments by any other method than the straight-line formula would be inconsistent with standard business and accounting practices and therefore, out of step with congressional intent.

In contrast to the BHI, the hospital industry pressed for a depreciation allowance based on the replacement cost of assets, an amount considerably greater than historical costs due to the effects of inflation and technological progress. In addition, hospitals sought reimbursement for return on invested capital, or as the hospitals described it, “imputed interest,” that is, the interest that could have been earned on equity capital had it not been invested in durable assets.

The hospitals’ case was supported by the Health Insurance Benefits Advisory Council (HIBAC, which was established by the Medicare legislation to advise HEW on policy matters) and the SSA, and might have prevailed had budgetary constraints not compelled SSA’s chief, Robert Ball, to reject it. Instead, BHI was instructed to find a method to increase capital payments to hospitals within the existing Medicare budget. In response, BHI proposed to compute depreciation on an accelerated basis, allowing the bulk of capital costs to be recovered by hospitals in the early years of assets’ useful lives. BHI also proposed to give hospitals an allowance for depreciation on assets wholly or partially depreciated by hospitals at the time they entered the Medicare program and to pay an allowance based on operating costs to hospitals unable to report their depreciable asset base. Finally, BHI reversed its opposition to paying depreciation on assets financed with Hill-Burton funds.

Despite these concessions, the hospital industry remained dissatisfied.
Just before the SSA was to make public its proposed regulations, the American Hospital Association (AHA), emboldened by the exhortations of state hospital associations, approached HEW chiefs and demanded two more concessions. First, the AHA wanted HEW to give way on the ratio of charges to costs (RCC) and combination methods of cost apportionment and to agree to pay hospitals on the basis of average per diem costs. Second, the AHA demanded a capital allowance in recognition of the averred need for a return on capital. While resisting the AHA on the first demand, HEW compromised on the second by offering to pay hospitals a “plus factor” equal to 2 percent of allowable costs. As originally conceived by HEW, the payment made to a hospital under the “plus factor” provision could not exceed an amount equal to the average rate of interest on obligations issued by the Federal Hospital Insurance Trust Fund when applied to the hospital’s net fixed assets. Excluded from the asset base on which the ceiling was computed were assets financed by Hill-Burton funds. This formulation lends strong support to the view that the “plus factor” was conceived by policymakers as an allowance for a return on capital, despite later pronouncements to the contrary. The AHA never viewed the “plus factor” as anything other than a capital allowance as evidenced by their reference to it as a “capital improvement payment.”

Although the HEW concession to the AHA drew fire from the Senate Finance Committee, the committee itself showed little resistance to a lobbying effort by the American Nursing Home Association for an amendment providing an additional capital payment to proprietary institutions. This amendment, sponsored by Sen. Jack Miller, is the origin of the return-on-equity provision in Medicare today. Until the Miller amendment was passed, no special provision had been made for different groups of providers and Medicare had remained neutral with respect to institutional ownership. The fact that the legislation changing this policy emanated from proprietary nursing homes rather than proprietary hospitals is an interesting historical nuance given the prominence of the latter in efforts to save return on equity in the 1983 legislation establishing Medicare’s prospective payment system.

The Senate Finance Committee’s provision for a return on invested capital in proprietary institutions would have cost the government a sum of money considerably greater than envisioned had HEW not intervened while the amendment was in conference. HEW convinced Congress to lower the base for calculating the return on capital from total assets to equity capital and to limit the rate of return to 1.5 times the average rate of interest on obligations issued by the Federal Hospital Insurance Trust Fund. In addition, HEW lowered the “plus factor” for proprietary institutions from 2 percent to 1.5 percent of allowable costs, a measure taken to reduce the duplication of purpose between this provision and the return-
on-equity payment. To conciliate voluntary hospitals, who now claimed they were being paid the equivalent of one-half percent of allowable costs for return on capital, the SSA removed the ceiling on the amount Medicare would pay hospitals for the “plus factor” and permitted depreciation on assets financed with Hill-Burton funds to be included in the cost base for computing the allowance.  

According to Judith Feder and the Somerses, the hospital industry was successful in negotiations over capital payment because a consensus existed in the policy-making arena that hospitals were suffering a capital shortage. Policymakers at HEW and SSA had sympathy with this perspective, although the strongest support for this view emanated from HIBAC. In the view of HIBAC’s chairman, “the principles governing cost reimbursement should treat the future capital needs of health facilities as generously as possible.” The origin or the justification for the notion that hospitals faced a capital shortage in the 1960s is not clear. The Somerses suggest it was prompted by predictions in the popular press that hospitals would be deluged by admissions of elderly patients once Medicare started. However, the Somerses also indicate that this scenario was dismissed as unlikely by experts who carefully examined the data. According to the authors, this analysis showed that hospital construction had kept pace with hospital use, despite the upsurge in utilization that occurred in the postwar period, and that the considerable amount of excess capacity which existed in the industry in 1966 would cushion the effect of an increase in patient admissions.

The fact that HEW and SSA accepted the argument that hospitals were facing a capital shortage, in spite of evidence to the contrary, may be explained by their desire to ensure that nothing occurred which would delay or disrupt the inauguration of the Medicare program. Administrators were very concerned that hospitals might not cooperate with the Medicare program or claim that the government was driving them out of business. Therefore, HEW and SSA wanted to imbue hospitals with enthusiasm for Medicare in the hope that this would ensure their commitment to a smooth and successful launching of the new program.

The success of the hospital industry in the negotiations over capital payment policies may also be explained by the congressional intent that the Medicare program and its administrators be neutral with respect to the providers of medical care. There was concern in the legislative process leading up to the enactment of Medicare that the program would interfere with the institutional structure and process of the existing health care delivery system. Legislators made clear that the program was to operate as nothing more or less than a health insurance scheme with the sole objective of paying providers for the cost of medical services delivered to beneficiaries. Thus, while the incentives contained in proposed payment policies were recognized by Medicare policymakers, they were given little
weight in the evaluation of proposals.\textsuperscript{23}

In some important instances HEW did not concede to hospital demands. These moments of resistance may be explained by the fact that HEW was negotiating under a budgetary constraint. The amount of tax revenue funding the Medicare program had already been determined by Congress. To return to Congress to ask for additional revenue to cover a deficit in the first year of program operation would have been embarrassing for the government and for the administrators responsible for implementing Medicare.\textsuperscript{24} A second constraint on HEW was the cost-based reimbursement principle which Medicare was legislatively compelled to follow. This principle meant that Medicare could only reimburse hospitals for incurred costs and could not provide for future or expected costs.\textsuperscript{25} Therefore, while HEW administrators were sympathetic to hospitals’ projections of capital shortages and made every effort to accommodate current financial requirements, it was clear they could make no explicit provision for future capital outlays. However, by focusing on the definition of the elements constituting current capital requirements, hospitals were able to extract concessions which made future capital requirements less difficult to meet.

In later years, rising costs and a growing public concern that Medicare’s reimbursement system contained no incentives for hospital efficiency spurred legislative and administrative proposals for change. Most proposals were rejected as unworkable or politically unfeasible.\textsuperscript{26} The “plus factor” met its demise in 1969, only to reemerge in the guise of a “nursing differential.” Originally calculated as 8.5 percent of inpatient routine nursing salary costs, the differential was equivalent to one-half to three-quarters of the funds previously paid under the “plus factor” provision.\textsuperscript{27} In following years, accelerated depreciation was effectively eliminated from the payment system after charges of abuse. After 1972, reimbursement was withheld for capital expenditures which were inconsistent with state health plans. Current financing (a concession made to the AHA in 1966 in an attempt to soften its demands for a return on capital) was replaced in 1973 by periodic interim payments (PIP). In 1974, the “223 limitations” on ancillary costs were introduced.\textsuperscript{28}

### The Impact Of Medicare On Hospital Capital Formation

The Medicare and Medicaid programs were established in the midst of an upsurge in capital spending in the health care sector. Between 1960 and 1966, the magnitude of medical facility construction doubled from approximately $1 billion annually to approximately $2.1 billion annually (see Exhibit 1). This boom in capital spending in the health care sector may be attributable to a number of factors. First, the economy as a whole was undergoing a period of sustained growth. The gross national product
increased at an average annual rate of 6.9 percent in the period 1960 to 1966, while net private nonresidential fixed investment (which measures change in capital stock) increased at an average annual rate of 19.3 percent. Thus, the upsurge of health care capital spending may be partially accounted for by the very favorable economic conditions of the period.

However, the health care sector appears to have experienced a rate of growth exceeding that of the economy as a whole. As a percentage of the gross national product, health care expenditures increased from 5.3 percent in 1960 to 6.1 percent in 1966. In terms of construction activity, medical facility construction as a proportion of private, nonresidential construction increased from 0.10 in 1960 to 0.14 in 1964 (see Exhibit 2). The accelerated growth in health care capital investment after 1960 may be due to the 50-percent increase in Hill-Burton appropriations in succeeding years. The growth in hospital capital spending in this period may also be due to the increasing amount of dollars flowing to hospitals from third-party payers. Between 1960 and 1966 third-party payments for hospital care increased from $7.3 billion to $13.2 billion, an average annual increase of 10.4 percent.

In 1967 and 1968 the economy was beset by tight money and reduced growth. The prime interest rate charged by banks jumped from 4.54 percent in 1965 to 5.63 percent in 1966, the largest annual increase in the prime rate since the Depression. The increase in the cost of capital was accompanied by a decrease in net fixed investment in the private, nonresidential sector which fell from $35.4 billion in 1966 to $31.9 billion in 1967. As measured by the constant dollar value of medical facility construction put in place, capital investment in the health care sector decreased by approximately 3 percent in the same period (see Exhibit 1). The relatively small degree by which health care capital was affected by the poor condition of the economy suggests that the establishment of the Medicare/Medicaid programs may have cushioned the impact of the
### Exhibit 2
National Expenditures For Construction Of Medical Facilities

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Source: Health Care Financing Administration and U.S. Census Bureau

The increases in Hill-Burton outlays that continued throughout this period, as well as the newly formed hospital mortgage insurance program of the Federal Housing Administration also may have eased the impact of the downturn.
Contemporary surveys of hospital construction activity suggest that hospital reliance on mortgage loans substantially increased in the 1960s. Providing approximately one-quarter of construction funds in 1965, long-term borrowing appears to have accounted for over 40 percent of the construction funds of voluntary hospitals in 1968. Given the extent of this dependence on private capital, it is not surprising that the tight money conditions in 1966 and 1967 adversely affected capital spending by hospitals, though the downturn was not as large nor as long as the downturn in private nonresidential spending (see Exhibit 2).

The increasing importance of debt to hospital capital finance in this period may be due to the failure of philanthropy to keep pace with the capital requirements of the industry. The reasons why philanthropy failed to keep pace with these requirements are not fully understood. Commentators have noted that the absolute value of philanthropy increased throughout the 1960s and have suggested that it may have been the sheer size and rapidity of growth in hospital capital spending that accounts for the decline in relative values. Others have also suggested that the incorporation of local businesses into larger conglomerates weakened the link between hospitals and corporate givers. With headquarters in distant cities, businesses were less responsive to the requests of local hospitals. Some commentators have attributed the decline in the relative contribution of philanthropy to a weariness in communities. Having supported hospital construction for nearly two decades the willingness of contributors to continue to donate funds may have diminished by the mid-1960.

Finally, the establishment of the Medicare and Medicaid programs may have inadvertently contributed to a decline in philanthropy. Knowing that the federal government was paying for hospital services which previously had been subsidized with private donations, philanthropists may have seen less need for their support in hospitals.

While some hospitals may have had a sufficiently sound credit standing to substitute debt for philanthropy, it is likely that many hospitals in this period were unable to rely so extensively on long-term borrowing. Stambaugh’s 1965 survey of construction funding shows that church-related or church-operated hospitals had far more access to debt capital than other voluntary hospitals, presumably because they could offer lenders better security for their loans through other church assets or revenue. Mortgage loans accounted for 38 percent of construction funds in religious hospitals, but only 16 percent in independent voluntary hospitals. The greater availability of debt capital permitted the religious hospitals to rely relatively less on private contributions (which accounted for 32 percent of their capital funds as opposed to 43 percent of the capital funds in independent voluntary hospitals). Stambaugh’s survey shows that in independently operated voluntary hospitals, close to two-thirds of construction funds were accounted for by Hill-Burton grants and private
contributions.  

The establishment of the Medicare and Medicaid program improved the cash position of all hospitals. Federal dollars flowing to hospitals in 1967 ($6.3 billion) were nearly double those in 1966 ($3.5 billion) and accounted for nearly all of the increase in third-party payments to hospitals in that year. Third-party payments now constituted 90 percent of hospital revenue, up from 80 percent in 1960. In the five years following the establishment of the federal health insurance programs, public payments to hospitals increased at an average annual rate of 13.2 percent. The increase in third-party payments to hospitals for the care of indigent patients, which previously had been paid for with charity-care endowments, may have allowed some endowment income to be used for other purposes, including use as equity in capital projects. (Unfortunately, there is no evidence showing the extent to which this in fact happened.) More important, the increased share of revenue flowing from third-party payers added stability to hospital revenue streams. From the perspective of lending institutions this made loans to hospitals less risky than when revenue depended more heavily on individual direct payments and philanthropy. 

Besides increasing the flow of third-party payments to hospitals, there were aspects of the Medicare and Medicaid payment systems that enhanced capital formation in the hospital industry and made debt financing more accessible and more attractive to hospitals embarking on new capital projects. In the first place, Medicare and Medicaid reimbursement principles reduced the risk of capital investments becoming money losers by paying hospitals on the basis of incurred costs. Under cost-based reimbursement it is immaterial whether a new wing is lavishly or economically designed, or whether it operates at 50-percent occupancy or 90-percent occupancy; the operating and capital costs incurred by the hospital are treated as fully reimbursable costs by the cost-based payer. In a price-competitive world, capital investments within a given product line are made to lower labor costs, improve productivity, and enhance the competitive position of the firm. Cost-based reimbursement reduces the importance of these factors in capital investment decisions by assuring hospitals of revenues equated to costs. In a cost-based world an investment which reduces costs may be less valuable than an investment which increases costs. Cost-increasing investments augment revenues without directly impacting net income. They also may enable the hospital to attract or retain physicians and patients, and may improve the quality of care. Each of these outcomes enhances the prestige of the hospital.

The effect of cost-based reimbursement on capital investment decision making has been examined by analysts who have concluded that as the share of payments from Medicare, Medicaid, and other cost-based payers increases, the discernable differences in the effect of alternative capital investments on net income diminish. At higher levels of cost-based reim-
bursement all capital investments look more or less alike, regardless of the impact on service volume or operating costs. The incentive, therefore, is to select investments which enhance service quality and institutional prestige. This conclusion is supported by an analysis of the impact of cost-based reimbursement on decision-making models for capital budgeting. Dittman and Ofer have shown that regardless of whether one chooses rate-of-return analysis, payback method, or net-present-value analysis, the presence of cost-based reimbursement reduces the attractiveness of cost-saving investments. By the same means it reduces the negative consequences of cost-increasing investments, eliminating the "business risk" associated with the viability of capital projects. If the new or expanded services are underutilized, the cost of excess capacity can be loaded onto cost-based payers without penalty.

While providing no incentive for hospitals to engage in cost-saving capital investments, cost-based reimbursement does provide an incentive for capital investment per se. An investment in a depreciable asset always increases total cash flow since depreciation is a reimbursable, noncash expense under Medicare rules. Assuming the availability of capital, it behooves a hospital to invest in depreciable assets rather than liquid assets since any interest income earned from the latter is offset against interest expense under Medicare reimbursement rules. By investing in depreciable assets the hospital avoids this offset and benefits from increased growth.

A countervailing influence in this regard is the absence of an allowance for working capital in Medicare reimbursement. Investments in new or expanded services usually require increases in working capital to handle larger volumes of supplies and accounts receivable. Analysts have argued that the absence of a working capital allowance acts as a disincentive for hospitals to invest in capital projects.

By paying an allowance for the depreciation of durable assets, Medicare and Medicaid not only helped hospitals raise cash to replace existing assets, they also enabled many more hospitals to obtain debt. First, depreciation payments permitted many hospitals to raise the large equity requirement demanded by lenders. Second, depreciation allowances made principal payments on long-term loans more secure for lenders. Similarly, Medicare and Medicaid made interest payments more secure for lenders by treating interest expense as a reimbursable cost. The adoption of these payment principles by the federal health insurance programs may have improved the creditworthiness of many hospitals, particularly those serving elderly and poor populations. As such, lending institutions (primarily banks and insurance companies) may have been more willing to make mortgage loans available to hospitals than they would have in the absence of Medicare and Medicaid. Hospital access to debt capital may also have been improved by the establishment of a mortgage loan insurance pro-
gram in 1968. Organized under the auspices of the Federal Housing Administration, this program (known today as FHA-242) guaranteed loan repayment to lenders in the event of default by the insured hospital. Also, the 1970 amendments to the Hill-Burton Act permitted this program to issue loan guarantees to eligible hospitals. The amendments also permitted the program to make direct loans at reduced interest rates for the construction and modernization of health facilities.

As well as making debt capital more accessible to hospitals, Medicare and Medicaid also may have made the use of debt more attractive. At a given interest rate the net interest cost of debt for a hospital decreases as its level of cost-based reimbursement increases. Thus, an interest rate of 10 percent has an effective cost of 5.5 percent for a hospital with 45-percent cost-based reimbursement. For a hospital with 90-percent cost-based reimbursement the effective interest rate is 1 percent. In contrast, the hospital receives no reimbursement for the opportunity cost of using equity to finance capital projects. Not only is the interest income on foregone investments lost when equity is used to purchase durable assets, the hospital also loses control of the principal portion of the equity and becomes dependent on the depreciation payments of third-party payers for its recovery. Using debt costs the hospital relatively little in interest expense (although some interest income may be lost in offsets), and principal payments may be structured to coincide with reimbursement for depreciation. Meanwhile, the hospital retains its equity reserve and the financial autonomy this ensures.

As measured by the American Hospital Association’s Survey of Sources of Funding for Hospital Construction, the shift to debt financing from 1969 to 1973 was quite marked. Among all short-term general hospitals responding to the survey, the proportion of construction funds obtained with debt increased from 35.0 percent in 1969 to 57.3 percent in 1973. The intensity of this trend may be exaggerated by the fact that the 1969 survey refers to completed construction while the survey in 1973 and all succeeding years refers to construction begun. However, the data does support the hypothesis that debt became the primary method of financing hospital capital projects in the years immediately following the establishment of the Medicare and Medicaid programs.

While the establishment of Medicare and Medicaid may account for part of the accelerated shift to debt financing, other factors may have played important roles in this development. After the 1970 amendments, Hill-Burton grants to hospitals diminished rapidly from $284 million in that year to $167 million in 1973. The loss of grant support may have induced some hospitals to rely instead on debt capital. More important than the loss of Hill-Burton dollars appears to be the unprecedented surge in capital spending that began in 1969. From 1968 to 1971 the constant dollar value of medical facility construction increased at an average annual rate of 13.1 percent, a rate of increase not seen since the
establishment of the Hill-Burton program twenty years before (see Exhibit 1). In constant dollar terms, this upsurge in capital spending appears to level off in the early 1970s before diminishing to lower levels in the late 1970s. Although many of these years were good for construction activity in general, the share of construction activity attributable to the health care sector increased, reaching a 21-percent share in 1976.

Undoubtedly the increased demand for hospital services that stemmed from the Medicare and Medicaid programs accounts for much of the increase in hospital capital spending witnessed in these years. However, it is unlikely that this could have occurred without a substantial increase in the use of debt. Despite the increase in revenue that flowed from Medicare and Medicaid, cash flow would not have been sufficiently large to allow this magnitude of investment to be funded with equity. In addition, the effects of inflation in the 1970s made it more necessary for hospitals to use debt capital. Between 1970 and 1980 the Composite Construction Cost Index of the Department of Commerce increased at an average annual rate of 9.7 percent. Inflation made the historical-cost depreciation payments of Medicare less adequate in the face of rapidly increasing replacement costs for plant and equipment. Once the useful life of assets had expired, hospitals found it increasingly difficult to match the equity contribution made at the original purchase.

The Emergence Of Tax-Exempt Financing

If the impetus for capital spending and debt financing was Medicare and inflation, the vehicle that launched hospitals into the credit markets was the tax-exempt hospital revenue bond. The history of how the use of the tax-exempt revenue bond became available to hospitals is not well documented. The reason for this gap in the literature may be the fact that the finance authorities which issue tax-exempt bonds on behalf of hospitals have their legislative origins at the state level of government, rather than at the federal level. It is one of the ironies of modern health financing policy that perhaps the most important reform affecting hospital capital formation sprang not from the federal government or Congress, but from state legislatures. It is also ironic that the reform appears to have occurred with little public debate or with little concern for how tax-exempt financing might affect the other policy objectives of state governments (such as certificate-of-need regulation) or the policy objectives of the federal government (for example, cost containment in the federal insurance program).

From what can be gleaned from the literature, state finance authorities were established at the behest of hospital and investment bankers concerned about the difficulty hospitals had raising capital funds. Actually, hospitals had been legally entitled to use tax-exempt bonds since 1963,
but only under the condition that the ownership title of the facility be passed to the local municipality on retirement of the bond. For this reason, few hospitals made use of this debt-financing instrument. However, the creation of state and local government finance authorities enabled hospitals to retain ownership on debt retirement by using a “leaseback” arrangement. Under a “leaseback” arrangement the finance authority has temporary title to the facility during the life of the bond issue. During this period, the hospital board leases the facility from the authority for a nominal rent. Upon bond retirement, ownership title returns to the board.

Tax-exempt financing made debt capital more attractive and accessible to hospitals. In the first place, the tax-exempt bond opened a vast new pool of capital to hospitals: the public money markets and tax-exempt bond buyers. Previously the money markets could be accessed only with taxable bonds. However, the market for taxable bonds is one dominated by corporations with large and recurring financial requirements. As such, this market is not conducive to the comparatively small and infrequent financing needs of hospitals. Small issues are more prominent in the tax-exempt bond market since many of the buyers are high-income individuals seeking investments protecting their income from taxes. Among institutional buyers in the tax-exempt market, recurrent borrowing by issuers is less important since it is only in profitable years that they seek tax-exempt investments. Thus, the tax-exempt bond market offers the hospital a pool of capital with few constraints in terms of the size of the bonds or the frequency with which these are issued.

Besides enlarging the pool of capital available to hospitals, tax-exempt financing also made it easier for hospitals to provide security for loans. Although not required by law, commercial banks are reluctant to lend to hospitals without a mortgage for security. Moreover, because of the absence of a secondary market for hospital plant and the lack of revenue stability in the hospital industry prior to Medicare and Medicaid, banks would not finance more than 50 percent of hospital capital projects in most cases. By permitting debt to be secured with a pledge of revenue, tax-exempt financing linked hospitals to a market where investors are less risk-averse than commercial banks. As a result, the equity contribution demanded of borrowers shrunk from 50 percent for commercial loans in the 1960s to 10 or 20 percent for public bonds in the late 1970s. Once FHA-242 mortgage insurance was made available to bond issuers it even became possible to debt finance the full cost of capital projects. Clearly, a dollar of equity carried a lot more buying power in the bond market than at the neighborhood bank.

Also easing the way for hospitals seeking debt capital was the flexibility offered by the bond market in terms of debt payment schedules. Tax-exempt bonds may have tenures of up to thirty-five years, in contrast to taxable bonds and commercial loans which tend to have shorter lifespans.
Bond issues may be structured to take advantage of hospital payer-mix. Principal payments may be deferred in the repayment schedule until the end of the tenure enabling hospitals to earn substantial investment income from the depreciation payments of cost-based payers.

Lower interest rates are another reason why debt financing has been promoted by the availability of the tax-exempt instrument. Tax-exempt bonds carry lower interest rates than taxable loans because all the interest earned by lenders remains disposable income. At any given interest rate, the after-tax return on investment of a tax-exempt bond is higher than that of a taxable bond. In order for bonds of comparable quality to render equivalent after-tax returns, the interest rates of taxable bonds must be higher, with the size of the differential dependent on the prevailing income tax rate. Lower interest rates make the debt coverage requirement of lenders easier to meet. Hence, more hospitals become eligible (in the eyes of lenders) to borrow capital, while hospitals already so favorably disposed may borrow further.

Interest expense is a fully reimbursable cost under Medicare, Medicaid, and cost-based Blue Cross plans. As such, interest rates and expenses may not appear to be important to hospitals with large shares of cost-based payer beneficiaries. However, the perceptions of lenders and credit raters make interest rates and expenses important for even the most heavily cost-based paid hospital. First, the debt coverage ratios used in evaluating hospital creditworthiness do not take into account the fact that reimbursement for depreciation and interest expense from cost-based payers is virtually guaranteed. With a properly structured loan, a debt service coverage of 1.0 is adequate for a hospital with 100 percent cost-based payer mix. (Debt service coverage is defined as the sum of net income, depreciation, and interest divided by the sum of principal payment and interest. Under the condition of 100 percent cost-based reimbursement, this ratio can be reduced to depreciation and interest divided by principal and interest, since by definition cost-based reimbursement excludes net income.)

In practice, however, A-rated hospital bonds usually require a 2.5 ratio for maximum debt service coverage. Moreover, a high cost-based payer-mix is considered disadvantageous in the capital markets. This is because lenders are wary of cost-based payers, especially Medicare and Medicaid. The experience with Medicare and Medicaid has demonstrated that cost-based payers can reduce payments to hospitals by redefining what expenses are “reasonable and allowable,” and by employing cost “screens” to discriminate against high-cost providers (for example, the limits to Medicare reimbursement imposed by Section 223 and TEFRA). While such measures rarely affect capital-cost reimbursement (the most important capital-cost “screen” is certificate-of-need approval), they may affect a hospital’s
ability to cover current liabilities, which in turn may jeopardize coverage of long-term debt.

The growing dependency of hospitals on the tax-exempt revenue bond is most evident in the voluntary sector. According to the AHA Hospital Construction Survey, the share of voluntary hospital construction funds met by tax-exempt bonds issued by finance authorities has risen from 16.4 percent in 1973 to 56.0 percent in 1981. When taxable debt is added, the full extent of the voluntary sector’s dependence on debt becomes evident. In 1981, nearly 80 percent of voluntary hospital construction funds were supplied by the credit markets. Public hospital dependence on debt has markedly increased since 1969 but is still less than that displayed by voluntary hospitals. Whether the smaller share of public hospital construction funding met with debt is due to greater access to government grants or reduced access to the credit markets is not clear.

The use of debt in investor-owned hospitals appears to have peaked in 1973 and diminished since, albeit erratically. Since 1979 the use of debt capital appears to have increased again in investor-owned hospitals. The finance-related incentives facing investor-owned hospitals differ from those facing nonprofit hospitals. Investor-owned hospitals have very limited access to tax-exempt bonds and rely almost exclusively on taxable instruments in the credit markets. Therefore, the cost of debt capital would be higher for investor-owned hospitals if income tax considerations were not a factor. Because investor-owned hospitals are required to pay income taxes, the after-tax cost of debt for them may approximate that of nonprofit hospitals, depending on tax-rates and profit margins. However, the fact that investor-owned hospitals also receive return-on-equity payment from Medicare and Medicaid may reduce the attractiveness of debt relative to equity capital. The rate-of-return on equity under Medicare rules is based on prevailing long-term interest rates. Thus, the higher the cost of debt capital the greater the rate-of-return is in the return-on-equity payment made by government payers; therefore, the incentive to use equity capital is greater. However, many other considerations are at work for investor-owned hospitals making financing decisions, not the least of which is the condition of the stock market and the market value of the company’s stock. The depressed condition of the stock market may explain why the share of investor-owned construction funds met with debt increased between 1979 and 1981, even though the cost of long-term debt multiplied in this period (for example, the prime rate charged by banks jumped from 12.67 percent in 1979 to 18.87 percent in 1981).

The volume of tax-exempt hospital bonds for the years 1971 to 1982 is displayed in Exhibit 3. This exhibit illustrates how quickly tax-exempt financing took hold in the hospital industry, increasing at an average annual rate of 62 percent from 1971 to 1977. Part of this phenomenal rise is accounted for by inflation (corrected for inflation, the average annual
### Exhibit 3
**Tax-Exempt Hospital Revenue Bonds, Volume Of Issues**
**In Current And Constant Dollars, 1971-1982**
(Millions of Dollars)

<table>
<thead>
<tr>
<th>Year</th>
<th>Current Dollars</th>
<th>1972 Dollars*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>262.0</td>
<td>272.9</td>
</tr>
<tr>
<td>1972</td>
<td>525.0</td>
<td>525.0</td>
</tr>
<tr>
<td>1973</td>
<td>610.6</td>
<td>577.4</td>
</tr>
<tr>
<td>1974</td>
<td>1,282.4</td>
<td>1,114.4</td>
</tr>
<tr>
<td>1975</td>
<td>1,959.0</td>
<td>1,557.4</td>
</tr>
<tr>
<td>1976</td>
<td>2,725.6</td>
<td>2,059.5</td>
</tr>
<tr>
<td>1977</td>
<td>4,731.5</td>
<td>3,378.4</td>
</tr>
<tr>
<td>1978</td>
<td>3,121.8</td>
<td>2,075.4</td>
</tr>
<tr>
<td>1979</td>
<td>3,153.5</td>
<td>1,929.7</td>
</tr>
<tr>
<td>1980</td>
<td>3,624.0</td>
<td>2,028.7</td>
</tr>
<tr>
<td>1981</td>
<td>5,421.1</td>
<td>2,577.2</td>
</tr>
<tr>
<td>1982</td>
<td>9,612.1</td>
<td>4,638.4</td>
</tr>
</tbody>
</table>

*Derived from implicit price deflators for Gross National Product (1972= 100).

**Source:** 1971-1979, Congressional Budget Office; and 1980-1982 Public Securities Association.

A rate of increase is 52 percent), and part is explained by the large amount of refinancing that occurred in 1977. Nevertheless, these statistics do illustrate the ease with which the industry was able to tap the money markets once state finance authorities were put into place. It is also interesting to observe that hospital borrowing increased in the period 1979-1982 despite the unprecedented increase in interest rates that occurred in these years. The explanation for this apparent insensitivity to interest rates may lie with the interest expense “pass-through” of cost-based reimbursement formulas. Other factors may include the eruption of “pent-up” demand for capital and refinancing of outstanding debt.

A large portion of tax-exempt hospital bonds issued, in 1982 were floated in the last quarter of that year in response to the sharp drop in interest rates that occurred then. This suggests that hospitals are sensitive to drops in interest rates even if they are less sensitive to increases in interest rates. There are a number of plausible explanations for the asymmetry observed in the sensitivity of hospital borrowing to interest rates. First, the payer-mix of hospitals is composed of charge-based payers as well as cost-based payers. Hospitals with a significant base of charge-paying patients may be more sensitive to interest rates than other hospitals, particularly if they are constrained from making large charge increases by a concern for the public’s response or by rate regulation. Also, hospitals which have obtained debt at high interest rates and which also have a large base of charge-paying patients can meet their income objectives without conspicuous
charge increases by refinancing debt when interest rates are lower. Second, high interest rates may make borrowing unfeasible for hospitals with poor credit ratings because of the deleterious effect of high interest rates on important financial ratios, such as debt service coverage. Once interest rates decline, these ratios improve, making the credit criteria of lenders easier to meet.

The Significance Of Recent Trends In Hospital Capital Spending

What factors account for the decline in hospital capital investment as reflected by both the medical facility construction census and the AHA hospital construction survey? Analysts have suggested that this trend reflects a capital shortage in the hospital industry, brought about by inadequate reimbursement from government payers. These analysts have predicted that a “capital crisis” is looming and that hospitals dependent on public payers will find it increasingly difficult to gain access to the capital needed to replace aged plant and outmoded equipment. Proponents of this scenario often base their case on two assumptions. The first assumption is that the decline in constant dollar capital spending in recent years is unwarranted and, therefore, a cause for concern. The second assumption is that if this trend continues it will collide with a rising tide of obsolescence in the industry as hospitals constructed with Hill-Burton funds in the 1950s and 1960s come due for replacement.

The assumption that the recent decline in hospital capital spending is a cause for concern may be incorrect. When national expenditures for medical facility construction are examined in constant dollar terms over the last twenty years, it is apparent that the capital spending levels reached in 1971 and 1972 were unprecedented in historical terms. They followed on the heels of the establishment of the federal health insurance programs which were responsible for a rapid increase both in the demand for hospital services and in the number of dollars flowing to hospitals. In this light, the decline in capital spending is less dramatic than many observers would have us believe; it may simply reflect the fact that the industry responded quickly to the demands for expansion of facilities in the late 1960s and early 1970s and that capital spending is now reverting to the levels required for the progressive replacement and modernization of existing assets. That is, the level of capital spending exhibited in recent years may be closer to the “normal” level of investment than that witnessed a decade ago.

The argument that the capital needs of the 1980s are disproportionately larger than those of the 1970s is sometimes made on the assumption that capital investment in the 1950s and 1960s was extraordinarily large and that much of it will need to be replaced in this decade. Converted to April 1983 dollars using the composite construction cost index
of the Commerce Department, the sum total of medical facility construction in the 1950s is equal to $34.0 billion. The respective figure for the 1960s is $64.0 billion. Therefore, if all the medical facility construction put in place in the 1950s and 1960s were replaced today it would cost $98.0 billion, not much more than the amount spent in the 1970s which would be $91.2 billion in April 1983 dollars. It is unlikely that some of the investments made in earlier decades have not been replaced already or that those remaining all need to be replaced in this decade. Therefore, predictions of a capital crisis based on the assumption of accelerating obsolescence may be unfounded.

On the basis of historical experience, $100 billion does not appear to be an unobtainable amount of capital when spread over a decade. However, some analysts are concerned about the ability of hospitals to attract investment capital in the 1980s and 1990s, and forecast a “capital crunch” because of a shortage in the supply of capital funds rather than because of a surge in hospital capital-spending needs. The argument that investment capital will become increasingly difficult for hospitals to obtain may be developed along two lines of reasoning. The first is based on the scenario painted by some authorities that the supply of capital will be consumed in increasing measure by the federal deficit. According to this view, borrowing by the federal government will leave a shrinking pool of capital available to private borrowers and state and local governments. Among private borrowers, corporations with large capital investment needs may displace borrowers with smaller needs and less established creditworthiness. Similarly, the tax-exempt bond market may be strained by state and local government borrowing to finance needed repairs to sewer and water systems, roads, bridges, and public transportation systems. Among the variety of investment opportunities available to investors, hospitals may become increasingly unattractive as borrowers with better standing in the credit market seek capital funds. Changes in third-party reimbursement may accelerate this trend by adding greater uncertainty to the future financial position of hospitals.

A second line of reasoning supporting the proposition that the supply of capital to hospitals will diminish is based on forecasts about changes in the health care delivery system. According to this scenario, there is a growing desire on the part of major employers to trim the costs of fringe benefit packages by increasing the proportion of employee out-of-pocket payments and by reducing utilization. Coupled with the emergence of capitation-based health maintenance organizations as a viable alternative to fee-for-service health care providers, the opportunities for businesses to achieve these objectives are beginning to blossom. Insurers may respond to their corporate clients’ demands by offering benefit plans based on the concept of preferred provider organizations. If these trends unfold, the health care market may become more price-competitive and hospitals
which have fared well under existing conditions may have difficulty adapting to new circumstances. Investors may become wary of hospital credit, preferring investments in other types of health care organizations. According to this view, the decisions government makes on Medicare payment policies may help determine how well hospitals cope with challenges in the health care marketplace as well as how much capital they can borrow from investors.

It is beyond the scope of this paper to make assessments about the likelihood of a capital squeeze occurring in the years ahead. However, recent trends in the volume of hospital tax-exempt borrowing do not support the view that hospitals are currently in the midst of a capital crisis. In 1974, hospital issues represented 5.7 percent of the dollar volume of issues in this market. By 1982, the hospital share of the market had increased to 12.3 percent. At the same time, the supply of capital in the tax-exempt market increased threefold from $22 billion to $75 billion. During 1981-1982, when this growth was particularly rapid, the TEFRA provisions and the prospective payment system for Medicare were approved by Congress.

The Movement Toward Multihospital Systems

The shift to debt financing in the hospital industry has been paralleled by the growth of multihospital chains and an increase in the frequency of hospital mergers. According to American Health Capital, Inc., nearly 9 percent of hospitals belonged to multihospital chains in 1969. Since then the percentage of hospitals belonging to chains has increased to 33 percent. It is popularly believed that the concordance of this trend with capital financing trends is more than coincidental. Some analysts have hypothesized that it is the growing dependence of hospitals on debt capital that is forcing them to band together. Although this hypothesis has never been empirically tested, there are anecdotes and a priori reasons that lend support to it. Hospitals coming under the umbrella of larger organizations often benefit from the stronger creditworthiness the latter enjoy. The literature cites numerous anecdotes in which “chain” hospitals have accessed larger amounts of debt capital at lower interest rates than they could have obtained in the credit markets as independently operated facilities. Independently operated facilities are vulnerable to changes in local conditions which adversely affect revenue streams. Creditors are less concerned about the risk of such changes when they know the hospital has the reserves of the parent organization to draw upon in the event of revenue shortfalls. Similarly, there may be instances where hospitals have a need to replace aged plant to remain competitive in the community but lack the equity base or credit standing to borrow the required funds. In such instances, membership in a chain may be very
beneficial to the hospital.

Improved access to capital may not be the only reason nonprofit hospitals choose to enter affiliated arrangements. Clearly, membership in a church group is a very strong reason for some hospitals to affiliate in the nonprofit sector. A desire to maintain financial viability is another reason why some hospitals may enter into such an arrangement. For example, two or more financially strapped hospitals may avoid closure by sharing services, reducing excess capacity, and using the economies of scale attendant to larger facilities. The merger of St. Luke’s Hospital and Roosevelt Hospital in New York City was undertaken in an attempt to reduce the financial hardship each hospital faced. Similarly, the proposal to create a small system of two impoverished Brooklyn hospitals (Brooklyn Jewish Hospital and St. John’s Episcopal Hospital) and two strong Long Island

Although the incentives for hospitals to join multihospital systems are applicable to both nonprofit and investor-owned hospitals, available evidence indicates that more investor-owned hospitals have joined the movement. Among nonprofit community hospitals, fewer than one in five belong to a chain, and of these, nearly two-thirds are church-related hospitals and have always enjoyed an affiliated arrangement of some sort. Of the remaining nonprofit hospitals in systems some proportion belong to state or local government hospital groups like the New York City Health and Hospital Corporation. Therefore, the number and proportion of nonchurch-related voluntary hospitals in a multihospital arrangement may be quite small, though estimates are difficult to find.

Trends towards corporate reorganization and diversification may be viewed in the same light as mergers. Where these enhance the revenue streams of hospitals they may permit improved operating margins and greater access to the capital markets. Data on the extent of reorganization and diversification for any sector of the hospital industry is virtually non-existent so it is difficult to measure the amount that has occurred. However, like the movement toward multihospital arrangements it is likely that diversification has been concentrated in the for-profit sector. There are numerous legal obstacles to nonprofit hospitals wishing to set up for-profit subsidiaries, and some observers have expressed doubt about the strategic worth of this route.

The movement toward multihospital systems has been most evident in the investor-owned sector. This sector of the industry was highly fragmented prior to the establishment of the Medicare and Medicaid programs. Investor-owned hospitals were generally independent facilities, owned and operated by physicians with an entrepreneurial bent. Since the late 1960s, however, this sector has undergone a period of consolidation and concentration. Of the 1,051 investor-owned hospitals registered with the Federation of American Hospitals (FAH) in 1976,655 (62 percent) were independently owned. By 1981, only 433 (42 percent) of the 1,019 investor-
owned hospitals registered with the FAH were independently owned. In contrast, investor-owned hospitals in multihospital chains increased from 396 in 1976 to 589 in 1981, a 48 percent increase. In 1969, this segment of the hospital industry accounted for combined revenues of less than $200 million, with net income of approximately $12 million. In 1981, the four leading companies alone accounted for $6,271 million in combined revenues and $307 million in net income.

Concentration in the investor-owned sector has been accelerated by merger activity among the management companies themselves. The era of consolidation among the management companies began in earnest in 1978 when Humana acquired what was then the second largest company, American Medicorp. Soon after, National Medical Enterprises (NME) acquired Medfield Corporation and, in 1980, Hillhaven, the nation’s largest nursing home chain. Since 1979, the eight largest investor-owned chains have been reduced to six by the acquisition of Hospital Affiliates International (HAI) by Hospital Corporation of America (HCA) and the acquisition of Brookwood Health Services by American Medical International (AMI). Commonly known as the “Big Four,” HCA, Humana, AMI, and NME dominate the investor-owned sector. Among them, they own an estimated 383 hospitals and 61,000 beds in the United States, representing approximately two-thirds of all investor-owned chain hospitals and three-quarters of the beds. (If AMI’s proposed merger with Lifemark is consummated, the “Big Four” will have absorbed another twenty-five hospitals and 4,600 beds, and will account for roughly 70 percent of all investor-owned chain hospitals and 80 percent of the beds.) The remaining 200 hospitals and 19,000 beds in investor-owned chains are owned by approximately thirty other companies.

What factors account for concentration in the investor-owned sector and for the rapid growth of the hospital management companies? Clearly, one of the most significant advantages offered by investor-owned chain affiliation is the increased ability to attract equity capital. In the typical free-standing proprietary hospital, a group of individuals, often physicians, pool their funds to purchase or build a hospital as a site for their own practices. Future capital requirements for maintenance, replacement, and expansion of plant can easily exceed the investors’ ability to contribute additional equity to the corporation or partnership. Furthermore, without a substantial asset base or a demonstrated record of earnings growth, it is difficult to attract outside investment or venture funding.

Consolidation as an investor-owned chain (especially when the size of the chain approaches that of large hospital management companies) significantly enhances the company’s attractiveness to outside investors, and thus access to equity capital. Shares in the five largest hospital management companies are all traded on a national stock exchange; hence, these companies have access to an enormous pool of investors. Over the past
several years, the leading companies have been extremely successful in attracting equity capital on favorable terms, and this has been instrumental in their dramatic growth. Shareholders’ equity in the “Big Four” nearly quadrupled from 1977 to 1981, from an aggregate of $461 million to $1.832 billion.\footnote{82}

**Conclusion**

Much of the controversy surrounding Medicare payment policy in 1966 and 1967 centered on capital reimbursement. Most of the hospital industry’s demands were met by the government partly because the industry was successful in making policymakers believe there was a capital shortage and partly because policymakers wanted to imbue hospitals with enthusiasm for Medicare.

The upsurge in capital spending in the late 1960s and early 1970s may be explained by the increased demand for health care services engendered by the creation of the Medicare and Medicaid programs. The ability of hospitals to finance this growth was augmented by the increased magnitude and greater stability of revenues flowing to hospitals. This permitted hospitals to enjoy the advantages of debt financing, that is, enabling capital assets to be paid for over the course of their useful lives rather than at the moment of acquisition. Debt financing became still easier for hospitals when the use of tax-exempt revenue bonds was made available by state legislatures. Tax-exempt revenue bonds permitted hospitals to gain access to a vast pool of investors who were willing to provide large amounts of credit to hospitals without the equity contributions that were usually requested by commercial banks.

The downturn in hospital capital spending that has occurred since the mid-1970s is not a cause for alarm according to the analysis of historical trends conducted for this article. Rather than signifying a capital crisis, the downturn may reflect a return to a level of capital spending sufficient to allow for the progressive replacement of existing assets but not sufficient for industrywide expansion. However, the ability of hospitals to obtain capital funds in the future may be adversely affected by pressure on the supply of capital, stemming from the need to finance the federal deficit. Access to capital may also be diminished by an increase in the level of price-competition among health care providers, by reductions in the level of consumers’ health insurance, or by reductions in the level of third-party payer reimbursement.

In conclusion, this trend of movement toward multihospital systems is most pronounced in the investor-owned sector where there are very strong incentives for hospital management companies to pursue growth and where many advantages accrue to independently operated proprietary hospitals joining a multihospital group. Among nonprofit hospitals the
multihospital trend is most evident among church-related hospitals. Among voluntary hospitals without religious affiliation, the evidence of a precipitate movement to the multi-institutional form is less convincing.

NOTES

3. Ibid., 163.
7. Feder. Federal Hospital Insurance, 60.
8. Ibid., 60-62.
10. Ibid., 64-65. Also see Somers and Somers, Medicare and the Hospitals, 173-177.
12. Ibid., 66.
13. Ibid., 180.
15. Ibid., 67.
17. Feder, Federal Hospital Insurance, p.79, n.118.
19. Feder, Federal Hospital Insurance, 59.
20. Somers and Somers, Medicare and the Hospitals, 56.
21. Ibid., 57-59.
24. Interview with Wolkstein, 31 October 1983. See Feder, Federal Hospital Insurance, 63.
27. Ibid., 98-100.
28. Ibid., 122-134.
29. Measured with data obtained from the Economic Report of the President, (1983), Table B-2 and Table B-46.
34. Ibid., Table B-16.


39. Ibid., 72.


42. Ibid., 16.


44. Ibid., 24.

45. Ibid., 24.


54. Economic Report, Table B-55.


58. Herzlinger et al., Debt Financing, 1-3.

59. Ibid., 3.


64. Congressional Budget Office, The Economic and Budget Outlook: An Update (August 1983), 74-77.
67. Ibid., 52.
69. Ibid., 52.
74. Ibid., 89.
75. Derived from data obtained from American Hospital Association, Directory of Multihospital Systems (1982), Table 3, p. 86; and AHA, Hospital Statistics (1983), Table 1, p.4.
80. Cohodes and Kinkead, Hospital Capital Formation, 74.
81. Ibid., 74.
82. Ibid., 81.