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THE EFFECT OF THE INTRODUCTION OF MEDICAL ASSISTANCE AND MEDICARE ON THE STRUCTURE OF THE MICHIGAN NURSING HOME INDUSTRY

By

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ABSTRACT

THE EFFECT OF THE INTRODUCTION OF MEDICAL ASSISTANCE AND MEDICARE ON THE STRUCTURE OF THE MICHIGAN NURSING HOME INDUSTRY

By

Lee Allen Bair

In 1960, the Michigan nursing home industry was characterized by small, proprietary homes constructed for other uses and providing terminal care for the aged. A decade later the majority of nursing home care was provided in large, modern structures built exclusively as nursing facilities. Not only was terminal care available to the aged in 1969, but convalescent and rehabilitative care was also provided to those capable of returning to a uninstitutional setting.

One of the major reasons for the transformation of the nursing home industry was the passage of the Social Security Amendments of 1965, providing for long-term care under the Medicare and Medical Assistance programs. These two programs caused major changes in the industry's operating environment. One institutional change was a sharp shift in the source of funds which financed nursing

home services. Whereas nursing home services were usually paid from private sources before the introduction of these two programs, Medicare and Medical Assistance resulted in the majority of care being reimbursed by the public sector. Another change was the tightening of operating regulations by the public sector to assure that adequate care was being provided by qualified personnel in suitable surroundings. A third change was that the demand for nursing care services increased sharply. These three changes caused a fourth, the rapid expansion of corporate ownership as a type of facility ownership. The purpose of this study is to determine what effect, if any, the changes resulting from the introduction of Medical Assistance and Medicare have had on the Michigan nursing home market structure, and therefore, ceteris paribus, on the competitiveness of that industry.

Cross-sectional data for the years 1960 to 1969 were utilized in the analysis. On an annual basis, the name, location, type of ownership, and total beds were available for each facility. The analysis was two-fold including both a descriptive comparative static analysis and a regression analysis of the data, employing a least squares technique.

The descriptive analysis indicated that the market structure of the Michigan nursing home industry changed gradually during the early 1960's, shifted sharply in 1964 to 1966, and again changed more slowly after 1966.

Especially with respect to concentration as measured by the four-, eight-, and twenty-firm concentration ratios, it appears that the long-term trend throughout the decade was toward decreased concentration. This long-term decline was not continuous with sharp decreases in the middle of the decade, followed by constant or increased concentration in several markets in the late 1960's. Since the Michigan Medical Assistance program and the long-term care portion of Medicare became operational on October 1, 1966 and January 1, 1967, respectively, the net effect of changes resulting from the two programs' introduction appears to have been to cause concentration to increase.

This conclusion was confirmed by the regression analysis. Two theories were posed, regarding changes in nursing home industry structure during the 1960's. Recognizing only long-term changes in structure, the first theory stated the differences in concentration between regions and over time can best be explained by changes in the demographic characteristics of the market. Three independent variables were included in the analysis: the percentage of aged persons to total population, population density, and per capita income. A second theory included the same independent variables, but included a dummy variable to account for the introduction of Medical Assistance and Medicare. Best fits were attained by using the four- and eight-firm concentration ratios as

dependent variables. Equations were estimated for both theories for each dependent variable. An F-test was then conducted to determine, if the second theory was a significantly better predictor of concentration than the first. For both four- and eight-firm concentration ratios, the second theory was a significantly better predictor than the first, indicating that the two programs did alter concentration. In both cases, the sign of the dummy variable for the introduction of Medical Assistance and Medicare was positive, showing that the two programs caused concentration to increase, and therefore, ceteris paribus, market competition to decrease. Thus, the effect of the shift in funding sources and the tightening of operating regulations outweighed that of the increased demand for nursing care services.

To my wife, Sandra

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CHAPTER I

INTRODUCTION

The nursing home industry, unlike other industries providing medical care, was almost completely transformed during the decade of the 1960's. At the beginning of the decade, the industry was characterized by small, proprietary homes, typically constructed for other uses and providing terminal care for the aged. Of 497 nursing care facilities in Michigan in 1960, 259 were proprietary homes with an average size of 19.4 beds. At the same time there were only 79 corporate-owned facilities with an average size of 49.5 beds. A decade later the majority of nursing home care was provided in large, modern structures built exclusively as nursing facilities. While intermediate care facilities, providing a lesser intensity of nursing care services than skilled homes, were still usually proprietary homes in 1969, skilled homes had largely become corporate entities with professional administrators. Of the 475 nursing care facilities in Michigan in 1969, 179 were corporate-owned and had an average of 87.4 beds. The number of proprietary homes had declined to 168

with an average size of 42.0 beds.[1] Not only was terminal care available to the aged in 1969, but convalescent and rehabilitative care was also provided to those capable of returning to a noninstitutional setting.

One of the major reasons for the transformation of the nursing home industry was the passage of the Social Security Amendments of 1965, providing for long-term care under the Medicare and Medical Assistance programs. These two programs caused major changes in the industry's operating environment. One institutional change was a sharp shift in the source of funds which financed nursing home services. Whereas nursing home services were usually paid from private sources before the introduction of these two programs, Medicare and Medical Assistance resulted in the majority of care being reimbursed by the public sector. Another change was the tightening of operating regulations by the public sector to assure that adequate care was being provided by qualified personnel in suitable surroundings. A third change was that the demand for nursing care services increased sharply. These three changes caused a fourth, the rapid expansion of corporate ownership as a type of facility ownership. The purpose of this study is to determine what effect, if any, the

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[1]Michigan Department of Public Health, Bureau of Health Facilities, Michigan State Plan for Hospital and Medical Facilities Construction Fiscal Year 1961-1962 to Fiscal Year 1970-1971 (Lansing, Michigan: Michigan Department of Public Health, 1962-71).

changes resulting from the introduction of Medical Assistance and Medicare have had on the Michigan nursing home market structure, and therefore, ceteris paribus, on the competitiveness of that industry.

One basic assumption of this study is that increased competition is preferable to decreased competition. While this is the assumption usually adopted in most industrial organization studies, there are cases where it does not apply. One such set of cases are natural monopolies, i.e., instances where economies of scale are sufficiently large to preclude the efficient operation of more than one firm in a given market. Public utilities are examples of natural monopolies. A second set of cases are those instances where consumer knowledge is lacking and the purchase is of sufficient importance to the consumer to warrant regulation of the industry's output. An example of this might be short-term general hospitals, particularly for medical emergencies. The question that must be examined before undertaking the study is how appropriate is the assumption that increased competition is preferable to decreased competition for the Michigan nursing home industry.

As the discussion of the nursing care industry suggests, there are economies of scale in nursing care facilities and these were operative in the industry during the 1960's. However, economies of scale were limited and the minimum efficient size firm contained a relatively

small portion of industry capacity in most markets. Both the study conducted by Kottke and Trainor and this study show the existence of significant economies of scale in a facility until facility size reaches 50 to 60 beds. As the size of the facility increases beyond that, few economies were found. A limitation of both studies is that economies of scale were estimated using the survivor technique and not measured directly.[2] The problem with this is that any estimating technique must utilize data from actual operations, and these are set legally, not as a result of possible cost minimization. Specifically, a chief explanation for economies of scale is that some resources, including personnel resources, are indivisible. In Michigan, state licensing requirements specify staff-bed ratios, the ratios varying according to the time of the work shift and the number of total beds in the facility.[3] This introduces an artificial divisibility which would not be present if operators were free to minimize per-unit costs. If it is possible to operate a nursing home with a lower than required staff-bed ratio, or if the staff-bed ratio varies with the scale of operations under optimal conditions, any observable minimum

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[2]Frank J. Kottke and John F. Trainer, The Nursing Home Industry in the State of Washington (Pullman, Washington: Frank J. Kottke, 1968), p. 31 and Chapter V, pp. 156-158.

[3]Michigan Department of Public Health, Division of Health Facility Standards and Licensing, Rules for Nursing Homes, Draft Number 17, September 27, 1968.

efficient scale will understate the size of the firm. The issue then becomes whether the true minimum efficient scale occurs only under conditions of monopoly. An acceptance of the preference for competition then is based upon a finding that the true minimum efficient scale would give a market structure that would lie between the present market structure and one of very high concentration. Given the large number of beds in most markets, relative to the average size of both new and existing facilities, it is unlikely that the nursing home industry fits the case of a natural monopoly.

While the nursing home industry has similarities to those cases where consumer knowledge is lacking and the purchase is of sufficient importance to warrant regulation of the industry's output, differences also exist. One similarity arises from the majority of nursing care services being purchased under the Medical Assistance program. These purchases are made at one of two flat rates, which are based on patient service needs. This means that, from the consumer's viewpoint, price competition has been removed from the purchase division.

However, even though price competition is not a factor in the purchase decision of a person receiving Medical Assistance, it is for a private pay patient or a Medicare patient, who will need nursing care beyond the period covered by Medicare. Price is important to such

Medicare patients, since they are more likely to remain in the facility first entered than to transfer to another after using their long-term care benefits. This portion of the industry's product, which is not reimbursed by Medical Assistance, represents a substantial majority of all persons in nursing care facilities.

A second similarity is that since nursing care facilities in many cases regard minimum licensing and certification requirements as the maximum levels to be attained, there is a tendency for the industry to produce a fairly homogeneous output. That is, since the nursing home reimbursement rate is relatively low and minimum licensing and certification requirements are mandated by the state, there is little incentive for nursing homes to compete on a nonprice basis. This is especially the case, if the Medical Assistance payment rate is sufficiently low to create an excess demand for publicly financed nursing home care.

Despite this, there are areas where competition with respect to the quality of care can and does exist. The failure to strictly enforce licensing and certification standards, which results in less than full compliance to those standards, or the meeting of more than minimum requirements will result in nonprice differences among nursing care facilities. Also, since standards do not completely specify the operating environment of facilities,

there is leeway for nonprice competition. Nonprice competition will exist if vacancies exist for Medical Assistance patients or if private pay patients are more profitable than publicly subsidized patients. The latter will occur, if the cost of the additional quantity and quality of care provided private pay patients is less than the added revenue from their higher rates. Possible sources of additional care for private pay patients include better rooms, better food, and more attention by staff. These can be made effective by placing private pay patients in one section or wing of the facility.

A third similarity is that consumer knowledge of the quality of nursing care services is largely absent. Also, the purchase of nursing care services is of prime importance to the consumer, since it often determines where he will spend the rest of his life, not to mention where his life's savings will be spent. As such, it is in his and his children's interests, the latter possibly due to conscience, that the alternatives available to him are explored. Consumer knowledge, even though largely lacking and uniformed, does exist, either through visits to various nursing care facilities, talks with patients, or talks with former patients or their children. The purchase decision is also important to the public assistance recipient, at least for nonprice factors, since he has a free choice of facilities to be admitted to. Thus,

despite similarities to cases which warrant regulation of industry output, there are differences that allow for both price and nonprice competition.

Therefore, the basic assumption of this study is that increased competition is preferable to decreased competition, at least in those markets sufficiently large to allow two or more firms to realize economies of scale. In those markets in the upper peninsula or the upper half of Michigan's lower peninsula the concentration of industry capacity into one or a few firms is probably justified from an efficiency standpoint. Little would be gained by increasing the number of alternatives to consumers in those markets, while significantly increasing the cost per patient day of nursing care services. In markets in the lower half of Michigan's lower peninsula, the demand is large enough to support more than one nursing care facility in each market. As long as areas of competition exist, consumers should be allowed as many alternative facilities as feasible from which to purchase nursing care services. In that way, consumers will make the best purchase decision possible and facilities will have the least opportunity to combine to set the conditions of selling nursing care services.

Study Outline

Chapter II will be a review of the relevant literature and experience. After defining the nursing home

industry the remainder of the chapter will be divided into two parts. In the first part the literature and experience of nursing home operations will be reviewed. This will include sections on personnel and licensing standards, quality and abuses, investment opportunities, and reimbursement. The second part will review economic analyses of the nursing home industry and industrial organization literature on the evolution of market structure.

Chapter III will examine the scope and extent of the Medicare and Medicaid programs. First, this will involve a consideration of the types of services provided and the eligibility requirements for those services. Next, reimbursement rationales imployed by the federal and state government and their conditions for facility participation in the programs will be discussed. Finally, the people served, the quantity of services utilized, and the cost of these services are surveyed for each program.

Chapter IV presents a theory of market structure determination. After discussing the major changes which occurred as a result of the introduction of Medicare and Medicaid and their effect on nursing home market structure, the state's role as the principle purchaser of these services is examined. Next, the major elements of market structure are discussed. Finally, two theories of evolution of the Michigan nursing home industry's market structure during the 1960's are posed.

Chapter V examines the changes which occurred in the nursing home industry market structure during the 1960's. The market for nursing home services is first defined. Then an analysis of changes in the structure of each market, including changes measured by industrial organization concepts, is presented.

Chapter VI develops a model, containing the two theories of evolution of the industry's market structure. This is then tested to determine the extent to which changes in market structure were attributable to Medicare and Medicaid and were not part of long-term trends in the growth of the industry.

Chapter VII summarizes the argument and then discusses the policy implications arising from it. These include not only the effect upon nursing home industry competitiveness of future policy changes but also the implications for similar expansions of public support through these programs.

CHAPTER II

REVIEW OF LITERATURE AND EXPERIENCE

In this chapter, the nursing home industry will be defined. Then, a review of the literature and experience concerning nursing homes and the services they provide will be presented. Finally, economic analyses of the nursing home industry will be discussed and industrial organization literature dealing with market structure evolution will be reviewed.

Industry Definition

What is a "nursing home" and what types of facilities are included is this definition? The American College of Nursing Home Administrators defines a "nursing home" as follows:

> A Nursing Home or its equivalent is a facility, institution, or an identifiable unit of an acute hospital or other care service facility or institution licensed for:
>
> 1. Care for persons who because of physical or mental conditions, or both, require or desire living accommodations and care which as a practical matter, can best be made available to them through institutional facilities, other than acute care units of hospitals, providing a protective and/or supervised environment, and
>
> 2. Care of persons and patients who require a combination of health care services and personal

> care services which are in addition to the above and may include, but are not necessarily restricted to one or more of the following care services:
>
> a. Therapeutic diets,
> b. Regular observation of the patient's physical and mental condition,
> c. Personal assistance including bathing, dressing, grooming, ambulation, transportation, housekeeping (such as bed making, dusting, etc.) of living quarters,
> d. A program of social and recreational activities,
> e. Assistance with self-administered medications,
> f. Emergency-medical care including bedside nursing during temporary periods of illness,
> g. Professional nursing supervision,
> h. Skilled nursing care,
> i. Medical care and services by a licensed practitioner,
> j. Other special medical and social care services for diagnostic and treatment purposes of rehabilitation, restorative, or maintenance nature, designed to restore and/or maintain the person in the most normal physical and social condition attainable.[1]

The above definition refers to two separate and distinct types of facilities. The first part of the definition refers to personal care and residential care facilities. These include homes for the aged, permit nursing homes, and permit homes. The second part of the definition refers to extended care facilities, skilled nursing homes, and intermediate care facilities. Separating the two types of facilities is the distinguishing characteristic of the provision of nursing care services. The first group is not licensed to perform nursing care services, whereas

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[1]American Nursing Home Association, Nursing Home Fact Book 1970-71 (Washington, D.C.: American Nursing Home Association, 1970), p. 1.

the second group must do so to retain its license. It is the second group with which this study is concerned.

Extended care facilities (ECF's) have their legal basis in Title XVIII of the Social Security Act (Medicare). Care in ECF's is designed to be an extension of hospital care, albeit a less intensive and extensive one. Services are provided 24 hours a day but are rehabilitative and convalescent only, which results in a relatively short length of stay. Skilled nursing homes are recognized under Title XIX of the Social Security Act (Medical Assistance, also called Medicaid). Services are essentially the same as those of ECF's, except that the degree of licensed nursing supervision may be less in some states. All ECF's automatically qualify as skilled nursing homes but not vice versa.[2] The principal difference between the two types of facilities is in the length of patient stay. Since skilled nursing homes provide terminal care as well as rehabilitative and convalescent care, their length of stay is considerably longer than that of ECF's. Intermediate care facilities (ICF's) or basic nursing homes were funded under Title XI of the Social Security Act until 1972,

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[2]The Social Security Amendments of 1972 changed the name of "extended care facilities" and "skilled nursing homes" to "skilled nursing facilities" and provided for the same level of care requirements in those facilities under both Medicaid and Medicare. U.S. Congress, Public Law 92-603, 92nd Congress, H.R. 1, October 30, 1972, Section 247 and 278. During the time period and for the purposes of this study, the two types of facilities were and will be considered similar, but distinct.

when they become part of the Medicaid Program.[3] Care provided in these institutions is less intensive, at least from the standpoint of the utilization of licensed nursing resources, and usually does not require 24 hour a day licensed nursing supervision. Since the vast majority of care in ICF's is terminal care for the aged, the average length of stay is relatively long.

ECF's are federally administered under the Medicare program, even though certification may actually be through a state agency. Skilled and basic nursing homes, on the other hand, are both administered under state programs. In nursing homes providing basic care, the State of Michigan requires that "the home shall employ sufficient nursing personnel to provide continuous 24 hour nursing care and services sufficient to meet the nursing needs of each patient in the home."[4] Minimum sufficient licensed personnel for basic homes has been defined as one licensed practical nurse (LPN) working 40 hours per week and serving as director of nurses. Additional requirements for skilled nursing homes include "at least one registered nurse or licensed practical nurse shall be on duty at all times during a shift in charge of nursing personnel providing

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[3]U.S. Congress, Public Law 92-223, 92nd Congress, H.R. 10604, December 28, 1971, Sec. 4.

[4]Michigan Department of Public Health, Division of Health Facility Standards and Licensing, Rules for Nursing Homes, Draft Number 17, September 27, 1968, [R. 325, 1961 (8)].

care to patients in the home."[5] In addition, staff personnel must include one registered nurse (RN) working 40 hours per week and serving as director of nursing. For homes with 30 or more beds the director of nursing cannot also be a licensed supervisor. Finally, one LPN or RN must serve 24 hours a day as a supervisor for each seven nursing employees.

Nursing Home Literature and Experience

This part of the chapter will review literature concerning the operation of nursing homes. While a large portion has only appeared in the popular press, there is a limited body that has been published in journals or in pamphlet or book form. Primarily the latter will be discussed herein. Even though most literature overlaps several areas of study with respect to nursing homes, it has been divided into four sections for ease of presentation. These are personnel and licensing standards, quality and abuses, investment opportunities, and reimbursement.

Personnel and Licensing Standards

The definitive work in this area is Jordan Braverman's Nursing Home Standards: A Tragic Dilemma in American Health.[6]

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[5] Ibid., [R. 325, 1963 (3)].

[6] Jordan Braverman, Nursing Home Standards: A Tragic Dilemma in American Health (Washington, D.C.: American Pharmaceutical Association, 1970).

It analyzes the licensing regulations of all 50 states and the District of Columbia. He divides his analysis into four areas: administrative management regulations, patient care regulations, environmental health regulations, and fire safety and construction regulations. Braverman's methodology is to sum the various states' licensure components. His conclusions are disheartening when the increase in industry capacity and dollar volume of business are considered as they occurred in the 1960's. It must be remembered throughout this discussion that licensure requirements are minimums and that many homes will provide more than the minimum in many cases. Also, many states have clauses in their regulations which provide for care above the minimum requirements--"Additional nursing personnel shall be provided for each shift, over and above the minimums specified in these rules, as is necessary to care adequately for and meet the nursing needs of each patient in the home."[7] Unfortunately, these are vague and not strictly interpreted. One effect of licensing regulations is that many homes view the minimum requirements as the maximum to be attained, largely because of limited reimbursement rates under state Medicaid Assistance programs. Where this

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[7]State of Michigan, Department of Public Health, Bureau of Health Facility Standards and Licensing. Rules for Nursing Homes, Draft Number 17, September 28, 1968 (Lansing, Michigan: Department of Public Health, 1968), [R 325, 1962 (4)].

occurs it tends to standardize the quality of nursing care services and, therefore, to reduce product competition.

With respect to nursing home administrators' qualifications, Braverman found that "9 States require that the administrator have the minimum of a high school education while the U.S. Department of Health, Education and Welfare recommends rather than requires this qualification."[8] Even the House Committee on Ways and Means' version of the Social Security Amendments of 1971 did not recommend any formal educational requirements for nursing home administrators. Their reasoning was,

> that persons who have demonstrated their capability as nursing home administrators over a period of time should not be precluded from serving in this capacity because they fail to meet certain formal requirements imposed for purposes of the medicaid program. Your committee bill would, therefore, permit the States to establish a permanent waiver from such requirements for those persons who served as nursing home administrators for the three-year period preceding the year the State established a program for the licensing of nursing home administrators.[9]

While it might appear that three years' experience would qualify a person to be a nursing home administrator, this is not necessarily the case in each area of expertise required. For example, it probably would qualify the person with respect to the financial health of the home,

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[8]Braverman, Nursing Home Standards, p. 5.

[9]U.S. Congress, House of Representatives, Social Security Amendments of 1971, Report of the Committee on Ways and Means on H.R.1, 92nd Congress, 1st Session (Washington, D.C.: U.S. Government Printing Office, May 26, 1971), p. 120.

but there is no guarantee that the same would be true with respect to patient care. Because of self interest, administrators have more incentive to become capable in finances, since about one half have a direct financial interest in the home they administer.[10] Obviously, even those who do not have a financial interest in the home are concerned with finances, since their employment depends upon it.

In other areas of administrative management regulations, Braverman found, 26 states require that current employee records be maintained, 26 States require visiting hours for the patients, 9 States require that patient transfer agreements or arrangements with other institutions such as hospitals must be available or in effect, 39 States require that therapeutic diets be prepared and served as prescribed by the attending physician, and 49 States require that sanitary laundry/linen services be provided.[11]

With respect to patient care, Braverman states,

> it appears that only those services which may be considered very minimal and basic to patient care are required by most jurisdictions. On the other hand, those which may be regarded as being relatively recent innovations for nursing home operation are still in the embryonic stage of development in so far as their being required by State authorities for licensure. An example of the former minimal

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[10] "Average Nursing Home Administrator Earns $10,000 to $15,000 a Year, Cornell University Study Shows," Nursing Homes, 19 (March, 1970), p. 31.

[11] Braverman, Nursing Home Standards, pp. 5-6.

> and basic standards required for extended care facility certification and State licensure includes the fact that 42 to 50 States include for licensure . . . a patient having a physician to care for him; an emergency physician being available to the facility; a registered or licensed practical nurse being the nurse in charge. . . . There is a very marked decline in the number of States which require those medical care services which are necessary in order to keep abreast with the demands of providing health care in all its complex forms. For example, States which require the provision of physical therapy, dental, social and laboratory/x-ray services range from 3-14 in number. When it comes to discerning those aspects of the basic services which may be considered innovative . . . the findings are equally bleak.[12]

When environmental health regulations were considered, Braverman found most of the states followed those regulations set forth for the certification of extended care facilities under Medicare. While this accounted for 80-90 percent of all states for most categories, there were still lapses in the requirements. For example, only "22 States specify the maximum number of patients per bedroom while the Federal extended care facility standards suggest the maximum number which a bedroom ordinarily contains."[13]

The aspect of nursing home licensure which has come under the greatest amount of attack are the fire safety and construction requirements and their enforcement. Since nursing home patients are by definition unable to take care of themselves, a fire can quickly become a

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[12] Ibid., p. 11.

[13] Ibid., p. 14.

major disaster. When this is added to the fact that many, although not a majority, of nursing homes are located in older converted buildings, the need for strict regulations becomes evident. The failure to adopt and enforce strong such regulations became a political issue in 1970, when the Harmar House Nursing Home in Marietta, Ohio burned taking the lives of 32 of the 46 patients in the home. This issue was raised before Congress by Representative David Pryor of Arkansas, who had become an advocate for the aged, especially those in nursing homes and related facilities. Harmar House was an extended care facility certified for Medicare. In pointing up the inadequacies of the regulations Pryor cited the preamble to Medicare's Conditions of Participation--Physical Environment:

> The following standards are guidelines to help State agencies to evaluate existing structures which do not meet Hill-Burton construction regulations in effect at the time of the survey, and to evaluate in all facilities those aspects of the physical environment which are not covered by Hill-Burton regulations. They are to be applied to existing construction with discretion and in light of community need for service.[14]

He then concluded, "The inspector now is armed with vague and subjective standards which he is instructed to apply with discretion."[15]

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[14]David Pryor, "Commercialization of Our Aged, Part II, The Nursing Home Patient," Congressional Record, 91st Congress, 2nd Session (March 26, 1970), pp. 112576-112581.

[15]Ibid., pp. 112576-112581.

In surveying fire safety and construction regulations, Braverman concluded that these requirements were not as comprehensive as they should be. He found that only 22 States require fire alarm systems and 23 States require sprinkler systems. In addition only 25 States specify that nursing homes have a written evacuation plan which is to be followed in case of disaster.[16]

The result of these ineffective regulations is a lessening of incentive for the nursing home industry to provide adequate quality patient care. As will be seen in the next section, most nursing homes provide adequate care for their patients. Unfortunately, there is a small minority who do not and are allowed to remain in operation because of nonexistent or lenient regulations or an inability by inspectors to enforce existing regulations.

Quality and Abuses

Probably the issue concerning the nursing home industry that has caused the most attention is quality of care. In the late 1960's and very early 1970's reports were forthcoming that cited cases of patient neglect and abuse.[17] It was generally concluded, however, that most

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[16]Braverman, Nursing Home Standards, p. 16.

[17]In addition to presenting the aged's case before Congress, Congressman Pryor held hearings which pointed up cases of patient neglect and abuse. See Howard Kohn, "Nursing Home Negligence Told," Detroit Free Press (May 8, 1971), p. A-3 and Mary Lou Butcher, "Mistreatment is Charged at Nursing Home Hearing," Detroit News (May 8, 1971), p. A-2.

nursing homes did an adequate job in providing services and that only a small minority of homes did not. This section will review three studies of nursing home patient care to determine the extent to which nursing homes are providing adequate nursing care services.

One study, the Nursing Home Research Project, is a three year study to examine the determinants of services to nursing home patients and to discover the processes through which services in nursing homes are innovated. Chosen for the study were a sample of nursing homes in the Detroit Standard Metropolitan Statistical Area. Since the study is still underway as of this writing, only initial reports have been published to date. With respect to publicly supported patients, the Project's first report stated:

> Contrary to the general expectations of Medicare legislation, however, few patients in Michigan now come to nursing homes for 'extended care facility' benefits. The reason for this is that when application for 'extended care facility' services is made, it is generally denied; often the basis is that the Medicare provision of rehabilitation potential will not be met. Today, half of the nursing home patients in Michigan go first to a general hospital under Medicare and then are transferred to a nursing home where they are supported under provision of Medicaid. . . . 'Our impression is that for most patients Medicare and Medicaid have added a new costly step before nursing home admission, but have not changed the need for nor the utilization of long term care.[18]

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[18]Leonard Gottesman, Nursing Home Research Project: The Study of Aged Patients and Nursing Home Services, Report to Respondents (Prepared by Philadelphia Geriatrics Center, Philadelphia, Fall, 1971), p. 6.

A second study, conducted by the General Accounting Office, addressed itself to two questions. Are skilled nursing homes providing proper care to patients? Are patients being provided with levels of care more intensive than needed? The study examined patient care and needs of persons in 30 nursing homes in each state for Michigan, New York, and Oklahoma. It concluded,

> Many of the skilled nursing homes GAO visited may not have provided proper care and treatment for their Medicaid and Medicare patients.
>
> Many patients in the nursing homes GAO visited may not have needed skilled care and should have been provided with less intensive--and less costly--care.[19]

The study implicitly defined proper care as being provided when the nursing home met the state's licensing or program-certification requirements, whichever was more stringent. Thus the GAO was looking for failure to provide required levels of services. It found 63 nursing-service deficiencies in 48 of the 90 nursing homes surveyed. Of these deficiencies half were found in Oklahoma nursing homes, with the principal deficiency being failure to have a qualified nurse in charge of each 8-hour shift. In Michigan and New York, two-thirds of the deficiencies were failure to meet state nurse-patient ratios. The GAO also found that in 47 of the 90 nursing homes physician visits

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[19]U.S. General Accounting Office, Comptroller General, Problems in Providing Proper Care to Medicaid and Medicare Patients in Skilled Nursing Homes (Washington, D.C.: U.S. Government Printing Office, 1971), p. 2.

were not always made every 30 days, although this is a requirement under both Medicare and Medicaid. In Michigan, for example, physician visits in 12 homes were made irregularly, ranging from 35 to 210 days apart.[20]

Michigan was the only one of the three states to have delineated objective criteria for skilled care.

> State and county medical personnel who normally evaluate patient needs accompanied us to 15 of the 30 homes reviewed. . . . these personnel made determinations as to the level of care needed. They concluded that about 297 (79 percent) of the 378 patients whose needs were evaluated did not require skilled care as defined by Michigan's criteria. . . . recent studies in New York showed that about 25 to 35 percent of the patients in skilled nursing homes were inappropriately placed. In addition, in a limited test, we were advised by the evaluators that, if the medical and nursing care characteristics required by New York and Oklahoma were measured against the Michigan criteria, a similar high percentage of patients probably would not require skilled-nursing home care.[21]

To assure that patients in nursing homes were receiving proper care, the homes, as a condition for participating in the Medicare program, were required to establish utilization review procedures. Under Medicare the overall objectives of these procedures were, "The maintenance of high quality patient care, more effective utilization of extended care services . . . , the encouragement of appropriate utilization and the assurance of

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[20] Ibid., pp. 10-12.

[21] Ibid., p. 26.

continuity of care upon discharge. . . .[22] Similar provisions were made for utilization review procedures for Medicaid under Title XIX of the Social Security Act.[23]

Dressler has analyzed the utilization review procedures of 101 extended care facilities in Connecticut with a total licensed capacity of 9,467 beds. At the time of his survey the homes had 7,655 patients of which 7 percent were Medicare beneficiaries and 51 percent were Medicaid recipients.

> Some of the facilities assess the care administered to various categories of their total patient populations, but the majority of the E.C.F.'s have designed their review processes primarily to meet the minimum requirements of the law.
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> There appears to be more concern within the surveyed population with claims benefit determination than with patient care monitoring. Nor is this concern confined within the individual E.C.F.'s; it appears

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[22]U.S. Department of Health, Education, and Welfare, Social Security Administration, Conditions of Participation; Extended Care Facilities: Regulations, Code of Federal Regulations, Title 20, Chapter III, Part 405 (Washington, D.C.: U.S. Government Printing Office, 1970).

[23]Section 1902 (a)(30) states, "A State plan for medical assistance must provide such methods and procedures relating to the utilization of, and the payment for, care and services available under the plan as may be necessary to safeguard against unnecessary utilization of such care and services and to assure that payments . . . are not in excess of reasonable charges consistent with efficiency, economy, and quality of care." U.S. Congress, House of Representatives, Compilation of the Social Security Laws, Vol. 1 (Washington, D.C.: U.S. Government Printing Office, 1968).

> to filter up and down the administrative channels through the state agency and fiscal intermediaries to the Social Security Administration.[24]

One additional question needs to be answered. That is, does the type of ownership affect the quality of care? This has been addressed by Holmberg and Anderson in a survey of 118 proprietary and nonproprietary nursing homes in Minnesota. They found very few significant differences when the two kinds of homes were compared on quality-of-care measures involving facilities, staff, and activity. One significant difference that was found was that the nonproprietary homes reported more physician time per week in the home.[25]

Investment Opportunities

The history of the nursing home industry as an investment opportunity is simple. It has only two phases, a rise and a fall, and they are quite distinct. The groundwork for the spectacular rise in nursing homes, particularly extended care facilities under Medicare, was laid in the first four months of Medicare's extended care program. In a survey of 255 E.C.F.'s, conducted by the Social Security Administration and covering the first two

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[24]Forrest G. Dressler, Jr., Patient Care Assessment in Extended Health Care Facilities (New Haven, Conn.: The Connecticut Health Services Research Series, 1971), p. 81.

[25]Hopkins R. Holmberg and Nancy Anderson, "Implications of Ownership for Nursing Home Care," Medical Care, VI, No. 4 (July-August, 1968), pp. 300-307.

to three months of the program, it was found that Medicare had increased occupancy levels. "Half of the E.C.F.'s surveyed reported that they were unable to accommodate all of the patients who sought admission, usually because of a lack of available beds. About one-third of those surveyed reported they were moving rapidly to provide additional skilled nursing beds."[26] Medicare reimbursement was on a reasonable cost basis. Since actual costs were not known interim rates were set, so that extended care facilities did not have to wait until final audit for reimbursement. In the early months of the program, the Social Security Administration was reimbursing almost everything and the belief existed that the final audits would be similar to those for hospitals, i.e., almost all expenses would be allowed.

With this optimistic future, and limited funds available from private sources to build the expensive facilities, it did not take long for entrepreneurs to enter the stock market for the necessary capital to build and expand facilities. At the same time, existing corporations, usually with no experience in providing nursing home services, entered the industry. This optimism purveyed much of the investment world, and when stock offerings were made, they were met with enthusiastic

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[26]Leon Bernstein, "E.C.F.'s Report on Impact of Medicare," Modern Nursing Home, 21, No. 6 (November/December, 1967), p. 83.

acceptance. In the spring of 1969, Richard Elliott wrote, "More significantly for investors, nursing home operators have been selling shares to the public at a dizzying rate. . . . Almost without exception, these nursing home stocks come to market at high price-earnings multiples--and move straight up from there."[27] For example, Four Seasons Nursing Center of America was selling in early 1969 for $112 per share on earnings of $.61 per share, a price-earnings ratio of 184. Price-earnings ratios under 50 were uncommon and in a few cases they exceeded 400.

Elliott recognized, however, that not everyone was certain to win.

> . . . the sure-thing prognosis is hardly more applicable to nursing homes than to any other enterprise, particularly one so new-in terms of basic economics wrought directly and indirectly by Medicare, and the overnight competition for capital. For one thing, few firms as yet show anything approaching a fair return on equity (or the kind of profit margin or revenues usually considered adequate), much less a sustained record of profitability; they are, of course, too new. Furthermore, a number of companies now public . . . actually have suffered earnings relapses.[28]

He went on to continue caution by stating that both Medicare and Medicaid would be more tightly regulated in the future.

By early summer in 1969 expansion in nursing home beds still continued. "Four Seasons Nursing Center of

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[27]Richard J. Elliott, Jr., "Unhealthy Growth? The Nursing Homes Industry is Expanding at a Feverish Pace," Barrons, 49 (February 10, 1969), p. 3.

[28]Ibid.

America, a 40-home Oklahoma chain that grossed more than $6,000,000 in fiscal 1968, is negotiating to borrow $45 million to promote a home franchising program."[29] Despite this, the picture had started to darken. "Some of the largest chains net only 5 percent or 6 percent yearly on investment v. an average of 10 percent for all of U.S. industry last year. The stocks of several big chains have dropped sharply."[30] In addition, the Social Security Administration had not completed its final audits and several of the chains had not set aside reserves to cover possible rebates. Throughout the rest of 1969, optimism continued to wane. "Nursing homes are unhappy with welfare programs and with what they feel is unjust, arbitrary treatment by the Government. Many have begun to evict or turn away Medicare and Medicaid patients. Federal and state officials are unhappy over spiraling costs and flagrant abuses in . . . overbilling . . . and charges for services not rendered."[31]

Finally, by mid-1970, investment in the nursing home industry had lost its glamour. The final Medicare audits were completed and it had become obvious that in many cases reserves were not sufficient to cover rebates.

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[29] "Gold in Geriatrics," Time (June 6, 1969), p. 103.

[30] Ibid.

[31] Sandra Blakeslee, "Booming Homes for Aged Face Rising Discontent," New York Times, 119 (February 16, 1970).

Nursing homes, unlike hospitals, were not allowed to include almost any expense in their charges under Medicare. At the same time Medicare enrollees were finding it difficult to cash in on extended care benefits, as benefit eligibility requirements were being tightened. In addition, Congress was attempting to pare Medicaid spending. "So heavily did nursing homes rely on public money last year (1969) that three out of every four patients were non-private. Some 60 percent were supported by a combination of Medicaid and welfare money, and 15 percent on Medicare."[32] Four Seasons Nursing Centers of America, the most glamorous of the nursing home chains, had had the trading of its stock halted and was on the verge of its subsequent bankruptcy.

Reimbursement

The last area of nursing home literature to be reviewed is reimbursement. Along with the quality of nursing home care, reimbursement for nursing home services has attracted considerable attention to the nursing home industry. Whereas the former was largely published in the popular press, the latter appeared in journals and as proposals before the various state legislatures. The reason for the focus of the controversy being at the

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[32]"Nursing Homes Show Disturbing Symptoms," Business Week (June 27, 1970). p. 110.

state level is that the Federally-sponsored Medicare program purchased only a small portion of the industry's services, while the state-administered Medical Assistance programs were the largest single purchasers of those services. Since the state was such a large purchaser of services, it was of prime importance to the industry to have adopted a reimbursement formula favorable to it.

The 1968 Nursing Home Survey, conducted by the National Center for Health Statistics, reported charges for all nursing homes in the United States. It reported,

> In 1968 the charges for care of 743,293 nursing home residents ranged from no charge to over $500 per month. These extreme charges were the exception, however. . . . More typically a home charged about $253 per resident per month; this was the average most frequent charge . . . made by all homes. The average lowest charge was $220, and the average highest charge was $310. In 68 percent of all homes . . . the most frequent charge ranged from $139 to $367. The lowest charge, which ranged from $116 to $324, had the least variability. The highest charge, which ranged from $150 to $470, had the greatest variability.[33]

When compared with a similar study for 1963, it was found that the most frequent charge had increased 49 percent, from $170 to $253.[34] It was also found that homes with Medicare recipients averaged $135 higher per month than charges in homes not certified for program participation.[35] This was

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[33] U.S. Department of Health, Education, and Welfare, Public Health Service, Vital and Health Statistics Data from the National Health Survey, National Center for Health Statistics Report, Series 12, No. 14, Charges for Care in Nursing Homes: United States--April-September, 1968 (Washington, D.C.: U.S. Govt. Printing Office, May, 1972), p. 2.

[34] Ibid., p. 2.

[35] Ibid., p. 8.

probably due to the more stringent requirements which must be met to qualify for certification. "Of the 743,293 residents in nursing homes, 45 percent received benefits from public or medical assistance programs, . . . [In addition,] Five percent of all residents were receiving Medicare benefits, and 7 percent had exhausted their Medicare benefit."[36] The percentage of persons in nursing homes and receiving public assistance increased from 1968 to the early 1970's. This increase resulted from the increase in costs of nursing home services, cutbacks in the Medicare extended care benefit program, and the expansion of the Medical Assistance program to all but two states.

LaVance has summarized the various ways states reimbursed nursing homes for services provided. His 1970 survey of 33 states concluded,

> The spectrum of rationales for distribution of appropriated monies ranges from an apparently arbitrary uniform payment per recipient, with apparent disregard of the recipient's level of need for service other than a medical determination of need for nursing home care, to rather sophisticated rationales which include numerical ratings of participating nursing homes and detailed evaluation of recipient requirements.
>
> The most realistic rationale from the standpoint of costs of service and administration of payments is the distribution of appropriated monies on the basis of audited costs of the nursing homes combined with an arbitrary maximum reasonable cost limitation. This rationale has the effect of forcing the nursing homes with audited costs in excess of the maximum reasonable

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[36] Ibid., p. 9.

> cost to withdraw from participation in caring for welfare recipients or to participate presumably at a loss. The rationale assures payment of audited costs to nursing homes with costs below the maximum reasonable costs limitation.[37]

Of the 33 states responding, only 13 required that nursing homes submit costs periodically.[38] Twenty-two states had established maximum, maximum reasonable, or maximum budgeted payments.[39] Finally, LaVance declared that all 33 states were considered to be receiving appropriations which were inadequate to pay the costs of the nursing home care for their welfare recipients.[40] These three findings are significant, since they indicate that most rates were set without the knowledge of cost and were insufficient to reimburse nursing homes completely for services provided. This forced most states to make the difficult decision as to the maximum quality of care that would be reimbursed by the state. Usually, this decision has been made by the availability of appropriations, as viewed by state legislatures.

One issue that continually arises in the reimbursement of public assistance clients in nursing homes is how to reimburse the homes in such a way that they will provide

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[37]Willis H. LaVance, "The Ideal Nursing Home Payment Program" (Presented to the State Welfare Finance Officers Conference, Hartford, Connecticut, August 18, 1970), pp. 1-2.

[38]Ibid., p. 12.

[39]Ibid., p. 13.

[40]Ibid., p. 14.

a desired level of services. That is, how can the state structure the reimbursement mechanism so as to provide adequate incentives for the provision of adequate care at an acceptable cost. No reimbursement mechanism yet devised has successfully addressed itself to both of these matters. In an attempt to overcome this dilemma, Breinholt has analyzed the conceptual framework of a nursing home. He concludes,

> . . . it is important to anticipate and explicitly design a reimbursement system around the desired incentive effects because every method will have incentive effects of some kind. . . . while it is difficult to base incentives on final outcomes because the outcomes [of providing care] are often difficult to measure, it may be even more risky to aim incentives toward specific attributes of the management process in the absence of a comprehensive normative model of that process.[41]

Included in the management process are such items as staff, organization, and technology; all items that traditionally have been regulated to insure proper performance. For example, those reimbursement rationales which are based on available services (staffing, etc.) assume that care is directly related to the availability of those services, although such is not always the case.

In Michigan, as in other states, the search for the ideal nursing home reimbursement rationale was a frustrating search as late as 1971. Attempts to determine

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[41]Robert H. Breinholt, "Reimbursement Incentives and the Management of Nursing Home Care" (Presented at the Annual Meeting of the American Public Health Association, Philadelphia, Pennsylvania, November, 1969).

costs of providing nursing home services met with limited success. Responses to a cost survey sent out for the Governor's Committee on Nursing Home Rates were limited to such an extent that no assurance could be given as to the randomness of the sample. Also, it was not possible to determine the extent or direction of the bias in the responses. This limited response resulted from nursing homes simply refusing to report costs.[42] In an attempt to get cost data the Michigan State Legislature included in the Department of Social Services appropriation's bill for Fiscal 1971 a provision that 75 percent of the nursing homes participating in the Michigan Medical Assistance program had to submit cost data to the legislative Auditor General, and that within 60 days of receipt thereof the Department would adjust the daily reimbursement rate upward a maximum of $.50 per day.[43] The data was collected and rates were adjusted, but the study itself was not released as the data was considered confidential and intended for rate setting only. Following a ruling by the Supreme Judicial Court of Massachusetts, which declared that it was within the power of the state to require nursing homes receiving reimbursement for publicly aided patients

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[42]Ernst and Ernst, Study of Nursing Home Costs in the State of Michigan (Lansing, Michigan: Ernst & Ernst, June, 1969).

[43]State of Michigan, Public Acts of 1970, No. 99, 75th Legislature, H. 4076, July 20, 1970, Sec. 14.

to supply cost data for rate setting, it should now be easier to obtain costs of providing nursing services.[44]

During this same period the State of Michigan was attempting to develop a reimbursement rationale that provided more incentives to the nursing home industry to assure adequate care than the then employed flat-rate rationale. The method employed by the Governor's Nursing Home Study was to analyze the various proposed reimbursement rationales and available data about the industry, to present to the decision makers the knowledge upon which a rational decision could be made. The Study's reports did not themselves recommend any reimbursement rationale over all others. Instead they attempted to point out the incentives created and costs of each rationale so that decision makers would be aware of the consequences of their choosing a particular rationale.[45]

Two other issues deserve mention with respect to reimbursement. The first is the dissatisfaction of the nursing home industry with the reimbursement mechanisms and rates of both Medicare and Medicaid. In hearings held by the American Nursing Home Association in 1969, it was

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[44] Lexington Nursing Home, Inc. v. Rate Setting Commission, 266 N.E. (Massachusetts) 317 (1971).

[45] Management Sciences Group, "Governor's Nursing Home Study: First Working Progress Report," Executive Office of the Governor, State of Michigan (Lansing, Michigan, June 8, 1971). (Mimeographed.)

reported that many nursing homes already had discontinued or limited their participation in the two programs, and that many more seemed ready to follow suit unless equitable reimbursement formulas were developed.[46] During this same period Medicare extended care benefits were being cut back, often by disallowing claims after the patient had already spent several days in an extended care facility. This meant that either the patients themselves had to pay for services utilized or the facility had to shoulder the loss. The latter did little to enamor the Medicare program to the nursing home industry.[47]

A second issue is the granting of public utility status to the nursing home industry as a means of regulating it. Leahmae McCoy, who formalized the issue in 1971, defines public utilities on the basis of decisions. She states,

> It appears, therefore that public utility regulation comprises (1) permission from a designated authority to enter the business; (2) regulation of service, including the inability of the enterprise to alter or discontinue such service or to deny it to particular customers without showing good cause; and (3) determination of rate structures based on long run average cost, which necessarily includes an adequate return on investment. . . . Using this definition of public utility regulation, the nursing

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[46]"Medicare, Medicaid Problems Aired at ANHA Hearings," Nursing Homes, 18 (June, 1969), p. 9.

[47]"Medicare Woes: Elderly Patients Find Nursing Benefits Hard to Get," Wall Street Journal (April 18, 1970), p. 26.

home has characteristics which appear to make such regulation essential.[48]

Economic Literature

In this part, economic analyses concerning the nursing home industry are reviewed. Then, the industrial organization literature on the evaluation of market structure is presented.

Economic Analyses

There have been very few economic analyses of the nursing home industry. The only recent economic study of the nursing home industry appeared in 1968. This was an industrial organization study of The Nursing Home Industry in the State of Washington by Frank J. Kottke and John F. Trainor.[49]

Kottke and Trainor relied primarily upon interviews with nursing home operators and administrators as their data source. This was combined with licensing standards and records of the state government of Washington. Their statistical data for the analysis of the structure of the nursing home industry came from Washington's annual Directory of Licensed Homes. These data were reported

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[48]Leahmae McCoy, "The Nursing Home as a Public Utility," Journal of Economic Issues, V. No. 1 (March, 1971), p. 69.

[49]Frank J. Kottke and John F. Trainor, The Nursing Home Industry in the State of Washington (Pullman, Washington: Frank J. Kottke, 1968).

for the year 1951 to 1967, with the latter date being circa July 1, 1967. It is therefore doubtful whether the full extent of the changes brought about by Medicare and Medicaid are reflected in this data, since Medicare's extended care benefits had only been in effect for six months and the state's Medical Assistance program had been operative for one year.

Washington has four classifications for those nursing homes which accept public assistance patients.

> Thus the minimum staffing requirements for skilled nurses in homes of 50 beds or less are as follows:
>
> Group I: One registered nurse on day shift, evening shift and relief duty, and a licensed practical nurse on night shift.
>
> Group II: One registered nurse 40 hours a week, and a licensed practical nurse on all other shifts.
>
> Group III homes with over 25 beds: One licensed practical nurse on day shift, seven days a week.
>
> Group III homes with less than 25 beds and Group IV homes: One licensed practical nurse 40 hours a week.[50]

Homes are allowed to accept patients certified for a home with less stringent staffing requirements, but are paid the correspondingly lower rate. Payment is the same for each level of care, irrespective of the geographical location of the home.

The authors were able to identify

> five types of markets for general nursing home care: (a) convalescent and restorative care for private

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[50] Ibid., pp. 8-9.

> patients, including those eligible for extended care under the Medicare program, (b) heavy care of private patients who are chronically ill, most of them of advanced age, (c) light care of patients in similar circumstances, (d) heavy care and (e) light care of public assistance patients, almost all of advanced age and chronically ill.[51]

With respect to the scope or extent of the market they state,

> The distance between nursing homes may be as much as 30 miles in thinly populated areas, but normally it is much less. The breadth of each market a nursing home confronts depends on the density of homes offering the particular type of care, and of course ultimately depends on the density of population. With rare exceptions, each nursing home operator senses that a small portion of his clientele consider homes at some distance to be feasible alternatives to his own home. Yet by far the greatest part of the competition of which he is aware comes from a relatively few nearby homes, and his competitive policies are framed in light of the rivalry of these few homes.[52]

In discussing the structure of the Washington State nursing home industry, they conclude, "Without exception, the number of competitors for private patients in each nursing home market of the State is sufficiently small that each firm, aside from the very smallest, does not significantly improve its offer without considering the effect of rivals' countermoves which are likely to follow."[53]

Implicitly, the authors define the market by stating:

> The fewness of substantial rivals is most easily perceived outside the larger cities. Private patients and the relatives and friends who select nursing homes for private patients rarely consider any locations at distances exceeding 10 miles if homes they deem comparable are within that range. . . .[54]

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[51] Ibid., pp. 12-13. [52] Ibid., p. 14.

[53] Ibid., p. 54. [54] Ibid., p. 57.

Even in metropolitan areas, where homes are fairly numerous, all homes do not compete with each other. This results in oligopoly in the Seattle metropolitan areas despite its 40 homes. Such is not necessarily the case in the much more populous metropolitan area of Detroit, where monopolistic conpetition might exist.

As with Michigan, the Washington State Department of Public Assistance is the major consumer of nursing home services, accounting for the purchase of over 60 percent of all nursing home services.

> With each biennium there has been a significant increase in the amount of State funds required by the Department of Public Assistance. In consequence the Department has been under continuous pressure from the Legislature to hold down its expenditures, and to justify among other things the size of its payments for nursing home care of patients on public assistance.[55]

In actions similar to those of the Michigan Nursing Home Association, the Washington State Health Facilities Association attempted to present a unified front during collective bargaining with the State over changes in the rate structure for the 1967-69 biennium. Not only did the Association threaten to cancel contracts with the state, but it also had legislation introduced which was advantageous to it.

In any set of negotiations between the state and the nursing home industry two points are crucial: What

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[55] Ibid., p. 78.

is an acceptable level of patient care? and How much will the state reimburse the nursing home industry for providing that care? Both have a direct impact upon the economic health of the industry. The former is determined by the licensing standards adopted by the state, whereas the latter is set by the welfare department. In the State of Washington, the Department of Public Assistance reimbursed homes according to the following rates, effective July, 1967: Class I--$8.78, Class II--$6.92, Class III--$5.52, and Class IV--$4.62.[56] These rates are quite low, when the increase from $11.50 to nearly $17.00 enacted by Congress for the few patients of the Veterans Administration is considered. They were also low when the rates for public assistance recipients were compared with private paying patients. In July 1968, when the Washington State Department of Public Assistance was paying $224 for the care of a public assistance recipient in a Class I home, "The minimum rates for private patients requiring comparable care varied from $235 to $480 in metropolitan areas and from $234 to $325 in non-metropolitan areas."[57]

In considering economics of scale Kottke and Trainor examined the size distribution of firms which had withdrawn from the industry from 1952 to 1967. "Of 167 withdrawals since the beginning of licensing, all but eight have had a

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[56] Ibid., pp. 82-83. [57] Ibid., p. 87.

capacity of less than 50 beds, and all but 11 have had a capacity of less than 30 beds."[58] They also found that homes with more than 60 beds had a competitive advantage over those with fewer beds. One piece of evidence to support this was that of 19 structures originally licensed for under 60 beds, 10 homes had expanded, resulting in homes with over 60 beds in each case, and there were obvious reasons why seven of the remaining nine had not expanded. There appeared to be slight economics of scale until capacity reached 90 beds after which increased size did not lead to reduced cost per patient day. Because of the small number of homes with more than 90 beds, it was unclear whether diseconomics of scale appeared as capacity rose.

With respect to ease of entry, Kottke and Trainor found that, except in larger cities, the opportunity to buy an existing structure only arose occasionally. In larger cities, however, the greater extent of competition restricted entry. This means that a larger capital investment is needed, not only for the erection of the building, but also to maintain it until it breaks even. In addition entry was restricted for several years after 1958, due to adoption of higher standards for new structures, with grandfather clauses for existing ones.

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[58] Ibid., p. 31.

A second economic analysis of nursing homes appeared in 1970. Conducted by Louis Henry, it examined the impact of Medicare and Medicaid on the supply and demand conditions of nursing homes.[59] Using the number of beds per state in 1967 for his supply analysis, Henry found that poor quality conditions were so important that the data do not reveal the true level of service. Overall he found that the two programs have been beneficial to the industry, but patient care had only slightly improved. At the same time, long-term care needs have largely been ignored.

Evolution of Market Structure

There are several theories concerning the evolution of market structure. One theory is that in its initial stage of development, the industry is composed of many relatively small firms. As the industry matures, concentration increases to a very high or moderately high peak before declining to a relatively stable lower level. A variation of this theory is that concentration is not lessened as the industry matures, but remains at a relatively stable high level. An example of an industry whose concentration pattern is described by the first theory is the steel industry, whereas the automobile industry's concentration pattern is described by its variant. In the

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[59]Louis H. Henry, "The Impact of Medicare and Medicaid on the Supply and Demand Conditions of Nursing Homes" (Unpublished Ph.D. Dissertation, University of Notre Dame, 1970).

former case U.S. Steel gained dominance in the early 1960's, but has had its market position gradually reduced by the growth of the rest of the industry. This decrease in concentration has not occurred in the automobile industry, where concentration has remained virtually unchanged since the exit of Studebaker from the industry.

A second theory is that a monopolistic or dominant firm emerges in the early stages of an industry's development and controls almost all of output through the industry's maturity stage. A variation of this is that the monopoly gives way to a highly or moderately concentrated oligopoly. Public utilities are described by the theory, while the aluminum industry is an example of an industry whose concentration pattern fits the variation.

In many industries the level of concentration attained in the initial stages of development has been moderate and concentration has either increased or decreased as the industry matures. Other industries have never been even moderately concentrated.[60]

Weston has suggested that industries go through a four stage life cycle. In the introduction stage, growth is slow because product acceptance has not been achieved. Consumer acceptance of the product and rapid expansion to meet demand are characteristic of the growth stage. The

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[60]Joe S. Bain, Industrial Organization, 2nd ed. (New York, N.Y.: John Wiley & Sons, Inc., 1968), pp. 159-161.

growth rate during the maturity stage depends on the usages for the industry's products. Finally, the decline stage is marked with a rise in availability of substitute products and industry output finally declines absolutely.[61]

Both Nelson and Shepherd have found that concentration is likely to decline in rapidly growing industries and increase in shrinking or slowly growing ones. Shepherd has also found that there is a weak but significant negative relationship between initial concentration and subsequent growth.[62] The former finding explains concentration level throughout Weston's industry life cycle. Concentration would decline during the growth stage and increase during the decline stage. If concentration were initially high, the growth stage would generally be limited and if concentration were low during the introduction stage, the growth stage would generally be greater.

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[61] Economic Concentration, Part I, Overall and Conglomerate Aspects, Hearings before the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, United States Senate, 88th Congress, 2nd Session (Washington, D.C.: U.S. Government Printing Office, 1965), Statement of J. Fred Weston, pp. 138-139.

[62] Ibid., Statement of Ralph L. Nelson, pp. 263-272 and William Shepherd, "Trends of Concentration in American Manufacturing Industries, 1947-1958," Review of Economics and Statistics, XLIV, 2 (May, 1964), pp. 200-212.

CHAPTER III

MEDICARE AND MEDICAL ASSISTANCE LONG-TERM CARE PROGRAMS

In 1965, the last year before Medicare and Medical Assistance, expenditures for nursing home care amounted to $1,324 million, or 3.3 percent of national health expenditures. Of this 61.5 percent were derived from private sources and 38.5 percent from public funds.[1] By 1968 most states had implemented a Medical Assistance program and the long-term care portion of Medicare was in its second year of operation. In that year 4.0 percent, $2,282 million, of national health expenditures went for nursing home care. Only 28.9 percent of this came from private funds, while 70.1 percent came from public sources. From 1965 to 1968 the public sector more than tripled its expenditures for nursing home care from $510 million to $1,622 million. During the same period private expenditures declined by over one fifth, from $914 million to $660 million.[2]

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[1] Ruth S. Hanft, "National Health Expenditures, 1950-65," Social Security Bulletin, XXX, No. 2 (February, 1967), 5-9.

[2] Dorothy P. Rice and Barbara S. Cooper, "National Health Expenditures, 1929-68," Social Security Bulletin, XXXIII, No. 1 (January, 1970), 6.

This change from private to public sources of expenditures for nursing home care from 1965 to 1968 was due to the introduction of the Medicare and Medical Assistance (Medicaid) long-term care programs. In discussing these programs in this chapter, each of them will be examined with respect to the following: eligibility and benefits, reimbursement, certification, and extent of the program.

Medicare Long-Term Program

The Social Security Amendments of 1965, adding two new titles to the Social Security Act, were signed into law on July 30, 1965. Title XVIII (Medicare) provides for hospital and supplementary medical insurance for persons 65 and over. Part A (Hospital Insurance) contains a provision for extended care benefits. The extended care concept was developed to provide benefits for those aged persons in need of convalescent or rehabilitative services and to reduce the cost of providing such services. The Senate Finance Committee Report of 1965 states,

> Care in an extended care facility will frequently represent the next appropriate step after the intensive care furnished in a hospital and will make unnecessary what might otherwise possibly be the continued occupancy of a high-cost hospital bed which is more appropriately used by acutely ill patients.[3]

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[3]U.S. Congress, Senate Committee on Finance, Social Security Amendments of 1965 (Washington, D.C.: Government Printing Office, 1965), p. 30.

Alternately stated by the Social Security Administration,

> The term "extended" refers not to the provision of care over an extended period, but to provision of active treatment as an extension of inpatient hospital care. The overall guide is to provide an alternative to hospital care for patients who still require general medical management and skilled nursing care on a continuing basis, but who do not require the constant availability of physician services ordinarily found only in the hospital setting.[4]

Thus, Medicare provides benefits for short-term stays in extended care facilities for the purpose of convalescence or rehabilitation so that more costly hospital beds can be used for acutely ill persons.

What are Extended Care Facilities?

A detailed definition of an extended care facility can be found in Title XVIII, Section 1861 (j) of the Social Security Act. For present purposes it can be defined as

> an institution, such as a skilled nursing home or rehabilitation center, which has a transfer agreement in effect with one or more participating hospitals and which is primarily engaged in providing skilled nursing care and related services for patients who require medical or nursing care or in providing services for the rehabilitation of injured, disabled, or sick persons.[5]

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[4]U.S. Department of Health, Education, and Welfare, Social Security Administration, Bureau of Health Insurance, Intermediary Letter No. 370 (Washington, D.C.: Government Printing Office, April, 1969), p. 2.

[5]David Allen, "Health Insurance for the Aged: Participating Extended-Care Facilities," Social Security

Extended Care Eligibility and Benefits

The hospital insurance portion of Medicare, and therefore extended care benefits, is available for all persons 65 and over who are entitled to monthly retirement benefits under the Social Security or Railroad Retirement Acts. In addition, persons not entitled to retirement benefits were allowed to enroll under a transitional eligibility provision after the adoption of the program. The largest group prevented from enrolling were those covered under the Federal Employees Health Benefits Act of 1959, who did not meet Social Security or Railroad Retirement requirements for benefits under employment separate from their federal employment.[6]

Extended care benefits provide payment for up to 100 days per benefit period[7] in a certified extended

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Bulletin, XXX, No. 6 (June, 1967), 3. Title XVIII, Section 1861 (j) of the Social Security Act is presented in Appendix A. The Social Security Amendments of 1972 changed the name of "extended care facilities" and "skilled nursing homes" to "skilled nursing facilities" and provided for the same level of care requirements in those facilities under both Medicaid and Medicare. U.S. Congress, Public Law 92-603, 92nd Congress, H.R. 1, October 30, 1972, Sections 247 and 278.

[6]Margaret Greenfield, Medicare and Medicaid: The 1965 and 1967 Social Security Amendments (Berkeley, California: University of California, 1968), pp. 2-3.

[7]A benefit period or "spell of illness" is a period of consecutive days that begins with the first day (not included in a previous spell of illness) on which a patient is furnished inpatient hospital or extended care services by

care facility. The beneficiary need not pay any deductible for these benefits as this is met under a pre-hospitalization condition of eligibility. All covered services are reimbursable for the first 20 days. After that, all covered services are reimbursable for an additional 80 days, except for a co-insurance payment of $8.50 per day. This co-insurance is paid by the Medicare enrollee himself.[8]

To be eligible for payment for a stay in an extended care facility, a Medicare enrollee must meet the following conditions:

> a qualified provider in a month for which the patient is entitled to hospital insurance benefits. . . .
>
> The spell of illness ends with the close of a period of 60 consecutive days during which the patient was neither an inpatient of a hospital nor an inpatient of an extended care facility . . .
>
> An individual may be discharged from and readmitted to a hospital or extended care facility several times during a spell of illness and still be in the same spell if 60 days have not elapsed between discharge and readmission.

Commerce Clearing House, Inc., A Complete Guide to Medicare as of January 1968 (Chicago: Commerce Clearing House, 1968), pp. 109-110.

[8]Originally the Medicare enrollee was required to pay only $5.00 per day for days 21-100. This was increased to $5.50 per day as of January 1, 1969; $6.50 per day as of January 1, 1970; $7.50 per day as of January 1, 1971; and $8.50 per day as of January 1, 1972. After 1970 this coinsurance is to be adjusted to reflect changes in the inpatient hospital deductible and coinsurance. Specifically, it will equal 25 percent of the inpatient hospital initial deductible. See Robert J. Myers, Medicare (Homewood, Ill.: Richard D. Irwin, Inc., 1970), pp. 113-114.

- A minimum of 3 consecutive days of hospital care is required.
- Admittance, on a doctor's order, to the extended-care facility is made within 14 days from the date of hospital discharge.
- Admittance to the extended-care facility is for further treatment of the condition for which patient was hospitalized.[9]

Covered services in an extended care facility include:

> (1) nursing care, provided by or under the supervision of a registered professional nurse, (2) bed and board in connection with the furnishing of nursing care, (3) physical, occupational, or speech therapy furnished by the facility or by others under arrangements with the facility, (4) medical social services, (5) drugs, biologicals, supplies, applicances, and equipment, for use in the facility, ordinarily furnished by the facility for the care and treatment of inpatients, (6)medical services of interns and residents-in-training under an approved teaching program of a hospital with which the facility has in effect a transfer agreement, and other diagnostic or therapeutic services provided by a hospital with which the facility has in effect a transfer agreement, and (7) such other health services as are generally provided by extended-care facilities.[10]

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[9]Allen, "Participating Extended-Care Facilities," p. 3. The Social Security Amendments of 1972 broadened admittance "within 28 days after such [hospital] discharge, in the case of an individual who was unable to be admitted to a skilled nursing facility within 14 days because of a shortage of appropriate bed space in the geographic area in which he resides, or within such time as it would be medically appropriate to begin an active course of treatment, in the case of an individual whose condition is such that skilled nursing facility care would not be medically appropriate within 14 days after discharge from a hospital." U.S. Congress, Public Law 92-603, 92nd Congress, H.R.1, Sec. 248.

[10]Commerce Clearing House, Inc., A Complete Guide to Medicare, p. 33.

Extended Care Reimbursement Rationale

Reimbursement to extended care facilities must be made on the basis of "reasonable cost." The determination of reasonable costs under Medicare is made for each individual home. First, allowable costs are determined. Second, the share of allowable costs, as it relates to the services furnished beneficiaries of the program compared to all persons receiving care in the facility, is determined. This second step is crucial since the determination of the share of costs allowable to Medicare must

> (A) take into account both direct and indirect costs of providers of services in order that, under the methods of determining costs, the costs with respect to individuals covered by the insurance programs established by this title will not be borne by individuals not so covered, and the costs with respect to individuals not so covered will not be borne by such insurance programs, and (B) provide for the making of suitable retroactive corrective adjustments where, for a provider of services for any fiscal period, the aggregate reimbursement produced by the methods of determining costs proves to be either inadequate or excessive.[11]

Following certification as an extended care facility, an interim rate is established. This interim rate is subject to audit and retroactive adjustment of costs.[12]

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[11] U.S. Congress, House of Representatives, Compilation of the Social Security Laws, Vol. 1, section 1961 (v)(1) (Washington, D.C.: Government Printing Office, 1968), p. 320.

[12] A discussion of the reasonable cost reimbursement method under Medicare can be found in Commerce Clearing House, Inc., A Complete Guide to Medicare, section 554, pp. 132-143.

Certification of Extended Care Facilities

When Medicare was enacted, there were no nationally uniform standards for extended care facilities. To provide the Social Security Administration time to develop facility standards that would insure a high quality of care, long-term care benefits did not become operational until January 1, 1967. In an attempt to provide an adequate number of extended care beds by that date, the Social Security Administration certified a large number of facilities that did not fully comply with the conditions of participation. What was required was "substantial compliance" and progress toward full compliance. In Michigan, there were 125 certified extended care facilities with 11,035 beds by July 1, 1967. This represented 15.1 beds per 1,000 hospital insurance enrollees, about the national average.[13] By July 1, 1968, Michigan had 139 certified extended care facilities with 12,641 beds, or 17.0 per 1,000 enrollees, slightly higher than the national average.[14]

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[13]U.S. Congress, House of Representatives, 1st Annual Report on Medicare, 90th Congress, 2nd session, House Document No. 331 (Washington, D.C.: Government Printing Office, June 24, 1968), p. 70.

[14]U.S. Congress, House of Representatives, 2nd Annual Report on Medicare--Operation of Medicare Program, 91st Congress, 1st Session, House Document No. 91-57 (Washington, D.C.: Government Printing Office, January 20, 1969), p. 102.

Scope of the Extended Care Program

As a result of the certification of large numbers of extended care facilities, utilization of benefits far exceeded actuarial estimates in 1967. Whereas the program, as proposed by the Administration to Congress in 1965, assumed that hospital insurance enrollees would spend 0.16 days per beneficiary in extended care facilities during 1967, they actually did spend 0.80 days per beneficiary in that year.[15] That is, utilization was five times greater than estimated. This resulted in actual costs being correspondingly five times greater than estimated costs, about $250 million during 1967. Cost and utilization estimates were originally based on a narrow definition of extended care benefits but this was not the definition employed during the early months of program operations.[16] It is interesting to note that the upper

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[15]There were 19,358,000 hospital insurance enrollees as of July 1, 1967. Of these 354,000 had covered stays in extended-care facilities with an average duration of 44 days. See U.S. Department of Health, Education, and Welfare, Social Security Administration, Office of Research and Statistics, "Health Insurance for the Aged Under Social Security: Number of Persons Insured, July 1, 1967," HI-11 and "Utilization of Extended-Care Facilities, 1967," HI-25, Health Insurance Statistics (Washington, D.C.: Government Printing Office, 1969 and 1971); and Myers, Medicare, p. 234.

[16]U.S. Congress, Senate Finance Committee, Medicare and Medicaid: Problems, Issues, and Alternatives, 91st Congress, 1st session, Committee Print (Washington, D.C.: Government Printing Office, 1970), pp. 91-96.

bound of the actuarial estimate, $50 million, was the amount reimbursed facilities in full compliance. The remaining $200 million was paid to homes only in substantial compliance.

During the first six months of 1967 admissions to extended care facilities totaled 198,600 nationally, an annual rate of 21.2 per 1,000 persons covered. In fiscal 1968 admissions rose to 448,000, resulting in a slight increase in the annual rate to 23.0 per 1,000 enrollees. The cost of providing these covered services was $330 million in fiscal 1968. Average reimbursement was $321 per recorded extended care claim and the average number of covered days per admission was approximately 45 days.[17]

In an attempt to reduce utilization under the extended care program, and thus costs, the Social Security Administration applied a stricter definition of eligibility for extended care benefits and employed utilization review to limit the length of stay per case. More direct means used included cost auditing of homes and a more restrictive interpretation of allowable costs and share of allowable costs borne by Medicare beneficiaries.

These limitations have posed major problems for extended care facilities and have resulted in many facilities refusing to admit Medicare patients. One problem

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[17]U.S. Congress, House of Representatives, 2nd Annual Report on Medicare, pp. 26-27.

has been the retroactive denial of payment for patients admitted under the program. Under the current method of operation, authorization for reimbursement is given only after the patient has been admitted to an extended care facility. If the patient is later found to be ineligible for extended care benefits, then the patient, his family, or the home is faced with a substantial bill. In an attempt to correct this, the Social Security Amendments of 1972 contain a provision for prior authorization of extended care benefits for a minimum number of days, the number depending upon the beneficiary's medical condition.[18] This should remove one of the stumbling blocks to homes participating in the program.

Another problem, and one that is not likely to be solved in the near future, has been the Medicare cost audit. After the establishment of their interim rates, many homes set aside a portion of their Medicare payments in a separate account pending final audit. In a large percentage of cases this was not sufficient to cover repayment to the Social Security Administration following the Medicare audit, as the audit usually resulted in disallowed costs and therefore lowered rates. This was due to the restrictive definition of allowable costs adopted by the program combined with the tendency of the homes to

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[18]U.S. Congress, Public Law 92-603, 92nd Congress, H.R.1, October 30, 1972, Sec. 228.

believe that a larger portion of costs would be allowed, as in the traditional case of hospital auditing. These retroactive denials of allowable costs posed hardships for homes, since the homes were never certain what their receipts would be until they were audited, often at a much later point in time. Both of these problems, along with an attempt to move homes from substantial to full compliance of the regulations, caused downward pressure on the number of participating extended care facilities.

During fiscal 1967, a large number of homes were certified nationally as extended care facilities.

> By January 1, 1967, when the extended-care benefit provisions went into effect, approximately 2,800 facilities were in substantial compliance with the conditions of participation. . . . By July 1, 1967, as a result of the assistance provided by the State agencies, an additional 1,400 facilities had been approved for participation. This brought the total number of ECF's to 4,160.[19]

At the end of fiscal 1968 there were 4,702 certified extended care facilities with 329,621 beds, an increase of 542 facilities and 36,314 beds.[20] Faced with the problems discussed above, the number of ECF's declined to 4,656 by July, 1970, despite an increase in the number of beds of 33,630. It should be pointed out, however, that not all of these facilities continued to accept Medicare

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[19]U.S. Congress, House of Representatives, 1st Annual Report on Medicare, p. 35.

[20]U. S. Congress, House of Representatives, 2nd Annual Report on Medicare, p. 94.

patients. In Michigan, for example, there were few proprietary or corporate homes still accepting Medicare patients in 1970, even though the official number of participating facilities was 156, representing 15,199 beds.[21]

Medical Assistance Long-Term Care Program

Title XIX of the Social Security Act makes provision for states to enact state medical assistance programs (Medicaid). Section 109 (c) of P.A. 1966, No. 321, Michigan's Medical Assistance Act, makes provision for reimbursement of long-term care:

> For a person 18 years of age or older, nursing home service in a state licensed nursing home and care in a medical care facility, certified by the State Department of Public Health may be provided to the extent found necessary by the attending physician, dentist, or certified Christian Science practitioner.[22]

As of December, 1970 the State of Michigan through its Medical Assistance program was reimbursing nursing home care services for 24,093 Department of Social Services clients in some 459 certified nursing care facilities.

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[21]U.S. Department of Health, Education, and Welfare, Social Security Administration, Office of Research and Statistics, "Health Insurance for the Aged: Participating Health Facilities, July 1970," HI-23, Health Insurance Statistics (Washington, D.C.: Government Printing Office, 1971), p. 18.

[22]State of Michigan, Public Acts of 1966, No. 321, 73rd Legislature, H. 4003, July 19, 1966, Sec. 109 (c).

These included skilled and basic facilities of three different types: nursing homes, county medical care facilities, and hospital long-term care units. This represented 66.8 percent of the capacity of these facilities, 36.088 beds.[23] In terms of financial support, the state spent $117,420,000 in fiscal 1971, $136,450,000 in fiscal 1972, and had appropriated $154,260,000 in fiscal 1973 for the provision of nursing home care services under Medical Assistance.[24]

Long-Term Care Eligibility and Benefits

Two groups of people may be distinguished for purposes of eligibility under the Michigan Medicaid program. The first group is those in financial need, as defined by the state's categorical assistance standards. That is, that group of persons entitled to receive a cash grant from the state. A second group of persons consists of the medically indigent. The major distinguishing characteristic between the two groups is that the latter has income and/or property valued above the assistance level, but otherwise meets categorical assistance standards.

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[23]State of Michigan, Department of Public Health, Bureau of Health Facilities, Division of Licensing and Standards (unpublished data).

[24]State of Michigan, Department of Social Services (unpublished data).

Financial eligibility for the medically indigent is determined on the basis of a flexible test of income in relation to medical expenses. The Medicaid program recognizes that a family or individual may have enough income for normal living expenses, but may also have medical expenses beyond its ability to pay for them. A certain amount of property and income are protected to meet maintenance living needs. As of June, 1969, a four-person family with a net income not exceeding $3,450 and property valued at less than $2,400 (excluding a homestead) would have been eligible to receive Medicaid benefits, provided it met categorical assistance standards. Income for eligibility purposes is defined as cash received by, or payments made to, or on behalf of, a family member on a continuing basis. If the assistance family has any income or property in excess of the protected amount, the excess must be utilized to pay for medical expenses before any medical assistance is provided.[25]

Once the eligibility criteria are met

> payments for skilled nursing home and medical care facility services are made on behalf of eligible Group 1 (categorically needs) and Group 2 (medically needy) clients age 18 or older in certified facilities on the basis of the intensity or level of nursing care and

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[25]State of Michigan, Department of Social Services, Annual Report. Fiscal 1969 (Lansing: Department of Social Services, 1969).

> services which the patient requires and receives and the capabilities of the facility to provide that care.[26]

As this policy statement was adopted before the implementation of an intermediate care (also referred to as basic care) program in Michigan, all nursing care services under the Medical Assistance program were considered to be skilled care, regardless of the level of care provided.

The situation was changed under the Social Security Amendments of 1967, which permitted states with approved public assistance programs to include intermediary care benefits under those programs. Section 1121(b) states

> . . . benefits in the form of institutional services in intermediate care facilities will be provided only to individuals who:
> (1) are entitled (or would, if not receiving institutional services in intermediate care facilities, be entitled) to receive aid or assistance, under the State plan, in the form of money payments;
>
> (2) because of their physical or mental condition (or both), require living accommodations and care which, as a practical matter, can be made available to them only through institutional facilities, and
>
> (3) do not have such illness, disease, injury or other condition as to require the degree of care and treatment which a hospital or skilled nursing home . . . is designed to provide.[27]

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[26]State of Michigan, Department of Social Services, Manual of Policies and Procedures for the Administration of Medical Assistance (MA) (Lansing: Department of Social Services, July, 1969), Item 224.

[27]U.S. Congress, House of Representatives, Compilation of the Social Security Laws, Vol. I, Sec. 1121 (b), p. 246.

This program was designed to provide states with a less expensive alternative to skilled nursing home care. In Michigan an intermediary care program went into effect July 1, 1969, as part of the Medical Assistance program.[28]

The daily rate reimbursed nursing care facilities is a comprehensive rate which includes payment for all services normally required by patients in such facilities. The only exceptions are the charges for physician's services, prescribed drugs for Group 2 patients, and certain physician-prescribed services (e.g., physical therapy). Services defined as being required by long-term care patients include such items as room and board, general nursing services, records, non-prescription drugs, and recreational activities. These are to be provided the patient under the basic daily reimbursement rate and the nursing care facility may make no extra charges to the patient, his relatives, or the public for any services or supplies included in this rate. Deductions may be made from an institutional code by nursing homes[29] for

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[28]While the intermediary care program was originally part of the Medical Assistance program, its funding source was the categorical assistance programs. Section 4 of Public Law 92-223 provides for the funding of care in intermediate care facilities under Medicaid (Title XIX). U.S. Congress, Public Law 92-223, 92nd Congress, H.R. 10604, December 28, 1971, Sec. 4.

[29]County medical care facilities and hospital long-term care units are not permitted to make deductions from the institutionsl code. Since these facilities are reimbursed on a cost basis, their rate is assumed to be comprehensive for all care.

non-covered medical expenses unavailable through Medicare or other insurance, only if these services are provided by registered or licensed personnel (nurses, therapists, etc.) upon the written order of the patient's physician.[30] The institutional code is defined as that monthly income which the patient has available to meet his medical needs less $20 for personal expenses. When determining the monthly payment to a nursing home for a patient, this code, less charges against it for non-covered medical expenses, is subtracted from the payment that would otherwise have been made by the state.

Long-Term Care Reimbursement Rationale

The majority of long-term care reimbursed under the Medical Assistance program is provided in nursing homes, county medical care facilities, and hospital long-term care units. These facilities are reimbursed in two distinct ways, depending on the type of facility.

Nursing home reimbursement, as of December 31, 1972, was made on the basis of a flat-rate rationale. Before the adoption of the Medical Assistance program in Michigan in 1966, nursing home reimbursement rates were negotiated by individual counties. Thereafter,

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[30]State of Michigan, Department of Social Services. MA Manual, Item 224, Section G and State of Michigan, Department of Social Services, "Letter No. 102," September 21, 1967 which clarifies the MA Manual.

reimbursement was made at different rates for four levels of care. Basic care (lowest level) was reimbursed at $10.00 per day; standard care, at $12.00 per day; intensive care, at $14.00 per day; and finally, comprehensive care (highest level) at $16.00 per day. It soon became apparent that the persons responsible for placing patients were often not capable of distinguishing between the levels of care. As a result the number of levels was reduced to two. Standard care was renamed basic care and intensive care became skilled care.[31] Reimbursement continued at $12.00 and $14.00 per day, respectively. Since then rates have been increased periodically. The latest increase, effective April 1, 1972, was to $14.00 and $18.00 per day for basic and skilled care. In addition, the reimbursement rate for basic care provided in a distinct part of a skilled care facility was set at $15.00 per day.

The rationale for paying an extra $1.00 for basic care in a distinct part of a skilled facility is that it will encourage skilled facilities to establish distinct parts, if the difference between the normal basic and skilled rates accurately reflects the cost difference in providing the two types of service. This is desirable from the state's viewpoint for two reasons. First, the movement of patients, due to changes in care requirements,

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[31]Nursing staff requirements adopted for skilled care were equal to those for the comprehensive level of care.

would be reduced. This is preferable, since the movement of aged and infirm patients to a new environment is often a traumatic experience for them. Second, an increase in the portion of patient days provided in basic homes or parts to total patient days of nursing care reimbursed by the state would reduce the state's cost of providing nursing care services.

In calendar 1970, only about one-fourth of all nursing home patient days reimbursed under Michigan's Medical Assistance program were provided in basic homes or parts. Nationally, however, nearly two-thirds of all state-reimbursed nursing home patient days were provided in the less costly basic care facilities. One explanation for this is that in Michigan rate differences for the two types of care do not accurately reflect cost differences. That is, rate differences exceed cost differences, giving facilities an incentive to be certified to provide skilled nursing care services. Since the rate differential has increased from $2.00 in early 1969 to $4.00 in 1972, either this explanation is not correct or the rate differential is based on other than cost differences.

In February, 1969 there were 168 nursing homes and county medical care facilities (including distinct parts) with 15,662 beds certified as skilled and 263 such facilities with 10,887 beds certified as basic. By March, 1970 comparable figures were 266 facilities

with 25,652 certified skilled beds and 198 facilities with 6,906 certified basic beds. The number of certified skilled homes (including distinct parts) increased by 98 with a corresponding increase of 9,990 certified skilled beds. During the same period, the number of certified basic care homes decreased by 65 and the number of certified basic beds declined by 3,981. In 1969, the differential between the basic and skilled rates increased from $2.00 to $2.23. While this does not prove that this was the cause of the certification shifts, it does indicate that it was to the advantage of a substantial portion of the industry to become certified to provide skilled rather than basic care.

In 1971, the Governor's Nursing Home Study examined the $2.23 rate differential to determine whether it was justified on the basis of cost differences. The Study found that there were three major cost differences, all relating to staffing requirements. First, skilled homes, but not basic homes, require the services of a consulting dietician for 16 hours per month at a cost of approximately $2,000 per year. Second, skilled homes must employ a director of nursing, who in homes with 30 or more certified beds cannot be counted toward meeting the staff-patient requirements. Third, for skilled homes at least one registered nurse or licensed practical nurse shall be on duty on a shift for each seven nurses aides

or other unlicensed nursing personnel. Taking account of these cost differences, the Study calculated the size needed at various rate differentials and occupancy rates to offset the additional cost of providing skilled over basic care. Assuming a 90 percent occupancy rate and the cost of a licensed supervisor being $1.40 per hour more than that of a nurses aide, then $2.23 was an accurate rate differential (i.e., reflected cost differences) for a home with 21 beds. Forty-five beds were needed if the rate differential was $1.00 and 60 beds were needed if it was $0.75 per patient day. The Study concluded that the size of the rate differential could not be justified on the basis of cost differences.[32]

It would appear unlikely that cost differences would have increased since June 1971 to such an extent that the current $3.00 or $4.00 differential between the basic and skilled rates is warranted. The conclusion which must be reached is that the rate differential is based on other than cost differences. Assuming that nursing homes only take into account cost differences, it is doubtful that the state will be successful in encouraging a shift in certification from skilled to basic beds under the existing rate structure.

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[32]Management Sciences Group, "Governor's Nursing Home Study: First Working Progress Report," Executive Office of the Governor, State of Michigan (Lansing: June 8, 1971), Ch. III. (Mimeographed.)

County medical care facilities and hospital long-term care units are reimbursed on a cost plus a percentage of cost basis. All reasonable costs are reimbursed to a predetermined level as are a percentage of costs above that level. For both types of facilities this level has been set at $18.00 plus 40 percent of additional costs per patient day for basic care and $21.00 plus 40 percent of additional costs per patient day for skilled care.

The legal basis for the rationales in effect in 1972 is found in the Michigan Department of Social Services' appropriations bill for fiscal 1973. Section 14 Public Act No. 206 of 1972 reads

> Sec. 14. The funds appropriated in this act for nursing home services are to be expended for 2 types of care classified as follows: skilled nursing home care and intermediate, also known as basic nursing home care. . . .
>
> The director of the department shall establish daily reimbursement rates for nursing care facilities. From the appropriations made in section 1 of this act, the state shall pay for nursing care in chronic care units of general hospitals and county medical care facilities a daily rate as determined by the director of social services plus 40% of the difference between that rate and the total cost audited for the institution in those facilities where the total daily costs exceed the determined rate.[33]

Actual rates are set by the Michigan Department of Public Health under contract with the Department of Social Services.

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[33]State of Michigan, Public Acts of 1972, No. 206, 76 Legislature, H. 5877, June 8, 1972, Sec. 14.

An additional rate which must be noted is that for services which are provided to Michigan residents out-of-state. In this case the rate of reimbursement is the lower of two rates: the rate for Michigan or the rate for the state in which the service is provided. Thus, if a person received care in another state, the provider of that care would receive either the prevailing rate in his own state or the Michigan rate for a comparable level of care, whichever is less.

Long-Term Care Facility Certification

The Michigan Department of Social Services has also contracted with the Department of Public Health to inspect nursing homes and long-term care units of hospitals for the purpose of Medical Assistance certification. County medical care facilities are inspected by the Department of Social Services as required by state law.[34] Virtually all long-term facilities in the state are certified to accept Medical Assistance patients, the rare exceptions being very small proprietary homes which can fill their few beds with private patients.

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[34] Infirmary or medical care facility; inspection, appeal to social welfare commission. The state department [Social Services] shall approve the medical care facilities by paper notice to the county department. Subsequent to its approval, the state department shall inspect such facility as frequently as it deems necessary, but at least one annual inspection shall be made. . . .

State of Michigan, Public Acts of 1957, No. 170, 69th Legislature, S. 1218, May 29, 1957, Sec. 1.

While long-term care facility standards comprise every facet of operation, major violations usually fall into two categories: buildings which do not meet state standards, often with respect to fire resistive specifications; and inadequate nursing personnel, usually not a sufficient number of trained nurses. When violations are discovered state law requires that facilities only need move in the direction of full compliance. This is usually easy to do since each home which has a major violation also is likely to have minor violations. The facility need only correct minor violations to show good intentions and to retain its certification. It is therefore not improbable that major violations will take several years to be corrected. Gross violations--over a period of time--will result in a facility losing its Medical Assistance certification, but it can continue to operate for up to two years before the Department of Public Health's decision to close a facility goes through the due process of law and is made effective.

Extent of Long-Term Care Program

Michigan's Medical Assistance program became operational October 1, 1966. It replaced the state's Medical Assistance to the Aged (MAA) program and medical services provided under categorical assistance programs. In

addition, it expanded coverage to include a larger segment of the medically indigent. Virtually all skilled nursing care provided by the county welfare departments prior to Medicaid was provided under the MAA program. This program, also known as the Kerr-Mills program, had been enacted in October of 1960. In fiscal 1962, the first year for which data are available, it provided skilled nursing care services to 663 welfare recipients at a cost of $256,526. This increased to 1,772 clients at a cost of $812,400 in fiscal 1965. During the next fiscal year and after the Social Security Amendments of 1965 had been enacted, Michigan provided $13,761,600 worth of services to 11,413 recipients under its MAA program. Data are not available for the transitional year, fiscal 1967. During the last half of 1967, the new Medicaid program provided services to 34,020 recipients at a cost of $39,446,619. In calendar 1968 the cost increased to $89,691,433 with the number of recipients increasing to 49,320.[35]

More important, for this study, are the number of welfare recipients receiving care at a point in time and the portion of industry capacity devoted to providing that

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[35]Michigan Department of Social Services, Annual Report Fiscal 1969, Fifteenth Biennial Report July 1966-June 1968, Fourteenth Biennial Report July 1964-June 1966 (Lansing: Department of Social Services, 1966-1969); Michigan Social Welfare Commission, Twelfth Biennial Report July 1960-June 1962 (Lansing: Department of Social Welfare, 1962).

care. Patient data are limited before the middle of 1969, since the state did not act as its own fiscal intermediary until that date. Consequently, data are available for only two points in time: October 1969 and December 1970. In October 1969, nursing care services were reimbursed for 15,601 skilled Medicaid patients and 4,857 Medical Assistance recipients receiving basic care throughout the state.[36] At the same time there were 24,585 skilled and 6,639 basic long-term care beds. Thus, Medical Assistance recipients accounted for 63.5 percent of skilled beds and 73.2 percent of basic beds and 65.5 percent of overall industry capacity. By December 1970, these percentages had only changed slightly. Medical Assistance patients in skilled nursing care facilities accounted for 65.7 percent of all skilled beds; those in basic nursing care facilities, 70.4 percent of capacity; and all welfare recipients accounted for 66.7 percent of total industry capacity. Recipients accounted for 65.6 percent of skilled and 71.2 percent of basic beds in nursing homes.[37]

Tables 1 through 4 present the number of patient days and total cost of care provided in nursing homes

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[36]This does not include those in the long-term care unit of Wayne County General Hospital, for which data are not available.

[37]State of Michigan, Department of Public Health, Bureau of Health Facilities, Division of Licensing and Standards (unpublished data).

under the Medical Assistance long-term care program for calendar 1970. These figures differ from published data, since that data reports on reimbursement for care provided. That is, the figures herein are for actual care provided in 1970, while published data report care reimbursed during the year. The two figures will be equal only if the amount and time lag in the submission of bills remains constant. There are two additional sources of possible differences, although these are quite small. First, in compiling the data, all bills were rounded to the nearest dollar. The magnitude of any error from this source is not significant, since bills are usually submitted only every 15 or 30 days by nursing homes and, therefore, are relatively few compared to the number of patient days. Second, all bills for calendar 1970 might not have been submitted when the data were compiled. The error from this source is small as most nursing homes are quick to submit bills to the state, due to the small number of bills and simplicity of fee schedules.

Table 1 presents the number of patient days provided by Michigan's nursing homes under the Medical Assistance program in 1970 by Governor's Planning Region.[38] As would be expected, over half of each type of care was provided in the Detroit Region. Somewhat

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[38]See Appendix B for a complete list of the counties included in each Planning Region.

TABLE 1.--Number of patient days provided in Michigan nursing homes under the Medical Assistance Program in 1970 by Governor's Planning Region.

	Region	Basic	Skilled	Both
1.	Detroit	1,016,867	3,168,112	4,184,979
2.	Jackson	46,157	114,148	160,305
3.	Kalamazoo-Battle Creek	85,480	264,544	350,024
4.	Benton Harbor-St. Joseph	48,660	100,277	148,937
5.	Flint	116,536	255,624	372,160
6.	Lansing	49,306	175,244	224,550
7.	Saginaw Bay	105,908	309,524	415,432
8.	Grand-Rapids-Muskegon	234,489	480,135	714,624
9.	Alpena	33,292	9,781	43,073
10.	Traverse Bay	0	90,155	90,155
11.	Sault Ste. Marie	10,563	0	10,563
12.	Marquette-Iron Mountain-Escanaba	107,909	59,408	167,317
13.	Houghton-Ironwood	36,723	53,745	90,468
State Total		1,891,890	5,080,697	6,972,587

Source: Michigan Department of Social Services, Medicaid Fiscal Management, ECF Utilization Files (unpublished data).

more surprising is the percentage of total patient days which were skilled days of care. Skilled care accounted for 73 percent of total patient days, while basic care accounted for only 27 percent. The same data are presented in Tables 2 and 3 for basic and skilled care, this time categorized by the number of beds in the facility providing care and the facility's type of ownership. It will be noticed that the majority of basic care, regardless of the type of ownership, is provided in homes with less than 60 beds. Of the three types of ownership, a larger percentage of care in corporate-owned homes is provided in homes with 40 or more beds, than is the case for the other two types. Overall three-fourths of all basic care is provided in homes with fewer than 60 beds. When we look at where skilled care is provided, we notice that only one-fifth is provided in homes with fewer than 60 beds. Also, almost one-third of the care provided by each type of ownership is provided in homes with 150 or more beds. Whereas a larger portion of basic care was provided in proprietary homes than in corporate homes, proprietary skilled homes provided only one-fifth as many patient days as were provided by corporate-owned homes.

The total cost of providing care in Michigan's nursing homes under the Medical Assistance program in 1970 is presented in Table 4 for each of the Governor's

TABLE 2.--Number of patient days provided in Michigan's basic nursing homes under the Medical Assistance program in 1970 by size (number of beds) of facility.

Size of Facility	Type of Ownership			Total	Cumulative Percent of Total
	Proprietary	Corporate	Non-Profit		
0- 19	165,765	21,488	18,075	205,328	10.85
20- 24	92,010	33,956	9,601	135,567	18.02
25- 29	200,760	31,226	13,661	245,647	31.00
30- 34	90,020	61,123	14,180	165,323	39.74
35- 39	89,152	63,896	5,015	158,063	48.10
40- 49	65,367	150,795	42,165	258,327	61.75
50- 59	99,292	149,987	7,990	257,272	75.35
60- 69	0	66,647	12,289	78,936	79.52
70- 79	0	10,566	57,235	67,801	83.11
80- 89	18,349	62,126	0	80,475	87.36
90- 99	0	46,988	27,324	74,312	91.29
100-109	0	0	0	0	91.29
110-119	38,325	5,643	0	43,968	93.61
120-129	0	0	0	0	93.61
130-149	0	688	40,461	41,149	95.79
150+	0	79,722	0	79,722	100.00
All Facilities	859,043	784,851	247,996	1,891,890	

Source: Michigan Department of Social Services, Medicaid Fiscal Management, ECF Utilization Files (unpublished data).

TABLE 3.--Number of patient days provided in Michigan's skilled nursing homes under the Medical Assistance Program in 1970 by size (number of beds) of facility.

Size of Facility	Type of Ownership			Total	Cumulative Percent of Total
	Proprietary	Corporate	Non-Profit		
0- 19	0	1,720	3,300	5,020	.10
20- 24	7,756	7,864	22,059	37,679	.84
25- 29	7,424	53,225	0	61,649	2.05
30- 34	20,034	12,704	0	32,738	2.70
35- 39	0	15,488	0	15,488	3.00
40- 49	40,095	100,443	38,212	178,750	6.52
50- 59	124,389	239,357	24,516	388,262	14.16
60- 69	47,647	263,720	35,343	346,710	20.99
70- 79	58,627	179,890	52,170	290,687	26.71
80- 89	0	238,253	33,612	271,865	32.06
90 - 99	74,002	481,934	20,668	576,604	43.41
100-109	31,832	481,408	20,246	533,486	53.91
110-119	87,892	290,814	32,092	410,798	61.99
120-129	0	225,239	20,465	245,704	66.83
130-149	25,357	168,331	0	193,688	70.64
150+	246,437	1,076,977	168,155	1,491,569	100.00
All Facilities	771,492	3,838,367	470,838	5,080,697	

Source: Michigan Department of Social Services, Medicaid Fiscal Management, ECF Utilization Files (unpublished data).

TABLE 4.--Total cost of providing care in Michigan nursing homes under the Medical Assistance Program in 1970 by Governor's Planning Region.

	Region	Basic	Skilled	Both
1.	Detroit	$10,802,059	$41,187,659	$51,989,718
2.	Jackson	484,310	1,460,785	1,945,095
3.	Kalamazoo-Battle Creek	894,808	3,424,648	4,319,456
4.	Benton Harbor-St. Joseph	513,078	1,301,980	1,815,058
5.	Flint	1,214,664	3,351,957	4,566,621
6.	Lansing	524,142	2,292,834	2,816,976
7.	Saginaw Bay	1,114,329	4,070,215	5,184,544
8.	Grand Rapids-Muskegon	2,484,052	6,192,209	8,676,261
9.	Alpena	360,372	127,663	488,035
10.	Traverse Bay	0	1,263,239	1,263,239
11.	Sault Ste. Marie	109,874	0	109,874
12.	Marquette-Iron Mountain-Escanaba	1,135,203	763,533	1,898,736
13.	Houghton-Ironwood	374,256	665,291	1,039,547
State Total		$20,011,147	$66,102,013	$86,113,160

Source: Michigan Department of Social Services, Medicaid Fiscal Management, ECF Utilization Files (unpublished data).

planning regions. As should be obvious, when the state pays a constant fee per patient day regardless of location, size, or ownership, there is little difference in the distribution of patient days and the total cost of care. What difference there is arises from the fact that Medicaid recipients are called upon to utilize their own resources to purchase care for themselves. Since these resources are quite small relative to their medical expenses, or the state would not be reimbursing care provided to them, there will be only minor differences.

In addition to nursing homes Medical Assistance provides for care in county medical care facilities and long-term care units of hospitals. The state under Medicaid also pays for services provided those patients in mental health hospitals who meet either the public assistance or medical assistance category eligibility requirements. This program began in June 1970 and has a daily patient rate of $21.60. Only one rate has been established for these services, since all care provided by mental health hospitals is assumed to be skilled care.

Tables 5 and 6 present a breakdown of the number of patient days and total cost of care provided for the various types of facilities and type of assistance the recipient receives. Nursing homes are the dominant type of provider, particularly with respect to the provision of basic care. They provide 78 percent of all patient

TABLE 5.--Number of patient days provided in Michigan long-term care facilities under the Medical Assistance Program in 1970 by type of facility.

	Basic	Skilled	Both
Medical Assistance			
Nursing Home	1,510,204	4,312,987	5,823,191
MCF	24,522	1,069,804	1,094,326
Hospital CCU	50,058	469,178	519,236
Outstate	214	10,625	10,839
Total MA	1,584,998	5,862,594	7,447,592
Public Assistance			
Nursing Home	381,686	767,710	1,149,396
MCF	2,875	125,881	128,756
Hospital CCU	9,062	164,988	174,050
Outstate	0	2,023	2,023
Total PA	393,623	1,060,602	1,454,225
Both			
Nursing Home	1,891,890	5,080,697	6,972,587
MCF	27,397	1,195,685	1,223,082
Hospital CCU	59,120	634,166	693,286
Outstate	214	12,648	12,862
State Total	1,978,621	6,923,196	8,901,817

Source: Michigan Department of Social Services, Medicaid Fiscal Management, ECF Utilization Files (unpublished data).

TABLE 6.--Total cost of providing care in Michigan long-term care facilities under the Medical Assistance Program in 1970 by type of facility.

	Basic	Skilled	Both
Medical Assistance			
Nursing Home	$15,241,983	$55,051,604	$70,293,587
MCF	301,973	16,997,758	17,299,731
Hospital CCU	645,755	7,889,911	8,535,666
Outstate	1,432	117,998	119,430
Total MA	$16,191,143	$80,057,271	$96,248,414
Public Assistance			
Nursing Home	$ 4,769,164	$11,050,409	$15,819,573
MCF	40,121	2,210,518	2,250,639
Hospital CCU	136,580	3,112,541	3,249,121
Outstate	0	23,224	23,224
Total PA	$ 4,945,865	$16,396,692	$21,342,557
Both			
Nursing Home	$20,011,147	$66,102,013	$86,113,160
MCF	342,094	19,208,276	19,550,370
Hospital CCU	782,335	11,002,452	11,784,787
Outstate	1,432	141,222	142,654
State Total	$21,137,008	$96,453,963	$117,590,971

Source: Michigan Department of Social Services, Medicaid Fiscal Management, ECF Utilization Files (unpublished data).

days at 73 percent of the total cost. County medical care facilities and hospital long-term care units both account for substantial portions of skilled care costs and patient days. It should be noted, however, that included in the hospital component are reimbursements of $6,375,121 made to seven state mental hospitals for 360,496 days of skilled patient care.

The number of patient days and total cost of care provided in county medical care facilities and hospital long-term care units are presented in Tables 7 and 8. It will be noticed that less than five percent of the care provided in these two types of facilities is basic care and this is almost entirely provided in facilities with less than 60 beds. Skilled long-term care units of hospitals have either less than 70 beds or 150 or more. Once again, the large totals for providing skilled care in hospital long-term care units with 150+ beds are primarily due to the inclusion of state mental health hospitals. Even if these were excluded, almost one-half of the skilled patient days, provided in county medical care facilities and hospital long-term care units, were provided in facilities with 150 or more beds. After deducting care provided in state mental health hospitals, hospital long-term care units lose importance as a source of care under the Medical Assistance program. On the other hand county medical care facilities

TABLE 7.--Number of patient days provided in Michigan's county MCF's and hospital CCU's under the Medical Assistance Program in 1970 by size (number of beds) of facility.

Size of Facility	Basic			Skilled		
	Co-MCF	Hospital CCU	Total	Co-MCF	Hospital CCU	Total
0- 19	0	4,989	4,989	0	21,244	21,244
20- 24	0	0	0	0	3,245	3,245
25- 29	8,491	15,524	24,015	0	58,160	58,160
30- 34	0	19,045	19,045	6,183	0	6,183
35- 39	0	7,339	7,339	23,184	14,312	37,496
40- 49	0	2,060	2,060	31,177	8,821	39,998
50- 59	16,750	10,163	26,913	41,021	29,774	70,795
60- 69	0	0	0	53,626	1,921	55,547
70- 79	0	0	0	114,929	0	114,929
80- 89	0	0	0	53,521	0	53,521
90- 99	0	0	0	42,037	0	42,037
100-109	0	0	0	84,555	0	84,555
110-119	0	0	0	68,041	0	68,041
120-129	0	0	0	43,494	0	43,494
130-149	0	0	0	55,758	0	55,758
150+	2,156	0	2,156	578,159	496,689	1,074,848
All Facilities	27,397	59,120	86,517	1,195,685	634,166	1,829,851

Source: Michigan Department of Social Services, Medicaid Fiscal Management, ECF Utilization Files (unpublished data).

TABLE 8.--Total cost of care provided in Michigan's county MCF's and hospital CCU's under the Medical Assistance Program in 1970 by size (number of beds) of facility.

Size of Facility	Basic			Skilled		
	Co-MCF	Hospital CCU	Total	Co-MCF	Hospital CCU	Total
0- 19	$0	$ 62,955	$ 62,955	$0	$ 318,337	$ 318,337
20- 24	0	0	0	0	54,142	54,142
25- 29	87,681	207,935	295,616	0	1,071,844	1,071,844
30- 34	0	249,095	249,095	100,524	0	100,524
35- 39	0	97,733	97,733	374,436	231,060	605,496
40- 49	0	26,771	26,771	492,925	117,696	610,621
50- 59	225,155	137,846	363,001	706,317	606,487	1,312,804
60- 69	0	0	0	834,265	29,823	864,088
70- 79	0	0	0	1,841,304	0	1,841,304
80- 89	0	0	0	845,032	0	845,032
90- 99	0	0	0	680,593	0	680,593
100-109	0	0	0	1,290,800	0	1,290,800
110-119	0	0	0	1,016,090	0	1,016,090
120-129	0	0	0	598,209	0	598,209
130-149	0	0	0	846,884	0	846,884
150+	29,258	0	29,258	9,580,897	8,573,063	18,153,960
All Facilities	$342,094	$782,335	$1,124,429	$19,208,276	$11,002,452	$30,210,728

Source: Michigan Department of Social Services, Medicaid Fiscal Management, ECF Utilization Files (unpublished data).

are still an important source, especially when considering the provision of skilled care.

CHAPTER IV

THEORY OF MARKET STRUCTURE DETERMINATION

The purpose of this study, as stated in Chapter I, is to determine what, if any, effect the availability of Medicare and Medicaid payments for nursing care services has had on the nursing home market structure in Michigan. This chapter will address itself to the question of the importance of changes in market structure. In addition, the questions of why changes in market structure should be expected and what is their direction will be examined. Finally, two theories of the evolution of the nursing home industry market structure will be posed.

Market Structure and Competition

Market structure comprises those economic elements of a market which significantly effect the behavior of firms in the industry supplying that market. It derives its importance from the effect upon the competitiveness of an industry. Changes in market structure tend to result in changes in industry competitiveness, because they alter the industry's performance. That is, where one market structure will result in a competitive industry and the

efficient allocation of resources, another might result in a noncompetitive industry and an inefficient allocation of resources.

> It (market structure) is important because it determines the behavior of the firms in the industry, and that behavior in turn determines the quality of the industry's performance. . . . If we can uncover reliable links between elements of structure and elements of performance, we can, with relative ease and confidence, predict the performance of any industry in which we are interested. Even more important, the elements of market structure can be changed in some cases as a result of public policy.[1]

Therefore, public policies and programs should be examined to determine their effect upon market structure. Given that a change in market structure has resulted from a particular policy or program, it is likely that similar changes will result if those policies are put into effect in other markets, or if analogous programs are adopted for other industries.

While the impact upon industry competitiveness of the introduction of policies and programs, including Medical Assistance and Medicare, is often not an explicit public policy variable, its effect must be considered. For most industries a high degree of competition is a desirable objective. This results from the efficient utilization of resources which competition yields and which is an economic goal of society. A competitive industry produces the

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[1]Richard Caves, American Industry: Structure, Conduct, Performance (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1964), p. 16.

largest output at the lowest price, consistent with the earning of long-run normal profits, consumer preferences, and the alternative uses of resources involved.

The nursing home industry is not unlike other industries in that industry competition is a desirable objective. One concern is that consumer knowledge is not adequate in the purchase of nursing care services. In the absence of adequate knowledge, competition will result in a poor quality of care. Traditional economic theory assumes that consumer knowledge of the market is adequate, and will cause each firm in a competitive industry to produce a relatively homogeneous product of acceptable quality. Given the absence of adequate consumer knowledge in nursing home markets, government has imposed licensing and certification requirements designed to assure a minimal quality of care. Depending upon the effectiveness of these requirements, they can lead to the production of a relatively homogeneous product of acceptable quality. Once the concern over quality of care is answered, competition in the nursing home industry becomes a desirable objective, since it results in the efficient utilization of resources.

Elements of Market Structure

There are several elements of market structure including the level of concentration, product differentiation, and barriers to entry. Each of these will be considered in this section, as they relate to the nursing home industry.

Concentration

The level or degree of concentration refers to both the number of firms in an industry and the size distribution of those firms, when the size of each is measured by the portion of the total industry it controls. If a few nursing homes contain almost all of the industry's beds, then the industry would have a high degree of concentration. Concentration is an important element of market structure because of its effect on industry competitiveness. "Where firms are few and large they can, without overt collusion, establish and maintain a price that is generally satisfactory to all participants."[2] That is, they can earn greater than normal profits, often for long periods of time.

It should be expected that concentration in the nursing home industry would be relatively high, compared to all industries, since the nursing home industry is a service industry. Service industries tend to have smaller market areas than other industries because of the nature of their product. The nursing home industry is no exception as is indicated by a United States Department of Housing and Urban Development survey of 400 FHA-assisted nursing homes. This

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[2]John Kenneth Galbriath, "A Seminar Discussion of the Question: Are Planning and Regulation Replacing Competition in the New Industrial State?," Hearing before the Subcommittees of the Select Committee on Small Business, June 29, 1967, United States Senate, 90th Congress, 1st Session (Washington, D.C.: U.S. Government Printing Office, 1967), p. 8.

survey showed that five-sixths of the patients in a nursing home typically came from a residence less than 25 miles from the home.[3] Offsetting the limited extent of market areas in most service industries is the relative fewness of economies of scale. Economies of scale do exist in nursing care facilities and have been important during the 1960's.[4]

With geographic markets thus limited, it would be expected that the level of concentration would be higher in rural areas than in urban areas. This, of course, results from the greater demand for nursing care services and the larger number of facilities and beds in more populous areas. Nursing care facilities in sparsely populated rural areas would exercise considerable control over the market solution and in some cases these facilities would enjoy local monopolies. The level and changes in the level of concentration will be examined in Chapter V in detail, when data on the Michigan nursing home industry are presented.

Product Differentiation

Competition between firms is sharper and more price oriented when a uniform product is sold, than when each firm's product is differentiable from those of other firms.

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[3]U.S. Department of Housing and Urban Development, Survey of FHA-Assisted Nursing Homes, 1969 (Washington, D.C.: U.S. Government Printing Office, 1969), p. 5.

[4]See Chapter II, p. 43, and Chapter V, pp. 156-158.

Firms differentiate their product in an attempt to build a somewhat protected market. If successful, they can charge higher prices to customers who have developed a preference for their particular brand of product. The market for their product becomes more stable and each firm is better able to predict product demand. The result of product differentiation is a less elastic demand curve for each firm's product.

Nursing care facilities are capable of differentiating their products in several ways. One is on the basis of the types of services provided. While one facility might provide physical therapy, another might offer social services to the patient. A second means of product differentiation is through the physical setting of the facility. Geographic location of the facility is important, since the majority of a nursing care facility's patients come from with a short distance of the home. The type of area within which a home is located greatly affects the types of patients it receives, particularly with respect to their economic status. That is, the type of patient admitted to an inner-city nursing home will be markedly different from that admitted to a suburban nursing care facility. The type of building utilized by the nursing care facility is also a means of differentiating its product. Some patients prefer a home-like setting, while others choose an institutional-appearing setting.

Nursing care facilities were also capable of differentiating their product by creating differences in the perceived quality of care provided. As with most health care services, consumers are not generally knowledgeable of the quality of nursing care services before and after their purchase. Because of the large cost involved in purchasing nursing care services, most prospective customers consider several alternative facilities. These customers, however, are usually not competent to objectively judge the quality of care they or their relatives will receive. Their decision to purchase services from a particular facility will be based on other factors and subjective judgments as to quality of care. After beginning to purchase services, they will be reluctant to change facilities unless they definitely believe that they will receive better care elsewhere.

Barriers to Entry

Barriers to entry measure the influence potential entries into the industry will have on the present industry. One such barrier to entry is advertising. Formal advertising is almost nonexistent in the provision of nursing care services, as it is not thought to be completely ethical. What formal advertising does exist is in the form of brochures, which are given to potential customers. The major type of advertising relied upon is indirect advertising, as represented by a facility's reputation for good

and/or long service in the community. Therefore, the effectiveness of advertising as a barrier to new facilities is dependent on the strength of established facilities' reputations in the local market.

A second barrier to entry is economies of scale. Economies of scale determine the minimum size a facility must reach before it is efficient. If this minimum size is a small percentage of industry output, there is room for several efficient firms and a large degree of competition. As this minimum size increases in proportion to industry output, fewer facilities are able to attain efficient levels of production and competition lessens.

Kottke and Trainor have shown that economies exist in the nursing home industry until firm size reaches 50 to 60 beds.[5] Thus, we would expect firms to expand to at least 50 beds where feasible. In addition, we would expect that new facilities would have 50 or more beds, given sufficient demand in the market area. Over time the number of facilities with less than 50 beds should decline, either by expansion, closure, or merger of the firm to another firm. Before the introduction of Medicare and Medical Assistance, it is likely that economies of scale represented a significant barrier to the entry of new facilities in some sparsely populated markets due to very limited demand.

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[5]See Chapter II, p. 43.

Absolute costs represent a third barrier to entry and arise from three sources. First, established firms may possess valuable technology concerning production techniques. Second, there may be a limited supply of an especially significant input or factor of production. Third, costs of capital to a new firm may be prohibitive. It is unlikely that any of these have had a significant effect on the entry of new firms into the nursing home industry. While there has been a limited supply of nursing personnel willing to work for the wages most owners have been willing to pay, this probably did not have a significant effect on potential entrants because of ineffectively enforced licensing regulations.

Impact of Medical Assistance and Medicare

During the 1960's, the institutional setting within which the nursing home industry operated was altered. It is important to examine the changes which occurred in the industry's operating environment to assess their impact on long-term trends in the industry's market structure. The principal source of these changes during this period was the introduction of the Medicare and Medicaid programs, which were signed into law on July 30, 1965. The long-term care portions of these two programs became operational on January 1, 1967 and October 1, 1966 (in Michigan), respectively. Major changes which occurred as a result of these

two programs include a marked shift in the source of funds which financed nursing home services, a tightening of the regulations under which nursing care was provided, and a sharp increase in the demand for nursing home services.

One major institutional change was a marked shift in the source of funds which financed nursing home services. The largest expenditures for nursing home care are those for persons 65 years of age and over, who accounted for 85.6 percent and 90 percent of total nursing home expenditures in fiscal 1966 and fiscal 1969. For those 65 and over with nursing home expenditures in fiscal 1969, the public sector paid 76 percent of the bill, with the private sector paying only 24 percent. This represented a substantial shift in the source of payments from pre-Medicare-Medicaid fiscal 1966, when the public sector accounted for only 37.5 percent of nursing home expenditures for the nation's aged, with the private sector paying the remaining 62.5 percent.[6] In Michigan, the state provided nursing care services for only 1,772 persons in fiscal 1965 at a cost of $812,400. By calendar 1968 this cost had increased to $89,691,433 with 49,320 persons having at least a portion of their long-term care paid by the state.[7] By 1970 the percentage of funds coming

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[6]U.S. Department of Health, Education, and Welfare, Social Security Administration, Barbara S. Cooper, "Medical Care Outlays for Aged and Nonaged Persons, 1966-69," Social Security Bulletin, Vol. 33, No. 7 (Washington, D.C.: U.S. Government Printing Office, July, 1970), p. 7.

[7]Michigan Department of Social Services, Annual Report Fiscal 1969, Fourteenth Biennial Report July 1964-June 1966 (Lansing, Michigan: Department of Social Services, 1966 and 1969).

from the private sector had increased slightly, primarily due to budgetary limitations on the growth of the Medicare and Medicaid programs. Even though an increased percentage of nursing home expenditures were being financed by the private sector, the shift in funding sources from the pre-Medicare-Medicaid Assistance use was marked. It is unlikely that that portion financed privately will ever be as large as it was before the adoption of Medicaid and Medicare.

Since the public sector was committing itself to reimbursing most of the nursing care services provided in the country, it sought assurances, that the types of services it wanted provided were in fact provided, and that these services were performed by qualified personnel in suitable surroundings. The major addition to the types of care provided was convalescent and rehabilitative care. Certified homes had to provide physical therapy, special diets, and social services to aid the physical and mental recovery of patients. To assure that this care was properly being provided in viable programs the public sector tightened the regulations within which the nursing home industry operated. Personnel requirements were increased and upgraded. Nursing homes had to both increase the number of licensed nursing personnel and nurses' aides and to purchase services from specialists, which previously had been performed by nurses' aides and other nonprofessionals. Dietitians, physical therapists, and social workers were

employed to provide specialized services. To assure professional administration of the homes, a special licensing program was set up to certify nursing home administrators. Building requirements were also tightened, particularly with respect to fire resistivity. Nursing homes are the most deadly place to live with respect to fire hazards, according to the National Fire Protective Association. Due to the age and infirmities of patients, nursing homes must take special care to assure that fires neither start, nor spread if started. The overall attempt of tightening regulations was to improve and guarantee the quality of nursing care services, while expanding the scope of services provided.

The demand for nursing home services increased sharply as a result of the introduction of Medicare and Medicaid for two major reasons. First, where care once had been provided by the patient's family, provided as charity in a nursing home, or provided on a limited scale by welfare, the federal and state governments now agreed to finance the care of those who could not afford it or who were elderly. The two programs had liberal rates for matching federal funds to state funds, which enabled states to expand their subsidization of nursing care services.

Second, it became relatively less expensive to purchase needed nursing care services in nursing homes than from alternative sources of care. There are two alternatives

available to persons in need of nursing care services, in addition to the purchase of nursing home services. One is the provision of those services in an independent living setting and the other is to purchase them from a short-term general hospital. When the first alternative is adopted, care is frequently inadequate. Care is usually provided by untrained personnel, since the cost of employing trained personnel is prohibitive for most families. If the second alternative is chosen, the provision of care in a short-term general hospital, the cost is two to three times that of providing care in a nursing care facility.[8] The ratio of hospital to nursing home care costs has remained relatively constant over time. However, during the latter part of the 1960's the dollar differential between the two costs increased markedly and more than the overall cost of living.

One indication of the increase in demand comes from the growth in expenditures for nursing home services. In 1965 these expenditures were $1,324 million, or 3.3 percent of national health expenditures. By fiscal 1970 they had more than doubled to $2,844 million, or 4.2 percent of

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[8]In 1970 the average per diem cost of providing nursing care in a Michigan county medical care facility was $21.57. Average daily service charges for all U.S. Hospitals (all accommodations) was $50.36. Michigan Department of Social Services, "Medical Care Facility Per Diem Costs, 1970," and American Hospital Association, Survey of Hospital Charges as of January 1, 1971 (Chicago, Illinois: American Hospital Association, 1971).

national health expenditures.[9] A second indication is the growth in nursing home beds, which increased from 512,000 in 1965 to 861,325 in 1970, an increase of 68.2 percent.[10]

These three changes had offsetting effects on the market structure of the Michigan nursing home industry. Both the shift from private to public sources of funding and the tightening of regulations tended to make markets less competitive. As a result of the former, nursing homes were held more accountable for the services they provided. This forced nursing homes to hire specialized indivisible resources, to learn how to cope with a bureaucratic process, and to acquire a technical knowledge of government-run programs. It is likely that many marginally profitable homes chose to close or merge with other homes in the face of these requirements. Tighter regulations had a similar affect, since many facilities probably could not or did not find it profitable to meet the tighter regulations, particularly the increased building regulations, and went out of business. Therefore, both of these changes tended to decrease the number of facilities and to increase concentration in the markets for nursing care services.

Increased demand for nursing care services, on the other hand, tended to alter market structure so that the

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[9] Social Security Bulletin, Vol. 34, No. 1 (January, 1971), p. 6.

[10] ANHA, Nursing Home Fact Book, p. 5.

industry became more competitive. This increased demand could be met either by the opening of new facilities or the expansion of existing facilities. Given the limited economies of scale found by Kottke and Trainor in their study of the nursing home industry in the State of Washington, it is unlikely that the sharp increase in demand was met by the expansion of existing facilities.[11] The small number required to achieve minimum efficient size and the low level of other barriers to entry made it relatively easy for new facilities to enter the market. Most likely increased demand was met by a combination of small homes expanding to achieve economies of scale and new facilities opening. While the expansion of existing facilities probably tended to perpetuate existing market structure, the increased number of facilities and the decreased the likelihood that a market would be dominated by a few large homes probably tended to alter market structure, especially in the form of concentration, so that the industry became more competitive.

The three major changes, resulting from the introduction of Medical Assistance and Medicare, caused a fourth change which had offsetting effects on the competitiveness of the industry. This change was the rapid expansion of corporate ownership as a type of facility ownership. It

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[11]See Chapter II, p. 43.

is probable that the growth of corporate ownership came from two sources, both reacting to improved profit expectations for the industry. Because of increased demand and a lower risk of failure, capital flowed into the industry and new facilities were opened. The lower risk of failure resulted mainly from guaranteed payment for a large portion of the facilities output. When private pay patients could no longer pay for their care, the state government reimbursed the nursing home for services provided the patients. The opening of new facilities tended to cause competition to increase. At the same time, numerous small nursing homes were faced with either expanding to achieve economies of scale and meeting competition from new facilities or closing. In addition, they often had to upgrade their physical plant and their professional staff. To raise the needed capital to stay in operation, it is likely that several proprietorship/partnership-owned homes incorporated. This expansion of existing facilities would tend to cause competition to decrease, particularly if only a portion of the homes stayed in operation.

It is unclear what the net effect of these four changes was on the market structure of the Michigan nursing home industry. The marked shift in funding sources and the tightening of operating regulations tended to make the industry less competitive. To the extent that increased demand was by the expansion of existing facilities, existing

market structure was probably perpetuated. However, new facilities which were opened to meet the increased demand for nursing care services tended to cause competition to increase. The growth of corporate ownership of facilities tended to cause competition to increase when those facilities were new, but to remain unchanged when they were expansions of already existing homes. Chapter V will examine data on the Michigan nursing home industry to determine the net effect these changes had on market structure.

The State as Principal Purchaser

The role of Michigan state government with respect to the state's nursing home industry must be considered, because it is the principal purchaser of nursing care services. As such, it can set reimbursement rates and, therefore, largely determine the rate of return to nursing care facilities. The rate of return will determine the flow of capital into and out of the industry, which will effect the competitiveness of the markets. It is the effect of the state's administration of the Medicaid program on the reimbursement rate for nursing care services that is considered in this section.

Until the late 1950's, financial support for the purchase of nursing care services was limited to small amounts of local funds. Beginning with the Medical Assistance for the Aged program in 1960, state funds could

be matched by federal funds to provide financial support for nursing care services. This support was greatly expanded with the introduction of Medical Assistance and Medicare, and resulted in increased demand for nursing home services. This was due to a reduction in the portion of money income which individuals were required to spend for these services. The expanded subsidization also decreased the price of these services relative to some alternative providers, namely, trained personnel employed in a noninstitutional setting. Services of this latter group of providers were not, except in very limited forms, reimbursed under either program. Finally, to assure that subsidizations were being used to purchase care of an adequate quality, federal and state governments tightened operating regulations. This tended to increase the quality of care provided, which altered consumer's preferences in favor of the purchase of nursing care services.

The role of price in the decision of a state government to purchase nursing care services is more complex. First, the state is a price setter rather than a price taker, albeit the nursing home industry does have an influence on the price that is set. The price that is set is a compromise among the cost of nursing care services, the willingness of legislators to commit funds, the matching rate for federal funds with state funds, and the expected number of public assistance recipients who will be served.

Second, the state is a regulator of the acceptable quality of care for both private-pay and publicly-supported patients, since it licenses the facilities and certifies them for participation in the Medical Assistance program. Third, the state is the principal purchaser of nursing home services. Thus, by varying the acceptable quality of care level and the rate reimbursed for the majority of the industry's output, the state indirectly regulates and largely determines the industry's rate of return. While direct regulation of the rate of return has not been undertaken, it has been proposed.[12]

Trade Associations

In response to the state's position as regulator, the nursing home industry in Michigan formed trade associations. The nonpublic sector of the nursing home industry is composed of approximately 350 nursing homes. With the advent of Medical Assistance in Michigan, two trade associations gained power within the industry. They emerged as spokesmen for their respective types of homes in dealing with the Medical Assistance fiscal intermediary, in its role of setting rates, and the certification group, in its function of determining the conditions of sale of nursing home services. These two associations were the Michigan Nursing Home Association representing proprietary

[12]See Chapter II, p. 37-38.

homes and the Michigan Non-Profit Homes Association representing non-profit homes.[13] They were confederations which organized to deal with the state, the major purchaser of and licensing agent for nursing home services. As such they had attributes of cartels.

In Public Policies Toward Business, Wilcox states

> A cartel is an association of independent enterprises in the same or similar branches of industry, formed for the purpose of increasing the profits of its members by subjecting their competitive activities to some form of common control.[14]

He lists several types of cartels, two of which apply to the associations noted above. The first is a term-fixing cartel which regulates conditions of delivery. This type of cartel in the nursing home industry would regulate and protect the interests of its members in dealing with certification and utilization review procedures. A second type is one that attempts to set minimum and uniform prices. This cartel attempts to regulate the minimum price and protect its members' interests with respect to reimbursement of nursing care services for public patients.

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[13]A third trade association, the Michigan Council of Administrators of County Medical Care Facilities, represented the interests of the publicly supported county medical care facilities.

[14]Clair Wilcox, Public Policies Toward Business, 3rd ed. (Homewood, Ill.: Richard D. Irwin, Inc. 1966), p. 743.

Negotiated Rates and Procedures

This combination of the state as the principal purchaser of nursing care services and the nursing homes as trade associations, resulted in negotiated rather than unilaterally set rates and procedures. During the second half of the 1960's, it is likely that the nursing home trade associations were stronger than the state in collective barganing situations. That is, the price nursing homes were reimbursed by the state was above the competitive equilibrium price. The main reason for this was the state's unwillingness to exploit its position as the principal purchaser of nursing care services. In essence, it became a question of whether to make nursing home reimbursement a political issue. When the trade associations found resistance to their positions, they threatened to make reimbursement a political issue. Public officials were unwilling to do this and subsequently yielded. The relative strengths of the two sides came to the forefront in 1970 when certain nursing homes, supported by their trade associations, refused to allow Michigan Department of Public Health officials to reevaluate their publicly-supported patients with respect to the level of care they required. Patient evaluations must be conducted regularly under Title XIX, Section 1902(a)(26)(A) of the Social Security Act. "A State plan for medical assistance must provide for a regular program of medical review (including medical evaluation of each

patient's need for skilled nursing home care). . . ."[15] This condition must be fulfilled for states to be eligible for matching federal funds under their medical assistance programs. Nevertheless, the patient evaluation program was suspended from September 1970 to April 1972, without a resulting loss in federal funds.[16]

The State of Michigan has been unwilling to exploit its position as the principal purchaser of nursing care services. Despite this, it has been able to hold down the price of publicly subsidized nursing care by its reluctance to increase the per diem reimbursement rate. From the beginning of the Medical Assistance program until May 31, 1971, a period of 56 months, rates for nursing care services provided public patients in nursing homes increased about seven percent.[17] At the same time the Consumer Price Index of all prices increased 23 percent and all medical prices increased 34 percent.[18]

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[15]U.S. Congress, House of Representatives, Compilation of the Social Security Laws, Vol. 1, Section 1902(a)(26)(A), p. 340.

[16]Governor William G. Millikin, Executive Office, Press Release, September 22, 1970.

[17]During that period, the rate for basic nursing care increased from $12.00 to $12.25 per day, an increase of 6.3 percent. Reimbursement rates for skilled care increased 7.1 percent, from $14.00 to $14.48 per day.

[18]U.S. Department of Labor, Bureau of Labor Statistics, The Consumer Price Index, October, 1966 and May, 1971 (Washington, D.C.: U.S. Government Printing Office, 1966 and 1971).

Market Structure Over Time

Earlier in this chapter several reasons were presented why changes in market structure should be expected to have occurred as a result of the introduction of Medicare and Medicaid. In this section, two theories of the evolution of the Michigan nursing home industry's market structure during the 1960's will be presented.

Demand Growth

The first theory is that structural changes occurred due to a long-term growth in demand, which had resulted from changing demographic characteristics. This theory fits one of the patterns of market structure evolution presented by Bain. That pattern is

> that the industry in its 'youthful' stage . . . comes to be populated by a fairly large number of relatively small firms; that in its early maturity, concentration increases to some peak level of from very high to moderately high seller concentration; and that thereafter concentration declines for a period of time to a point somewhat lower than the peak and levels off to remain relatively stable in the mature industry.[19]

During the 1960's, the nursing home industry was in the transitional period from early maturity to maturity and concentration gradually decreased as the demand for nursing care services exhibited a long-term growth pattern.

There are several reasons for this increase in the demand for nursing care services. The first is that

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[19]Bain, Industrial Organization, pp. 159-160.

the number of aged, both absolutely and as a percentage of total population, increased during the 1960's. An overwhelming majority of persons in nursing homes are over 65 years of age. Therefore, even if utilization rates would have remained constant, the demand for nursing care services would have increased. A second reason is that urbanization increased during the decade. Since it is more costly to provide care in a noninstitutional setting in an urban area than in a rural area, the supply of nursing care services would have increased. This cost difference between urban and rural areas results from persons in urban areas having smaller homes, more employment opportunities for family members other than the head of the family, and a greater reliance upon the market for the purchase of commodities. A third reason is that per capita income increased during the 1960's and it was, therefore, more feasible to purchase nursing care services, particularly in light of the prices of alternative sources of care.

Institutional Changes

The second theory is that, although the long-term trend was toward gradually decreasing concentration in the Michigan nursing home industry during the 1960's, changes resulting from the introduction of Medicare and Medicaid caused a shift in the market structure. Whether concentration increased or decreased can be determined by the direction and significance of the shift.

There is strong support for believing that the second theory is more appropriate. As a result of the introduction of the two programs, sources of funding payments for nursing care services shifted, operating regulations were tightened, industry demand increased sharply and corporate-owned homes replaced those owned by individuals as the principal type of ownership.

Summary

This chapter has addressed itself to three principal questions. First, what is the importance of changes in market structure? Changes in market structure derive their significance from their affect upon industry behavior and therefore industry performance. Second, why should changes in market structure be expected and, third, what is the direction of those changes? The introduction of Medical Assistance and Medicare were the cause for major shift in funding sources, a tightening of operating regulations, a sharp increase in industry demand, and the rapid growth of corporate ownership of long-term care facilities. It is not clear what the direction of those changes is, with respect to the level of competition. Finally two theories of the evolution of the market structure of the Michigan nursing home industry are posed.

CHAPTER V

STRUCTURE OF THE MICHIGAN NURSING HOME INDUSTRY, 1960-1969

In this chapter the changes which occurred in the structure of the Michigan nursing home industry during the 1960's will be examined. From the discussion above, it is unclear what the direction of the shift in concentration, if any, was as a result of changes due to the introduction of Medicare and Medical Assistance. A determination is made in this chapter and the next as to the direction and significance of shifts in concentration, and therefore, ceteris paribus, competition. Significant shifts can be attributed to the introduction of the two programs, while a failure to demonstrate significance means that those changes were part of long-term trends in market structure.

This study has been limited to the nursing home industry in the State of Michigan for several reasons. First, the definition of nursing homes varies widely from state to state. It is not feasible to develop a consistent definition that can be applied to all states, since what is referred to as a nursing home in one state might not be in another. National data are of limited value, because data reported by each state are aggregated with no attempt

to adjust for differences in states' definitions of nursing homes. Second, there is little to be gained by studying a wider geographic area. Michigan is composed of areas that range from urban to suburban to rural. A third reason is that the Michigan nursing home industry is large enough to be representative of the nursing home industry nationally. The final and most practical reason for limiting the study to Michigan is that data are more accessible and consistent for one state than for several states or the entire nation. One drawback to limiting this study to the Michigan nursing home industry is that a wider variation in types of institutions could be included by expanding the scope of the study within Michigan or by including other states. The technical difficulties involved in either expansion appear to outweigh the advantages of an expanded study.

Therefore, the industry to be studied is the nursing home industry in Michigan. It includes those facilities which primarily provide skilled and/or basic nursing care services. Specifically included are nursing homes, county medical care facilities (MCF's), and long-term care units of hospitals (also referred to as chronic-care units). Excluded are homes for the aged, permit nursing homes, and permit homes. These latter provide personal and residential care but not nursing care. Also, excluded from this study are state mental hospitals and other mental health facilities. While these facilities provide long-term nursing care services, the production of nursing care services is not their primary function.

Definition of Market

In any study of the structure of an industry's market the market definition employed is critical. The concentration in any market, and therefore the competitiveness of the market, varies inversely with the scope of the market. In Michigan the markets for nursing care services have been defined by the Michigan Department of Public Health. They have been defined in conjunction with acute care markets and called health facility service areas.

> These areas serve as a basis for developing the [Hill-Burton] construction program. They have been set up in terms of normal trading areas, taking into consideration population distribution, transportation and trade patterns, travel distance and data indicating the residence of patients served by existing hospitals. In general, boundaries of health facility service areas are so drawn that, with a few exceptions in the northern part of the state, no person in Michigan is more than 30 minutes travel time from an acute care facility.
>
> Longterm care facilities were inventoried and their construction programmed on the same health facility service areas as general hospitals. This planning provides for the relationship of two categories of facilities to be reflected within each area. Each Area must have sufficient population to support both general hospital and longterm care services, appropriately planned in one or more facilities.
>
> Titles XVIII and XIX of the Social Security Act and other third-party programs for payment for longterm care allow for participants to have a free choice of physician and facilities. It can be generally assumed that patients will utilize longterm care facilities in the same location that they utilize basic medical and hospital services.[1]

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[1]Michigan Department of Public Health, Bureau of Health Facilities, Michigan State Plan for Hospital and Medical Facilities Construction 1970-1971 (Lansing, Michigan: Michigan Department of Public Health, 1971), pp. 59-61.

The boundaries of Michigan health facility service areas are presented in Appendix B.

While this definition of nursing care services markets appears to be accurate, it seems appropriate to compare it with another definition, if possible. The reason for doing this is that markets delineated for administrative purposes do not always coincide with actual markets. Unfortunately, patient origin data, distance from the patient's previous address to the nursing care facility, are not readily available for Michigan. One indication of market size can be gained from the United States Department of Housing and Urban Development survey of 400 FHA assisted nursing homes referred to in Chapter IV, which showed that five-sixths of the patients in a nursing home typically came from a residence less than 25 miles from the home.[2] It, therefore, appears that the Michigan Department of Public Health's health facility service areas at least approximate the actual markets.

Since it is difficult to accurately delineate markets because of overlapping, health facility service areas are probably the best attainable measure of nursing care services markets and are used for the purpose of this study. For ease of presentation, however, data will be shown in this chapter for Governor's Planning Regions, since

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[2]U.S. Department of Housing and Urban Development, Survey of FHA-Assisted Nursing Homes, 1969, p. 5.

there are 13 planning regions and 77 service areas. The same general trends presented here are apparent in service areas and differences between the two designations will be noted.

Data Source

Data on the Michigan nursing home industry are quite limited. The only source of cross-sectional data published for a series of years is the Michigan State Plan for Hospital and Medical Facilities Construction.[3] This fortunately provides a sufficient, though limited, selection of data necessary to determine changes in the structure of the industry over time. Data available from the state plans include the following for each facility:

a. Name
b. City
c. County
d. Hospital service area
e. Type: hospital or non-hospital
f. Type of ownership
g. Total beds
h. Beds conforming to state licensing regulations
i. Patient days
j. Occupancy rate.

The years 1960 to 1969 were chosen as the period of study, since 1969 was the last year for which data were available and it was decided that 10 years would be sufficient to measure any changes in industry structure. This

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[3]Michigan Department of Public Health, Bureau of Health Facilities, Michigan State Plan for Hospital and Medical Facilities Construction Fiscal Year 1961-1962 to Fiscal Year 1970-1971 (Lansing, Michigan: Michigan Department of Public Health, 1962-71).

would give a sufficient period of time before the introduction of Medicare and Medical Assistance to determine long-run structural change trends. Also, it would give a sufficient period after the introduction of the two programs to measure the extent of structural changes due to their introduction.

Four considerations with regard to the data must be kept in mind throughout the following analysis. First, this will be a comparative static analysis, since by year is meant December 31 of that year, i.e. 1969 means December 31, 1969. This is done to simplify the analysis and is unlikely to greatly affect the results. Few facilities, for example, will open and close within the same calendar year. By measuring the industry at year's end for each of several years, it is unlikely that any change that would significantly affect industry structure, would be missed.

Second, service area definitions are those in effect in 1969. Service areas change over time and are redefined each year. This has been the case especially in Detroit, where population centers shifted during the 1960's. To assure a consistent definition, the definition employed in 1969 was used for all years.

Third, the format for publishing data was changed from 1963 to 1964. Before 1964, state plans were only published biennially. The report published in each intervening year listed only changes in number of beds.

Beginning in 1964, a more complete state plan was published in the intervening year. Also, a more simplified listing of service areas was employed beginning with 1964. The result of this is that data from 1964 to 1969 are more complete than prior to 1964, except with respect to the listing of homes and their total beds.

Fourth, over a period of 10 years it is likely that several facilities will change names or will close only to reopen at a later date. Where a facility has merely changed its name, it is assumed to be the same facility and that one did not close and another open. When a facility closed, but reopened later, it is treated as a new facility. If one facility merged with another and kept the same name, it is assumed that the facility, whose name was detected, closed and the other expanded. In the case where a different name was used, it is assumed that the larger facility absorbed the smaller.

Changes in Market Structure

In this section the changes which occurred in the market structure of the Michigan nursing home industry from 1960 to 1969 will be examined. First, general trends in the structure of nursing care services markets as defined by Governor's Planning Regions will be presented. Then industrial organization concepts will be developed to measure structural change in markets.

Number of Facilities and Beds

Tables 9 and 10 show the number of long-term nursing care facilities and beds in Michigan for each year from 1960 to 1969 by Governor's Planning Region. Not surprisingly, the Detroit Planning Region had 37 percent of the facilities and 47 percent of the beds in 1960. By 1969, this had increased to 42 percent of the facilities and 50 percent of the long-term care beds. The prime reason for this is that this region had 53 percent of the state's population in both 1960 and 1970.[4] What is surprising is that throughout the state, the total number of facilities declined by 4 percent during the 1960's, whereas the number of beds increased 76 percent. This resulted from a marked increase in the average size of long-term nursing care facilities during the decade.

Table 11 presents the mean size of long-term care facilities in Michigan by Governor's Planning Region from 1960 to 1969. For the entire state the mean size of facilities increased 84 percent, from 38.0 beds to 69.9 beds. In general, the mean size of facilities in Detroit was larger than in other regions in each of the years. One possible explanation for this is that there are economics of scale to be gained from increasing the size

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[4]U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population: Final Population Report: Michigan (Advance Report) (Washington, D.C.: U.S. Government Printing Office, 1971).

TABLE 9.--Number of Long-Term Care Facilities in Michigan by Governor's Planning Region, 1960-69.

Planning Region	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Detroit	186	193	191	192	199	204	201	195	193	198
2. Jackson	30	30	28	27	28	29	27	26	27	23
3. Kalamazoo-Battle Creek	38	37	38	39	37	39	37	37	33	31
4. Benton Harbor-St. Joseph	28	29	27	28	27	26	24	22	21	19
5. Flint	23	22	21	24	24	23	25	24	23	24
6. Lansing	28	29	28	27	23	24	21	19	18	15
7. Saginaw Bay	39	41	42	44	45	50	48	43	43	43
8. Grand Rapids-Muskegon	76	75	76	75	77	78	74	75	77	70
9. Alpena	5	6	7	8	7	8	8	8	8	9
10. Traverse Bay	14	13	12	11	11	12	12	11	12	10
11. Sault Ste. Marie	2	1	1	1	5	5	4	4	4	4
12. Marquette-Iron Mountain-Escanaba	19	18	17	17	16	17	17	16	17	18
13. Houghton-Ironwood	9	9	11	10	11	11	11	11	12	11
State Total	497	503	499	503	510	526	509	491	488	475

Source: Michigan Department of Public Health, Michigan State Plan for Hospitals and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

TABLE 10.--Number of Long-Term Care Beds in Michigan by Governor's Planning Region, 1960-69.

Planning Region	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Detroit	8,844	9,507	9,818	10,485	11,719	13,130	14,989	14,909	15,457	16,480
2. Jackson	841	849	822	802	1,031	1,049	1,051	1,179	1,172	1,156
3. Kalamazoo-Battle Creek	1,444	1,376	1,416	1,444	1,536	1,627	1,605	1,750	1,853	1,958
4. Benton Harbor-St. Joseph	530	565	497	752	876	890	907	772	861	929
5. Flint	992	989	1,001	1,444	1,477	1,466	1,655	1,683	1,530	1,757
6. Lansing	714	785	826	876	1,006	1,107	1,079	1,044	1,137	1,084
7. Saginaw Bay	1,309	1,399	1,499	1,687	1,955	2,082	2,113	2,149	2,404	2,420
8. Grand Rapids-Muskegon	2,354	2,484	2,600	2,616	3,089	3,285	3,618	3,727	4,363	4,413
9. Alpena	114	116	122	137	179	242	242	266	247	291
10. Traverse Bay	566	626	570	570	637	718	706	692	903	847
11. Sault Ste. Marie	18	10	16	21	165	144	162	169	144	144
12. Marquette-Iron Mountain-Escanaba	699	716	687	709	680	760	661	729	839	946
13. Houghton-Ironwood	463	488	462	513	526	557	666	647	709	771
State Total	18,888	19,910	20,336	22,056	24,876	27,057	29,454	29,716	31,619	33,223

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

TABLE 11.--Mean Number of Beds in Long-Term Care Facilities in Michigan by Governor's Planning Region, 1960-69.

Planning Region	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Detroit	47.5	49.3	57.4	54.6	58.9	64.4	74.6	76.5	80.1	83.2
2. Jackson	28.0	28.3	29.4	29.7	36.8	36.2	38.9	45.3	53.4	50.3
3. Kalamazoo-Battle Creek	38.0	37.2	37.3	37.0	41.5	41.7	43.4	47.3	56.2	63.2
4. Benton Harbor-St. Joseph	18.9	19.5	18.4	26.9	32.4	34.2	37.8	35.1	41.0	48.9
5. Flint	43.1	45.0	47.7	60.2	61.5	63.7	66.2	70.1	66.5	73.2
6. Lansing	25.5	27.1	29.5	32.4	43.7	46.1	51.4	54.9	63.2	72.3
7. Saginaw Bay	33.6	34.1	35.7	38.3	43.4	41.6	44.0	50.0	55.9	56.3
8. Grand Rapids-Muskegon	31.0	33.1	34.2	34.9	40.1	42.1	48.9	49.7	56.7	63.0
9. Alpena	22.8	19.3	17.4	17.1	25.6	30.3	30.3	33.3	30.9	32.3
10. Traverse Bay	40.4	48.2	47.5	51.8	57.9	59.8	58.8	62.9	75.3	87.4
11. Sault Ste. Marie	9.0	10.0	6.0	21.0	33.0	28.8	40.5	42.3	36.0	36.0
12. Marquette-Iron Mountain-Escanaba	36.8	39.8	40.4	41.7	42.5	44.7	38.9	45.6	49.4	52.6
13. Houghton-Ironwood	51.4	54.2	42.0	51.3	47.8	50.6	60.5	58.8	59.1	70.1
State Total	38.0	39.6	40.8	43.8	48.8	51.4	57.9	60.5	64.8	69.9

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

of facility from small to medium. In the Detroit Region facilities faced stiff competition, which resulted in the failure of small facilities that could not meet it. While economics of scale are significant in determining the minimum firm size in the Detroit Region, they play a small role in other regions where competition is not intense. Thus, in those regions, small facilities might continue to operate, even though they have higher costs, because they are not subjected to intense competition from rival facilities.

The sharp increase in the average size of facility, combined with a decrease in the number of facilities, might lead one to believe that the market structure was more concentrated in 1969 than in 1960. As will be seen below, this has not been the case.

Type of Ownership

The long-term nursing care facilities and beds in Michigan are classified in Table 12 by type of ownership for 1960 to 1969. Most striking is the growth of corporate-owned facilities and beds and the decline in facilities owned by proprietors and partnerships. One reason for this is the incorporation of many facilities owned by proprietors or partners to take advantage of limited liability and lower taxes at high income levels. A second reason is that those owned by proprietors and partnerships tend to be smaller than those owned by corporations, and therefore

TABLE 12.--Number of Long-Term Care Facilities and Beds in Michigan by Type of Ownership, 1960-69.

Type Ownership		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Corporate	# Homes	79	85	89	95	137	149	167	171	184	179
	# Beds	3,907	4,245	4,690	5,465	8,755	10,245	12,945	13,286	15,372	15,641
Proprietary and	# Homes	259	260	307	304	249	248	217	192	179	168
Partnership	# Beds	5,019	5,284	7,379	7,990	6,843	6,874	6,496	5,875	5,744	7,058
County	# Homes	40	40	40	38	39	43	43	43	43	42
	# Beds	3,880	3,940	3,735	3,751	3,876	4,181	4,036	4,371	4,380	4,391
Hospital	# Homes	17	18	18	19	25	27	26	27	26	29
	# Beds	2,341	2,494	2,144	2,314	2,539	2,673	2,534	2,587	2,165	2,206
Non-Profit	# Homes	36	39	44	46	57	56	54	56	54	55
and Church	# Beds	1,638	1,875	2,127	2,275	2,513	2,785	2,934	3,087	3,448	3,417
Other	# Homes	66	61	1	1	3	3	2	2	2	2
	# Beds	2,103	2,072	261	261	350	299	509	510	510	510
All	# Homes	497	503	499	503	510	526	509	491	488	475
	# Beds	18,888	19,910	20,336	22,056	24,876	27,057	29,454	29,716	31,619	33,223

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

less likely to remain competitive. That is, proprietors and partnerships not only cannot meet stricter operating regulations, but they also cannot expand to take advantage of economies of scale. This latter is explained by the inability of individuals to generate sufficient capital, in many cases, to build and operate larger and, therefore, lower cost facilities.

It will be noticed that the supply of corporate-owned beds quadrupled during the decade, while the number of corporate facilities slightly more than doubled. This resulted in a 77 percent increase in the mean size of such facilities, from 49.5 beds in 1960 to 87.4 beds per facility in 1969. During the same period the number of proprietor- and partnership-owned facilities fell by a third, while the number of beds in these facilities increased by two-fifths. The resultant increase in mean size was from 19.4 beds to 42.0 beds per facility during the decade. Even though the size of these facilities more than doubled, they still averaged less than half the size of corporate-owned facilities. County medical care facilities showed little growth during the 1960's. Hospital chronic care units increased in number, but operated fewer beds at the end of the decade than at its beginning. Non-profit facilities increased in both number and beds. Their growth paralleled the growth of the industry and represented about 10 percent of industry capacity throughout the period under study.

Tables 13-16 show the number of corporate-owned and proprietorship- and partnership-owned facilities and beds for each of the Governor's Planning Regions. As is readily seen, the majority of corporate-owned beds and facilities were in the Detroit region. In 1960 this region had nine-tenths of the state's corporate-owned beds and by 1969 still had an impressive seven-tenths. Tables 13 and 14 show that the distribution of corporate-owned facilities and beds outside of the Detroit Region was roughly correlated with the distribution of the state's population. The most striking item in those two tables is the decrease in corporate-owned facilities and beds in the Saginaw Bay and Grand Rapids-Muskegon Planning Regions between 1968 and 1969. In both cases this was offset for the most part by increases in the number of beds in proprietary- and partnership-owned facilities. Tables 15 and 16 show the geographical distribution of individual- and partnership-owned facilities and beds. The distribution of these facilities and beds is not as well correlated with the state's population distribution as are corporate-owned facilities and beds. Large population centers in Detroit, Flint, and Lansing had relatively few privately-owned facilities. It appears that urban areas are more likely to have corporate-owned facilities and rural areas to have proprietorships or partnerships controlling their nursing care facilities. This is as expected, since the demand

TABLE 13.--Number of Corporate-Owned Long-Term Care Facilities in Michigan by Governor's Planning Region, 1960-69.

Planning Region	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Detroit	67	71	72	72	96	103	108	110	116	121
2. Jackson	0	0	0	0	2	2	2	2	2	3
3. Kalamazoo-Battle Creek	0	0	0	0	0	0	1	2	2	2
4. Benton Harbor-St. Joseph	1	1	1	2	3	3	3	3	4	4
5. Flint	1	0	0	3	4	4	7	8	8	11
6. Lansing	4	4	5	5	6	8	10	10	10	9
7. Saginaw Bay	1	3	3	3	7	10	12	12	12	8
8. Grand Rapids-Muskegon	1	1	2	2	8	8	11	11	14	6
9. Alpena	2	2	2	3	3	3	3	3	3	3
10. Traverse Bay	0	1	1	1	2	2	2	2	2	0
11. Sault Ste. Marie	0	0	0	0	0	0	0	0	0	0
12. Marquette-Iron Mountain-Escanaba	0	0	0	0	2	2	3	3	4	5
13. Houghton-Ironwood	1	1	2	2	1	0	0	0	0	0
State Total	79	85	89	95	137	149	167	171	184	179

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

TABLE 14.--Number of Corporate-Owned Long-Term Care Beds in Michigan by Governor's Planning Region, 1960-69.

Planning Region	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Detroit	3,515	3,795	4,006	4,304	6,299	7,329	9,125	9,190	10,156	11,039
2. Jackson	0	0	0	0	275	275	275	275	221	318
3. Kalamazoo-Battle Creek	17	17	17	75	135	208	343	423	603	718
4. Benton Harbor-St. Joseph	14	14	14	66	116	116	116	116	227	313
5. Flint	86	0	0	346	418	418	647	751	716	1,025
6. Lansing	120	163	227	234	335	507	627	627	745	734
7. Saginaw Bay	32	97	162	162	375	518	687	678	807	500
8. Grand Rapids-Muskegon	12	12	72	71	425	487	688	787	1,302	638
9. Alpena	36	36	30	45	68	118	118	120	122	122
10. Traverse Bay	0	78	75	75	142	144	146	146	196	0
11. Sault Ste. Marie	0	0	0	0	0	0	0	0	0	0
12. Marquette-Iron Mountain-Escanaba	0	0	0	0	125	125	173	173	277	334
13. Houghton-Ironwood	75	33	87	87	42	0	0	0	0	0
State Total	3,907	4,245	4,690	5,465	8,755	10,245	12,945	13,286	15,372	15,641

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

TABLE 15.--Number of Long-Term Care Facilities Owned by Proprietors and Partnerships in Michigan by Governor's Planning Region, 1960-69.

Planning Region	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Detroit	61	63	89	89	68	66	58	52	47	45
2. Jackson	18	19	24	23	19	20	18	16	17	12
3. Kalamazoo-Battle Creek	19	18	28	28	23	23	22	20	15	14
4. Benton Harbor-St. Joseph	24	25	23	23	20	19	17	15	13	11
5. Flint	16	15	15	15	14	14	13	11	10	8
6. Lansing	21	22	21	20	15	13	9	7	6	4
7. Saginaw Bay	25	25	26	27	22	25	23	17	17	20
8. Grand Rapids-Muskegon	45	45	55	54	47	46	38	37	36	37
9. Alpena	1	2	2	2	2	2	2	2	2	2
10. Traverse Bay	4	4	6	6	6	7	7	6	7	7
11. Sault Ste. Marie	2	1	1	1	2	2	1	1	1	1
12. Marquette-Iron Mountain-Escanaba	13	13	13	13	9	9	8	6	6	6
13. Houghton-Ironwood	4	4	5	5	5	6	5	5	6	5
State Total	259	260	307	304	249	248	217	192	179	168

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1960-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

TABLE 16.--Number of Long-Term Care Beds Owned by Proprietors and Partnerships in Michigan by Governor's Planning Region, 1960-69.

Planning Region	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Detroit	1,310	1,483	2,732	3,069	2,373	2,399	2,445	2,201	2,105	2,351
2. Jackson	282	303	481	533	336	354	396	484	532	448
3. Kalamazoo-Battle Creek	330	337	578	548	504	497	471	451	416	536
4. Benton Harbor-St. Joseph	333	368	335	337	355	380	397	347	287	264
5. Flint	370	355	435	526	482	486	371	317	272	190
6. Lansing	351	366	374	417	446	276	169	134	95	153
7. Saginaw Bay	602	584	632	697	631	697	689	544	525	828
8. Grand Rapids-Muskegon	696	737	1,140	1,152	1,145	1,186	979	904	948	1,619
9. Alpena	28	32	32	32	60	60	60	59	59	59
10. Traverse Bay	178	160	111	102	102	102	102	98	95	254
11. Sault Ste. Marie	18	10	16	21	40	39	31	31	31	31
12. Marquette-Iron Mountain-Escanaba	423	451	418	461	272	259	228	147	159	159
13. Houghton-Ironwood	98	98	95	95	97	139	158	158	220	166
State Total	5,019	5,284	7,379	7,990	6,843	6,874	6,496	5,875	5,744	7,058

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-71).

for nursing care services in rural areas is limited and privately-owned nursing care facilities tend to be smaller than their corporate-owned counterpart.

Size Distribution

A third change that occurred in the nursing care services industry market structure during the 1960's was a significant change in the size distribution of both facilities and beds. This is important because the size distribution of facilities in a market is a major determinant of the competitiveness within that market. There may be a large number of facilities within the market, but if a few produce almost all the services provided, the market will not be competitive. This forms the basis for most of the stock measures of market competition used in an industrial organization analysis. Table 17 traces the change in size distribution of long-term care facilities and beds in Michigan during the 1960's. The percentage distribution of facilities and beds by size of facility is presented in Table 18. As can readily be seen, the number and percentage of facilities and beds in facilities with 25 beds or less steadily declined throughout the decade. Whereas one-fifth of the long-term care beds in 1960 were in facilities with fewer than 26 beds, by the end of the decade only one in twenty was. The number and percentage of long-term care facilities with 26 to 50 beds declined slightly during the decade, as did the number of beds in

TABLE 17.--Size Distribution of Long-Term Care Facilities and Beds (by Number of Beds) in Michigan, 1960-69.

		Distribution of Facilities (beds)					Distribution of Beds (beds)				
Year	No.	0-25	26-50	51-100	101-150	151+	0-25	26-50	51-100	101-150	151+
1960	--	272	141	55	14	15	3,921	4,955	4,079	1,791	4,142
1961	--	262	147	61	19	14	3,884	5,154	4,560	2,332	3,980
1962	--	248	143	77	17	14	3,741	5,148	5,646	2,051	3,750
1963	--	238	139	86	22	18	3,593	5,017	6,271	2,698	4,477
1964	--	195	152	118	27	18	3,101	5,494	8,484	3,328	4,469
1965	--	188	150	132	36	20	3,049	5,475	9,336	4,379	4,818
1966	--	157	140	141	43	28	2,541	5,170	9,956	5,003	6,784
1967	--	140	139	133	48	31	2,305	5,121	9,316	5,647	7,327
1968	--	130	127	135	56	40	2,178	4,690	9,407	6,543	8,801
1969	--	106	121	141	60	47	1,810	4,490	10,012	6,989	9,922

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

TABLE 18.--Percentage Distribution of Long-Term Care Facilities and Beds (by Number of Beds) by Size in Michigan, 1960-69.

Year	No.	Percentage Distribution of Facilities (beds)					Percentage Distribution of Beds (beds)				
		0-25	26-50	51-100	101-150	151+	0-25	26-50	51-100	101-150	151+
1960	--	54.7	28.4	11.1	2.8	3.0	20.8	26.2	21.6	9.5	21.9
1961	--	52.1	29.2	12.1	3.8	2.8	19.5	25.9	22.9	11.7	20.0
1962	--	49.7	28.7	15.4	3.4	2.8	18.4	25.3	27.8	10.1	18.4
1963	--	47.3	27.6	17.1	4.4	3.6	16.3	22.8	28.4	12.2	20.3
1964	--	38.3	29.8	23.1	5.3	3.5	12.5	22.1	34.1	13.4	17.9
1965	--	35.7	28.5	25.1	6.9	3.8	11.3	20.2	34.5	16.2	17.8
1966	--	30.8	27.5	27.7	8.5	5.5	8.6	17.6	33.8	17.0	23.0
1967	--	28.5	28.3	27.1	9.8	6.3	7.8	17.2	31.4	19.0	24.6
1968	--	26.6	26.0	27.7	11.5	8.2	6.9	14.8	29.8	20.7	27.8
1969	--	22.3	25.5	29.7	12.6	9.9	5.4	13.5	30.2	21.0	29.9

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

those facilities. This, combined with the growth in total beds, resulted in almost a fifty percent decline in the percentage of beds in this category.

On the other hand, the number of facilities and beds in facilities with more than 50 beds increased sharply throughout the 1960's. In 1960, only 17 percent of all long-term care facilities had over 50 beds. Still, these accounted for over half of all the beds in the nursing home industry. By the end of 1969 over half of the facilities and four-fifths of the beds were in long-term care facilities with over 50 beds. As of the end of the period under study, the largest number of beds were in facilities with 51 to 100 beds. This was closely followed by those facilities with over 150 beds. Each of these two groups accounted for slightly less than one-third of all nursing care facility beds.

The distribution of facilities and beds in the Detroit Planning Region is similar to that for the state as a whole. One difference is the dominance of beds in the largest group of facilities during the last two years of the decade. During 1968 and 1969 more beds were in facilities with over 150 beds than in any other group. In 1969, 39 percent of all beds in the region were in this group compared with 30 percent for the state as a whole. This is accounted for by the presence of almost two-thirds of the largest facilities in the Detroit Planning Region.

Even during the first five years of the 1960's this region had almost half of the largest facilities in the state.

Tables 19 and 20, respectively, present the size distribution of facilities and beds for corporate-owned and proprietor- and partnership-owned facilities throughout the state. Among corporate-owned long-term care facilities, the dominant category is the 51 to 100 bed category. Only during the first three years of the period under study did another grouping have more facilities. At no time did any other classification have more beds. Despite this dominance by medium-sized facilities, the trend to large and away from smaller facilities is clearly visible. While the number of facilities with 50 beds or fewer remained about constant, the number of facilities with over 50 beds almost quintupled. This same relationship holds among the number of beds.

When the distributions of corporate-owned facilities and beds are compared with similar distributions for proprietorships and partnerships, three distinctions are immediately noticeable. First is the overwhelming dominance of facilities with 25 beds or less owned by proprietors and partnerships. Even in 1969 the largest group of these facilities was the 25 beds or less classification. Second is the capacity of large facilities, those with over 100 beds. Of all facilities with over 100 beds, only one in seven was a proprietorship or partnership. Third is the

TABLE 19.--Size Distribution of Corporate-Owned Long-Term Care Facilities and Beds (by Number of Beds) in Michigan, 1960-69.

		Distribution of Facilities (beds)					Distribution of Beds (beds)				
Year	No.	0-25	26-50	51-100	101-150	151+	0-25	26-50	51-100	101-150	151+
1960	--	21	32	21	3	2	358	1,204	1,536	351	458
1961	--	21	34	25	3	2	358	1,286	1,811	332	458
1962	--	20	34	30	3	2	341	1,336	2,216	334	463
1963	--	17	35	36	4	3	277	1,389	2,688	484	627
1964	--	16	41	66	10	4	302	1,611	4,803	1,236	803
1965	--	12	39	76	15	7	247	1,544	5,329	1,795	1,330
1966	--	11	35	84	23	14	234	1,407	5,812	2,587	2,905
1967	--	9	39	84	26	13	193	1,524	5,836	3,014	2,719
1968	--	12	40	78	36	18	237	1,578	5,497	4,192	3,868
1969	--	13	37	71	35	23	251	1,429	5,172	4,056	4,733

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

TABLE 20.--Size Distribution of Long-Term Care Facilities and Beds (by Number of Beds) Owned by Proprietors and Partnerships in Michigan, 1960-69.

		Distribution of Facilities (beds)					Distribution of Beds (beds)				
Year	No.	0-25	26-50	51-100	101-150	151+	0-25	26-50	51-100	101-150	151+
1960	--	195	59	5	0	0	2,732	1,955	332	0	0
1961	--	191	63	6	0	0	2,767	2,085	432	0	0
1962	--	203	82	20	2	0	3,063	2,814	1,269	233	0
1963	--	196	78	25	3	2	2,968	2,696	1,626	332	368
1964	--	148	76	20	4	1	2,333	2,624	1,236	471	179
1965	--	146	79	17	5	1	2,322	2,758	1,069	573	152
1966	--	119	74	19	3	2	1,877	2,589	1,292	355	383
1967	--	105	63	18	5	1	1,704	2,198	1,167	575	231
1968	--	94	58	22	3	2	1,563	2,001	1,398	344	438
1969	--	70	50	33	11	4	1,174	1,726	2,135	1,267	756

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

dominance of beds in the two smallest classifications. Until the last year under study, over one-half of noncorporate-owned beds were in facilities with 50 or fewer beds. During the first two years under consideration, there were more noncorporate-owned beds in facilities with less than 26 beds than in all the other groups combined. Among these facilities, however, one can ascertain a movement to larger facilities. There were 134 fewer proprietor- and partnership-owned facilities with 50 beds or less in 1969 than in 1960. At the same time, facilities of this type with over 50 beds increased from 5 to 48.

From 1960 to 1969, the size distribution of all long-term care facilities and beds shifted sharply. While small facilities, those with 50 beds or less, continued to dominate, particularly among proprietor- and partnership-owned facilities, the percentage of beds in this group declined from 47 percent of all beds in 1960 to only 19 percent of all beds by the end of 1969. The number of small facilities also declined sharply, while medium- and large-sized facilities increased by almost the same number. Detroit's size distribution with respect to the number of beds and facilities is similar to the entire state's. The principal difference is that the region has more than its proportionate share of the largest facilities. Medium-sized facilities dominate those which are corporate-owned. One possible explanation

for this is that small individually-owned facilities have incorporated and expanded to become medium-sized.

Expansion and Contraction

This section and the next explore what caused the change in size distribution of long-term care facilities and beds. That is, did the distributions in 1969 come about as a result of internal expansion and contraction within existing facilities or did it result primarily from new facilities replacing those that closed? Here, the expansion and contraction of nursing care facilities are examined. This has relevance in its effect on the turnover of firms in the market. If facilities can expand to meet growing demand, competition is less likely to be as severe as when they cannot expand.

Table 21 presents the distribution of facilities which expanded during each year. Also shown is the distribution of expansion, by the number of beds in the respective facilities before they expanded. No special pattern emerges among the facilities expanding. The distribution of facilities expanding is very similar to that of the size distribution of all long-term care facilities. During the 1960's the percentage of facilities expanding to all long-term care facilities ranged from a high of 14 percent in 1966 to a low of 7 percent in 1967. This indicates that there was considerable internal growth within the industry

TABLE 21.--Size Distribution of Michigan's Long-Term Care Facilities Expanding from Previous Years and the Amount of their Expansion, 1961-69.

		Distribution of Facilities (beds)					Distribution of Beds (beds)				
Year	No.	0-25	26-50	51-100	101-150	151+	0-25	26-50	51-100	101-150	151+
1960	--	--	--	--	--	--	--	--	--	--	--
1961	47	31	8	5	0	3	39	6	2	0	0
1962	64	28	19	10	4	3	53	9	2	0	0
1963	56	18	25	10	3	0	44	4	7	0	1
1964	68	31	17	12	5	3	58	8	2	0	0
1965	43	14	14	12	2	1	33	8	2	0	0
1966	72	17	24	22	7	2	47	11	9	3	2
1967	34	5	6	14	6	3	23	4	4	2	1
1968	64	13	12	24	9	6	37	15	7	4	1
1969	43	7	11	14	9	2	33	4	4	2	0

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

throughout the decade. As would be expected, the majority of facilities expanding did so in a limited way, with well over half of the expansions in each year being 25 beds or less.

Analogous data for those long-term care facilities that contracted during the decade are presented in Table 22. As with facilities expanding, the distribution of facilities contracting is by the number of beds in the respective facilities prior to the contraction. It would be expected that, because of the rapid growth in nursing care facility beds, few facilities would have contracted during the decade. Two possible reasons for contraction might be the inability to earn an adequate rate of return on investment and the inability to meet stricter building requirements. It is therefore surprising that the largest number of contractions occurred in 1962, when Medical Assistance for the Aged became operative. One possible reason is that there were a large number of small, marginally profitable, long-term care facilities, who could not meet the minimal licensing requirement increases resulting from this program. Except for 1962, the number of facilities contracting remained low until 1967. In that year, the number of facilities contracting more than doubled from the previous year and continued at a high rate during the last two years of the decade. The high percentage of facilities contracting during each of the last three years of the decade is

TABLE 22.--Size Distribution of Michigan's Long-Term Care Facilities Contracting from Previous Year and the Amount of their Contraction, 1961-69.

		Distribution of Facilities (beds)					Distribution of Beds (beds)				
Year	No.	0-25	26-50	51-100	101-150	151+	0-25	26-50	51-100	101-150	151+
1960	--	--	--	--	--	--	--	--	--	--	--
1961	29	12	11	2	1	3	27	1	1	0	0
1962	83	26	32	11	8	6	75	4	3	0	1
1963	22	10	7	2	2	1	20	1	1	0	0
1964	37	11	20	3	2	1	35	2	0	0	0
1965	26	6	12	6	2	0	25	0	1	0	0
1966	25	7	5	8	2	3	20	2	1	1	1
1967	62	10	15	21	8	8	52	7	3	0	0
1968	76	8	24	25	9	10	69	3	3	0	1
1969	80	18	26	18	10	8	72	5	2	0	1

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

probably due to an inability to earn an adequate rate of return on investment, as older facilities were faced with competition from new and expanded facilities in a market which was expanding, but expanding less rapidly than during the proceding few years.

As should be expected, the distribution of facilities that contracted is much more uniform than the distribution of those expanding. This results from the tendency of the smallest facilities to close rather than contract. During the course of the decade, the distribution of facilities contracting shifted from heavily in favor of very small facilities to weighted heavily in favor of facilities with 26 to 100 beds. With respect to the distribution of the number of beds contracted, almost all contractions in each year were less than 25 beds. Facilities which wanted to contract more than 25 beds were likely to close entirely rather than contract. Also, the number of facilities which could contract more than 25 beds and still operate efficiently was limited, since the mean size of facilities only reached 69.9 beds state-wide in 1969.

New Facilities and Facilities Closed

An alternative to expansion of existing facilities is the opening of new facilities. Table 23 presents the size distribution of long-term care facilities in Michigan from 1961 to 1969. More facilities were opened during

TABLE 23.--Size Distribution of New Long-Term Care Facilities in Michigan, 1961-69.

Year	No.	Average Size	Distribution of Facilities (beds)				
			0-25	26-50	51-100	101-150	151+
1961	26	44.7	10	6	19	1	0
1962	44	40.3	17	13	14	0	0
1963	19	60.8	5	6	4	2	2
1964	68	54.4	17	17	29	5	0
1965	33	70.5	7	6	10	7	3
1966	26	81.7	5	3	10	5	3
1967	17	66.9	3	8	3	1	2
1968	25	86.2	4	3	10	5	3
1969	27	105.9	1	3	11	5	7

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

calendar 1964 than in any other year of the decade. The nursing home industry was aware of the imminent passage of the Social Security Amendments and new facilities were opened to meet expected increases in demand. This is not surprising since it was evident by 1964 that some form of insurance against high health costs for the aged and indigent would be enacted by Congress within a year or two.[5] The smallest number of facilities was opened in 1967, after the large number of facilities which had been opened in the mid-1960's. Although its growth was uneven, the mean size of new facilities more than doubled from 44.7 beds per new facility in 1961 to 105.9 beds in 1969. In examining the size distribution of new facilities a definite move to larger new facilities is discernible. Whereas small facilities were predominately opened in the early 1960's, medium- and larger-sized facilities dominated thereafter. During 1969 more large facilities were opened than medium-sized ones. Overall, the number of new facilities was smaller than the number which expanded. When the distribution of facilities expanding is compared with that for new facilities, the latter is much more skewed in favor of large facilities, as should be expected. Thus, more beds were involved in the opening of new facilities than

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[5]A good description of the legislative struggle for enactment of Medicare and Medicaid is presented in Robert B. Stevens, Statuatory History of the United States: Income Security (New York: McGraw-Hill Book Co., 1970).

in the expansion of existing ones. It must be concluded that, in the expansion of the nursing home industry in Michigan during the 1960's, both expansion and new facilities were important to meet increased demand.

Of interest also is the distribution of those facilities which closed during the decade. Table 24 presents the size distribution of long-term facilities which closed from 1961 to 1969. More facilities closed in 1964 than in any other year of the decade and the smallest number of facilities closed in 1963. With respect to the average size of facility closed, there was little variation throughout the decade. The mean size of facilities closing was quite small in each year, ranging from 23.2 beds in 1963 to 35.6 beds in 1968. In each year except 1968, the majority of facilities closing had 25 beds or less. When those facilities with 26 to 50 beds are included, over three-fourths of the facilities closing in each year were small facilities.

The size of facilities closing is of interest, also, because it gives an indication of the economies of scale in the industry. Better known as Stigler's survival test, its basic assumption is that that size class which survives is efficient. When applied to the data in Table 24, it shows that there are probably economies of scale in expanding a facility until it has 50 beds. After

TABLE 24.--Size Distribution of Long-Term Care Facilities Closed in Michigan, 1961-69.

Year	No.	Average Size	Distribution of Facilities (beds)				
			0-25	26-50	51-100	101-150	151+
1961	20	28.6	13	4	2	1	0
1962	46	26.2	30	11	5	0	0
1963	16	23.2	12	3	1	0	0
1964	61	25.0	46	10	3	2	0
1965	17	33.4	11	3	2	0	1
1966	42	35.2	26	7	6	2	1
1967	36	27.4	22	11	2	0	1
1968	27	35.6	13	11	1	2	0
1969	39	29.8	29	4	4	1	1

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

this there is little indication that additional expansion will result in added economies of scale.

Measures of Concentration

In the previous sections, indirect measures of the competitiveness of the long-term nursing care markets have been presented. Here, measures of market concentration which measure competitiveness directly are developed. Ceteris paribus, the higher the market concentration the less competitive is that market. In each of the subsequent tables market concentration is measured for each year from 1960 to 1969. It is then possible to compare measured for each year from 1960 to 1969. It is then possible to compare measures between markets for the same year or over time in the same market. The advantage of these types of comparisons is that they are made relative to other nursing care markets and are relative to other industries only to the extent that an absolute standard is established.

The first measures which are developed are the four-, eight-, and twenty-firm concentration ratios. These are presented in Tables 25 to 27, respectively, for long-term care facilities and by Governor's Planning Regions. A concentration ratio is defined as the sum of the sizes of the largest x firms divided by the sum of the sizes of all the industry's firms in the market. In this case x equals four, eight, or twenty. Size with respect to the nursing

TABLE 25.--Four-Firm Concentration Ratios of Long-Term Care Facilities in Michigan by Governor's Planning Region, 1960-69.

Planning Region	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Detroit	.214	.199	.179	.168	.150	.135	.123	.124	.086	.078
2. Jackson	.491	.487	.532	.534	.511	.502	.539	.509	.465	.472
3. Kalamazoo-Battle Creek	.416	.378	.382	.375	.352	.333	.315	.297	.267	.284
4. Benton Harbor-St. Joseph	.425	.398	.380	.552	.499	.499	.491	.472	.534	.537
5. Flint	.600	.593	.532	.456	.456	.459	.445	.479	.484	.408
6. Lansing	.466	.470	.440	.443	.455	.438	.459	.474	.522	.554
7. Saginaw Bay	.336	.341	.312	.307	.266	.221	.192	.266	.275	.247
8. Grand Rapids-Muskegon	.392	.310	.280	.270	.230	.219	.262	.261	.230	.228
9. Alpena	.939	.905	.828	.759	.732	.641	.641	.598	.640	.605
10. Traverse Bay	.686	.657	.579	.578	.534	.494	.504	.515	.558	.578
11. Sault Ste. Marie	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
12. Marquette-Iron Mountain-Escanaba	.422	.413	.482	.468	.503	.466	.377	.486	.493	.455
13. Houghton-Ironwood	.726	.740	.652	.733	.703	.684	.628	.646	.590	.667
State Total	.105	.100	.086	.080	.071	.065	.070	.069	.048	.045

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

care facilities is measured by beds, the common unit of capacity. In symbolic form,

$$C.R._x = \frac{\sum_{i=1}^{x} b_i}{\sum_{i=1}^{n} b_i}$$

$C.R._x$ = x - firm concentration ratio,

b_i = number of beds in the i^{th} facility,

i = 1, . . . , n facilities arranged by size from the largest to the smallest.

The range of concentration ratio is from 0.000 to 1.000, the closer to 1.000 the higher the concentration in the market.

Four-firm concentration ratios are presented in Table 25.[6]

Two trends are immediately noticeable. One is the decline in concentration throughout the decade. In nine of thirteen regions the four-firm concentration was lower in 1969 than at the beginning of the decade. Only in the Benton Harbor-St. Joseph, Lansing, and Marquette-Iron Mountain-Escanaba regions did concentration increase over the decade, with the Sault Ste. Marie region remaining

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[6]While concentration ratios for health facility service areas exhibit the same trends as do the concentration ratios for Governor's Planning Regions, they are necessarily much higher since the markets are smaller. Thus, competition is much less severe than is indicated by Tables 25 to 27.

constant. Despite this lower level of concentration from 1960 to 1969 in most regions, only the Detroit, Kalamazoo-Battle Creek, and Alpena regions exhibited a fairly continuous decline in the four-firm concentration ratio throughout the decade. Of all the regions whose concentration ratios changed two-thirds, eight of twelve regions, had their highest concentration in 1960 or 1961. On the other hand, only one of these same regions had their lowest concentration ratio before 1965. An overall indication of the way concentration decreased throughout the decade is given by the four-firm concentration ratio for the entire state. The largest four nursing homes in the state had 10.5 percent of all long-term care beds in 1960. By 1969 this percentage had fallen to 4.5 percent.

Another trend is for concentration to vary inversely with the size of the market. Thus the Detroit Region, which had half of the state's population in 1970, had the lowest concentration ratio in each year of the 1960's. The small percentage of beds in the four largest facilities indicates that that market is very competitive. Two other regions, Saginaw Bay and Grand Rapids-Muskegon, also had four-firm concentration ratios below .400 in 1960 and .250 in 1969. Both represent concentrations of population and have fairly competitive nursing care markets. At the other end of the spectrum are the geographic regions representing the upper half of

Michigan's lower Peninsula and its Upper Peninsula: Alpena, Traverse Bay, Sault Ste. Marie, Marquette-Iron Mountain-Escanaba, and Houghton-Ironwood. All sparsely populated, four of these five regions had four-firm concentration ratios over .675 in 1960 and were the highest in the state. In 1969, and again excluding the Marquette-Iron Mountain-Escanaba Region, these regions still had the highest concentration ratios in the state, each over .575. Because of the large distances involved and the high market concentration, there appears to be little competition in these markets.

Eight-firm concentration ratios for each of the Governor's Planning Regions for each year of the 1960's are presented in Table 26. These exhibit similar characteristics to the four-firm concentration ratios for the same areas. As before, most of the regions had lower concentration ratios at the end of the decade than at the beginning. Five regions were more concentrated, however, and the Sault Ste. Marie region remained constant. In addition to the three regions whose four-firm concentration ratios had increased, Benton Harbor-St. Joseph, Lansing, and Marquette-Iron Mountain-Escanaba; the Jackson and Traverse Bay Regions also exhibited higher concentration ratios. Among those regions which showed less competition at the end of the decade, none had a continuous decline in

TABLE 26.--Eight-Firm Concentration Ratios of Long-Term Care Facilities in Michigan by Governor's Planning Region, 1960-69.

Planning Region	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Detroit	.292	.275	.255	.237	.212	.193	.190	.187	.152	.140
2. Jackson	.648	.644	.678	.685	.678	.666	.702	.718	.683	.714
3. Kalamazoo-Battle Creek	.596	.567	.573	.570	.542	.516	.512	.497	.470	.490
4. Benton Harbor-St. Joseph	.587	.554	.551	.676	.663	.687	.692	.693	.742	.764
5. Flint	.771	.763	.753	.682	.676	.681	.676	.693	.713	.651
6. Lansing	.608	.622	.607	.622	.669	.663	.705	.729	.787	.858
7. Saginaw Bay	.471	.470	.460	.468	.418	.354	.331	.402	.423	.403
8. Grand Rapids-Muskegon	.465	.466	.428	.417	.357	.350	.385	.386	.354	.350
9. Alpena	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	.973
10. Traverse Bay	.883	.877	.860	.911	.876	.855	.857	.886	.885	.923
11. Sault Ste. Marie	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
12. Marquette-Iron Mountain-Escanaba	.650	.658	.731	.694	.722	.709	.663	.753	.756	.703
13. Houghton-Ironwood	.959	.961	.900	.947	.913	.917	.904	.901	.876	.920
State Total	.154	.147	.135	.126	.112	.103	.106	.104	.082	.077

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

concentration, as measured by the eight-firm concentration ratio, throughout the 1960's.

When comparisons are made between regions for the same year, concentration again varies greatly with the region's population. In the upper half of Michigan's Lower Peninsula and its Upper Peninsula, only the Marquette-Iron Mountain-Escanaba region had an eight-firm concentration ratio below .850 in any year. On the other hand, only the Detroit Region had a concentration ratio which was below .300 in each year. By the end of 1969 only two other regions had eight-firm concentration ratios near or below .400. They were Grand Rapids-Muskegon, .350, and Saginaw Bay, .403.

Table 27 presents twenty-firm concentration ratios for each year, 1960 to 1969, and for each of the Governor's Planning Regions. Only four regions showed decreased concentration, when twenty facilities were included. They were also the four most populous regions: Detroit, Flint, Saginaw Bay, and Grand Rapids-Muskegon. Of these the Flint Region showed a very small change. The other four regions in the lower portion of Michigan's Lower Peninsula exhibited increased concentration, with the Benton-Harbor-St. Joseph and Lansing Regions reaching a concentration ratio of 1.000 by the end of the decade. Those five regions in the upper half of Michigan's Lower Peninsula and the Upper Peninsula all had concentration ratios of 1.000 for each year of the

TABLE 27.--Twenty-Firm Concentration Ratios of Long-Term Care Facilities in Michigan by Governor's Planning Region, 1960-69.

Planning Region	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Detroit	.427	.402	.377	.366	.337	.321	.322	.325	.313	.295
2. Jackson	.894	.896	.914	.926	.916	.904	.931	.946	.935	.972
3. Kalamazoo-Battle Creek	.840	.830	.833	.826	.830	.811	.832	.829	.850	.875
4. Benton Harbor-St. Joseph	.885	.851	.873	.902	.918	.929	.956	.978	.992	1.000
5. Flint	.987	.985	.990	.968	.967	.975	.970	.975	.980	.975
6. Lansing	.894	.885	.896	.911	.964	.955	.990	1.000	1.000	1.000
7. Saginaw Bay	.784	.768	.744	.736	.717	.653	.653	.711	.716	.719
8. Grand Rapids-Muskegon	.654	.658	.649	.651	.597	.588	.614	.616	.605	.603
9. Alpena	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
10. Traverse Bay	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
11. Sault Ste. Marie	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
12. Marquette-Iron Mountain-Escanaba	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
13. Houghton-Ironwood	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
State Total	.257	.243	.226	.216	.191	.178	.188	.186	.167	.157

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

1960's. By the end of the decade, nine of the regions had twenty-firm concentration ratios of .972 or more. The Detroit Region had a ratio of .295. Saginaw Bay and Grand Rapids-Muskegon had ratios of .719 and .603, respectively.

A second measure of concentration to be developed is the Herfindahl index. While concentration ratios give an indication of the level of competitiveness as measured by a specific number of firms, they do not tell anything about the relative sizes of the firms included. A four-firm concentration ratio of .800 might indicate four firms each with one-fifth of the market's capacity and three firms which combined had five percent of market capacity. One means of getting a clear picture of market concentration is to present tables for each possible concentration ratio, equal to the number of firms in the market. To avoid this cumbersome exercise a second means, the Herfindahl index, is available.

The Herfindahl index presents in one number a description of market concentration, regardless of the number of firms in the market. It is defined as the sum of the beds in each facility divided by total beds the quantity squared. The symbolic terms,

$$\text{Herfindahl index} = \sum_{i=1}^{n} \left(\frac{b_i}{B} \right)^2$$

where b_i = number of beds in the i^{th} facility,

B = total number of beds in the market,

i = 1, . . . , n facilities in the market.

The range of the Herfindahl index is from 0.000 to 1.000, the higher the index the more concentrated the market. If there is only one firm in the market, then the Herfindahl index will be 1.000. If there are two of equal size, it will be .500.

Herfindahl indexes are presented in Table 28 for each year under study and for each of the Governor's Planning Regions. As with concentration ratios, two trends are apparent. First, nursing care services markets have become more competitive. Second, the competitiveness of markets varies directly with the extent of the market, which is governed principally by population. Nine of the Governor's Planning Regions had lower indexes in 1969 than in 1960 and two were essentially the same. Only the Benton Harbor-St. Joseph and Lansing Regions showed substantial increases. When comparisons are made between markets for the same year, it is found that at the end of 1969 six regions had indexes of more than .100. These were Benton Harbor-St. Joseph, Lansing, and four of the five regions not in the lower half of the Lower Peninsula; all areas with limited markets.

While the first two measures of concentration measure competitiveness with respect to the capacity of

TABLE 28.--Herfindahl Indexes for Long-Term Care Facilities in Michigan by Governor's Planning Region, 1960-69.

Planning Region	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Detroit	.024	.021	.017	.015	.013	.012	.011	.011	.009	.008
2. Jackson	.081	.080	.091	.111	.083	.080	.092	.086	.077	.082
3. Kalamazoo-Battle Creek	.061	.054	.055	.053	.050	.047	.047	.044	.043	.046
4. Benton Harbor-St. Joseph	.073	.067	.062	.146	.117	.116	.114	.101	.116	.111
5. Flint	.148	.144	.112	.081	.080	.081	.075	.080	.082	.069
6. Lansing	.098	.095	.082	.079	.079	.074	.080	.085	.099	.112
7. Saginaw Bay	.047	.045	.041	.040	.035	.029	.028	.037	.037	.035
8. Grand Rapids-Muskegon	.039	.038	.034	.033	.027	.026	.035	.035	.030	.030
9. Alpena	.260	.240	.206	.175	.167	.147	.147	.138	.148	.134
10. Traverse Bay	.164	.148	.113	.118	.109	.101	.102	.107	.114	.123
11. Sault Ste. Marie	.506	1.000	1.000	1.000	.273	.239	.293	.305	.267	.267
12. Marquette-Iron Mountain-Escanaba	.079	.079	.102	.098	.105	.094	.070	.099	.094	.082
13. Houghton-Ironwood	.170	.178	.133	.167	.155	.146	.125	.129	.115	.143
State Total	.008	.007	.006	.005	.005	.004	.004	.004	.004	.004

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-71).

the firms in the market, the Gini coefficient bases its indication of market competitiveness on the output of each of the facilities in the market. Output of nursing care facilities is patient days. The Gini coefficient is defined with respect to the Lorenz curve; which depicts the locus of points representing the percentage of output produced by facilities, ranked from the facility with the smallest output to the one with the largest output, plotted against the percentage of facilities in the market. The Gini coefficient "is the ratio of two areas in a Lorenz diagram: (1) the area of the polygon between the line of perfect equality (diagonal) and the bits of straight lines linking the plotted points, and (2) the total area under the line of perfect equality."[7] Once again, the coefficient ranges from 0.000 to 1.000, the closer to 1.000 the more concentrated and less competitive the market.

Gini coefficients are presented in Table 29 for each of the Governor's Planning Regions for each year of the 1960's except 1961 and 1966, when occupancy rates were not reported. Occupancy rates of facilities were used to determine patient days, since they were more readily available than patient days themselves. These were weighted by the number of beds in each facility to arrive

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[7]Horst Mendershausen, Changes in Income Distribution During the Great Depression (New York, N.Y.: National Bureau of Economic Research, Inc., 1946), p. 162.

TABLE 29.--Gini Coefficients for Long-Term Care Facilities in Michigan by Governor's Planning Region, 1960-69.

Planning Region	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Detroit	.503	--[a]	.472	.471	.491	.452	--[a]	.452	.429	.433
2. Jackson	.502	--	.473	.522	.536	.509	--	.528	.516	.495
3. Kalamazoo-Battle Creek	.490	--	.497	.483	.466	.465	--	.422	.364	.370
4. Benton Harbor-St. Joseph	.405	--	.341	.360	.413	.495	--	.492	.481	.475
5. Flint	.559	--	.497	.476	.615	.471	--	.471	.466	.434
6. Lansing	.444	--	.437	.437	.466	.462	--	.419	.419	.427
7. Saginaw Bay	.415	--	.399	.411	.449	.413	--	.338	.359	.342
8. Grand Rapids-Muskegon	.521	--	.499	.496	.474	.479	--	.437	.439	.453
9. Alpena	.298	--	.368	.351	.302	.261	--	.196	.223	.276
10. Traverse Bay	.422	--	.318	.294	.332	.290	--	.241	.285	.223
11. Sault Ste. Marie	.056	--	.000	.000	.109	.239	--	.153	.151	.166
12. Marquette-Iron Mountain-Escanaba	.347	--	.343	.302	.335	.320	--	.371	.384	.378
13. Houghton-Ironwood	.304	--	.375	.382	.448	.463	--	.375	.367	.356
State Total	.502	--	.482	.486	.501	.472	--	.442	.445	.440

Source: Michigan Department of Public Health, Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1961-62 through Fiscal Year 1970-71 (Lansing, Michigan: Michigan Department of Public Health, 1962-1971).

[a]Occupancy rates not reported.

at occupancy rates for the region. Since not all facilities reported occupancy rates, it was necessary to simulate output for them. It was assumed that these facilities had occupancy rates similar to the regional average. In those few cases where no facilities in the region reported occupancy rates, it was assumed that the occupancy rate of the region's facilities was that of a nearby planning region.

Table 29 exhibits a clear trend toward lessened concentration during the decade. Nine regions exhibited declining coefficients over the entire decade. Of those four regions with increased coefficients, only Benton Harbor-St. Joseph was in the Lower Peninsula.

In comparing Gini coefficients for different regions for the same year, we find a small range of values. By the end of 1969, all regions had coefficients between .150 and .500. From 1965 to 1969, only the Jackson Region had values outside this range. In 1960 all regions except Sault Ste. Marie had values between .295 and .560. It is interesting to note that the Detroit Region had one of the higher concentrations among markets in each year. Overall concentration with respect to output was correlated with population, with some of the lowest levels of concentration being in the Upper Peninsula. This is partly the result of fewer facilities in those areas. That is,

the Gini coefficient is affected by the number of facilities included, particularly for small number of facilities.[8]

Summary of Overall Changes

There are several structural changes which occurred in the Michigan nursing home industry markets during the 1960's. Primary among changes was a gradual decline in concentration resulting in a long-term increase in market competition. With respect to the level of concentration among markets, it was principally determined by the extent of the market--the population of the market area.

From 1960 to 1969 there was a considerable shift in the numbers and types of nursing care facilities providing long-term nursing care services. The number of facilities declined slightly while the number of their beds increased by more than three-fourths. This resulted in a sharp increase in the mean number of beds per facility. The Detroit Region, which had over one-half of the state's population in 1970, had almost an equal share of Michigan's long-term nursing care beds by the end of the decade. Also the 1960's witnessed the decline of facilities owned by

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[8]The Gini coefficient is influenced by the number of facilities, since it is unlikely that facilities will be of equal size, especially if more than a few facilities are included. If there is only one facility in the market, the Gini coefficient is 0.000, perfect equality. The Gini coefficient would also be 0.000 if there were four facilities in the market, each with one-fourth the market's output. As the number of facilities increases, the likelihood of their all being equal decreases sharply. If they are of unequal size, the Gini coefficient increases.

individuals and partnerships and the rise of corporate-owned facilities. From 1960 to 1969 the supply of corporate-owned beds quadrupled, compared to a two-fifths increase in the number of proprietary- and partnership-owned beds. The majority of corporate-owned facilities were in the Detroit Region, whereas the outstate regions had more than their share of individually-owned facilities. County medical care facilities and hsopitals chronic care units changed little during the decade, while non-profit facilities grew at about the same rate as did the entire industry.

The size distribution of nursing care facilities, by number of beds, shifted sharply over the period. As facilities expanded and new, larger facilities replaced those small facilities which closed, the size distribution shifted in favor of larger facilities and away from smaller ones. Small facilities, those with less then 51 beds, experienced a fifty percent decline in beds during the decade. Almost two-thirds of those facilities with over 150 beds were located in the Detroit Region. During 1968 and 1969, there were more beds in these facilities in Detroit than in any other size classification. When corporate-owned facilities were compared with those owned privately, there were several marked differences. Foremost was that the former facilities were much larger than the latter, with a mean size of 87.4 beds in 1969 compared with 42.0 beds in privately-owned facilities. This explains

the dominance of medium-sized facilities in the corporate group and the smallest-sized facilities in the privately-owned facilities group.

Expansion and new facilities both played a major role in the growth of the industry in Michigan. The distribution of facilities expanding was proportional to the distribution of all facilities. Most expansions were for 25 beds or less. New facilities which opened were larger than the mean size of all facilities and averaged over 105 beds per new facility in 1969. Facilities which contracted did so almost always by less than 25 beds. Contractions of more than 25 beds usually resulted in facilities being closed. The majority of those facilities which did close, however, had fewer than 25 beds.

Measures of concentration all indicated that nursing care services markets were more competitive at the end of the decade than in 1960. In not a continuous decline. Many markets were still concentrated, but this primarily depended on the population of the market. It must be recognized that only a small portion of the population demands nursing care services at a given time. When this is combined with a limited geographical area for nursing care services, it is not unexpected that most markets contain only a few facilities.

Impact of Medical Assistance and Medicare

In the previous part changes in the market structure of the Michigan nursing home industry, which occurred in the 1960's, were discussed. Here, the impact of changes resulting from the introduction of Medical Assistance and Medicare on the industry structure will be examined to determine if shifts in market structure were long-term trends or resulted from the introduction of Medical Assistance and Medicare.

Tables 9 and 10 present the number of long-term care facilities and beds in Michigan. The number of facilities remained constant during the first part of the decade before increasing in both 1964 and 1965. After that the number of facilities declined. With respect to beds, there was an increase of 7,400 beds from the end of 1963 to the end of 1966, an increase of a third. There was little change during 1967 but long-term care beds expanded by 3,500 during 1968 and 1969.

Table 12 presents the number of long-term care facilities by type of ownership. It shows that the number of corporate-owned facilities increased by two-thirds during 1964 to 1966. At the same time the number of facilities owned by proprietors and partnerships fell by almost one-third. The number of beds in corporate facilities more than doubled during the same period, while those in individually-owned facilities declined by a quarter.

The size distribution of long-term care facilities is presented in Table 17 which shows substantial shift in the distribution from 1963 to 1966. Not only did facilities in the smallest size classification decline in number by one-third, but the number of facilities with over 50 beds expanded by two-thirds. With respect to corporate-owned facilities, the number of medium-sized facilities more than doubled from 1963 to 1966, from 36 to 84 as did the number of beds in those facilities. During the same period, the number of small facilities owned by individuals declined by two-fifths.

During 1964, more facilities were opened than during any other year of the decade. At the same time, more facilities closed in 1964. Most of those which closed had 25 or fewer beds.

Four-, eight-, and twenty-firm concentration ratios are presented in Tables 25 to 27. For four-firm concentration ratios, there were large decreases in eight of the ten regions in Michigan's Lower Peninsula from 1963 to 1965. Only the Lansing and Flint Regions remained relatively constant. In six of these eight regions, concentration at the four-firm level increased or remained constant during most of the period from 1965 to 1969. Similar results are arrived at from a consideration of eight- and twenty-firm concentration ratios. The Herfindahl index, presented in Table 28 provides similar results also.

From an examination of the data on the Michigan nursing home industry, it would appear that market structure changed gradually during the early 1960's, shifted sharply in 1964 to 1966, and again changed more slowly after 1966. Especially with respect to concentration, it appears that the long-term trend throughout the decade was toward decreased concentration. This long-term decline was not continuous, however, with sharp decreases in the middle of the decade followed by constant or increased concentration in several markets. Since the Medical Assistance and Medicare long-term care programs became operational on October 1, 1966 and January 1, 1967, it would appear that the net effect of changes resulting from their introduction was to cause concentration to increase. That is, the effect of a shift in the source of payments and a tightening of regulations outweighed the effect of increased demand. A more specific conclusion can be reached by testing a model containing the two theories proposed in Chapter IV.

CHAPTER VI

PUBLIC PURCHASE AND MARKET STRUCTURE: TEST OF AN HYPOTHESIS

A model containing the two theories of market structure evolution can now be tested and a determination made as to whether changes in the Michigan nursing home market structure resulted from the introduction of Medicare and Medical Assistance or were only part of a long-term trend. That is, did the shifts caused by changes brought about as a result of the two programs being introduced significantly alter long-term trends in market structure? Did such shifts cause concentration to increase or decrease, yielding less or more competitive markets, respectively?

Model

The following model offers two theories regarding changes in nursing home industry market structure during the 1960's. Recognizing only long-term changes in structure, the first theory states that differences in concentration between regions and over time can best be explained by changes in demographic characteristics. Three variables are included in the analysis: the percentage of aged persons to total population, population density, and per

capita income. While the second theory takes cognizance of long-term changes, it also recognizes the importance of Medical Assistance and Medicare by including a dummy variable to account for their introduction.

These two theories can be put into equation form and an F-test conducted to determine if the second theory is significantly better than the first. The first theory, which does not take cognizance of any impact the introduction of Medicare and Medical Assistance might have had on market structure can be written as follows:

$$C_{jt} = \beta_o + \sum_{i=1}^{3} \beta_{ijt} X_{ijt} + \epsilon \qquad (1)$$

where C_{jt} = four-firm concentration ratio in the $_j$th market in year t,

$X_{1_{jt}}$ = percentage of total population 65 years of age and over in the $_j$th market in year t,

$X_{2_{jt}}$ = population per square mile in the $_j$th market in year t,

$X_{3_{jt}}$ = per capita income in the $_j$th market in year t,

$j = 1, 2, \ldots 13,$

$t = 1960, 1961, \ldots 1969$

The equation is also estimated using the eight-firm concentration ratio and the Herfindahl Index as a dependent variable. When total number of long-term care beds,

corporate-owned beds, and proprietorship- and partnership-owned beds are used as the dependent variable, the independent variables become number of persons 65 years of age and over, population, and disposable income.

The second theory, which recognizes the impact of the introduction of Medical Assistance and Medicare on the nursing care services market structure, can be written as follows:

$$(2) \qquad C_{jt} = \beta_o + \sum_{i=1}^{4} \beta_{ijt} X_{ijt} + \varepsilon,$$

where the values of the variables are identical to those in equation (1), except;

$$X_{4_{jt}} = \begin{cases} 0 \text{ if } t < \text{ the introduction of Medicare and Medicaid} \\ 1 \text{ if } t \geq \text{ the introduction of Medicare and Medicaid.} \end{cases}$$

The sign of $X_{4_{jt}}$ determines whether the changes which resulted from the two programs caused concentration to increase or decrease. A positive sign means that concentration increased and that competition therefore decreased. Equation (2) was estimated for the same dependent variables and using the same independent variables as equation (1).

The null hypothesis, H_o, is that equation (2) is not a significantly better predictor of C_{jt} than equation (1). An F-test is conducted to determine if H_o should be accepted

or rejected. The appropriate F-statistic can be calculated as follows:

$$F_{(k-g),\ (n-k+1)} = \frac{\dfrac{(ESS_1 - ESS_2)}{k - g}}{\dfrac{ESS_2}{n - (k + 1)}},$$

where ESS_1 = sum of the terms in the error term in equation (1) squared,

ESS_2 = sum of the terms in the error term in equation (2) squared,

g = number of independent variables in equation (1),

k = number of independent variables in equation (2),

n = j times t.[1]

The F-statistic is checked against a table of F values to determine the level of confidence with which the null hypothesis can be accepted or rejected. If the null hypothesis can be rejected with a high degree of confidence, then equation (2) is a significantly better predictor of the level of concentration than equation (1). This means that introduction of Medicare and Medicaid did result in a shift in concentration.

Governor's Planning Regions were chosen over health facility service areas as the geographic boundaries for

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[1]William Mendenhall, Introduction to Linear Models and The Design and Analysis of Experiments (Belmont, California: Wadsworth Publishing Company, Inc., 1968), pp. 176-179.

testing the model, since the latter are smaller and therefore likely to contain few, if any, nursing care facilities. This results in few changes in market structure and uniformly high levels for most stock measures of concentration. Also, values for the independent variables are more easily calculated for the planning regions, because they follow county lines and most data reporting of demographic characteristics is by county.

Income and population data were taken from Sales Management's Survey of Buying Power for each county and each year.[2] Sales Management's "effective buying income," which is disposable income, was used as the measure of income. The 1960 and 1970 Censuses were the sources for the number of aged persons by county.[3] For each county, it was assumed that one-tenth of the change in the number of aged persons occurred each year. Since planning regions are combinations of counties and since it is unlikely that the portion of aged persons in the total population would vary widely, it would appear that this procedure yields sufficiently accurate estimates of the number of aged.

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[2]Sales Management, Inc., Survey of Buying Power (Various issues), 1961-1970.

[3]U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population: General Population Characteristics: Michigan, Advance Report (Washington, D.C.: U.S. Government Printing Office, 1971). Michigan State University, Graduate School of Business Administration, Michigan Statistical Abstract, Eighth Edition, 1970 (East Lansing, Michigan: Michigan State University, 1970).

The date for the introduction of Medicare and Medicaid was varied from 1964 to 1967 to find which would yield the best results. It is not unreasonable to vary the introduction date, since by 1964 is meant December 31, 1964 and since the Social Security Amendments of 1965 were signed into law only seven months later on July 30, 1965. To accept the introduction as occurring in 1964, it is necessary to assume that nursing care facilities were aware of the imminent passage of the law and capitalized the value of its impact. This is a plausible assumption, because it was evident in early 1964 that some form of insurance against high health costs for the indigent would be enacted by Congress within a year or two.[4] On the other hand, the acceptance of an introduction date as late as 1967 is reasonable, because the long-term care portions of Medicaid and Medicare did not become operational until October 1, 1966 (in Michigan) and January 1, 1967, respectively. Acceptance of a date as late as this is based on the assumption that changes resulting from the introduction did not have an impact upon the industry until the two programs became operational.

Three sets of equations were estimated by the ordinary least squares technique, using stock measures of

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[4]A good description of the legislative struggle for enactment of Medicare and Medicaid is presented in Robert B. Stevens, Statutory History of the United States: Income Security (New York, N.Y.: McGraw-Hill Book Co., 1970).

concentration as the dependent variable. Sets of equations were estimated for four-firm concentration ratios, eight-firm concentration ratios, and Herfindahl indexes. Two other stock measures were considered but rejected. A set of equations was not estimated for twenty-firm concentration ratios because five of the 13 regions had ratios identical to 1.000 in each year. Gini coefficients were not used as a dependent variable, since data was not available for 1961 or 1966 and several other cells had to be estimated or contained data from a small number of facilities. Since the Sault Ste. Marie Region had four- and eight-firm concentration ratios identical to 1.000 in each year, those sets of equations were estimated for only 12 planning regions.

Results

For the dependent variable four-firm concentration ratios, the best fit was attained when 1967 was chosen as the introduction date of Medicare and Medical Assistance. The results of equations (1) and (2), representing the first and second theories, were as follows:

$$(1)\quad C_{jt} = \underset{}{0.74789} + \underset{(0.01997)}{0.02072}X_{1jt} - \underset{(0.00005)}{0.00030}X_{2jt} - \underset{(0.00003)}{0.00011}X_{3jt}$$

$$(2)\quad C_{jt} = \underset{}{0.84157} + \underset{(0.01969)}{0.01583}X_{1jt} - \underset{(0.00006)}{0.00025}X_{2jt} - \underset{(0.00004)}{0.00017}X_{3jt} + \underset{(0.03531)}{0.08390}X_{4jt}$$

where C_{jt} = four-firm concentration ratio in the jth market in year t,

X_{1jt} = percentage of total population 65 years of age and over in the jth market in year t,

X_{2jt} = population per square mile in the jth market in year t,

X_{3jt} = per capita income in the jth market in year t,

$X_{4jt} = \begin{cases} 0 \text{ if } t < 1967 \\ 1 \text{ if } t \geq 1967, \end{cases}$

$j = 1, 2, \ldots, 12,$

$t = 1960, 1961, \ldots, 1969,$

and the standard errors of each independent variable is shown in parenthesis beneath the variable. The R^2 for equation (1) was 0.4457 and for equation (2) was 0.4716.

An F-test was conducted to determine whether the null hypothesis, that equation (2) is not a significantly better predictor of C_{jt} than equation (1), should be accepted or rejected. The appropriate F-statistic, $F_{1,115} = 5.689$, was significant at the five-percent but not the one-percent confidence level. Therefore, the null hypothesis can be rejected with in excess of 95 percent confidence. This means that the second theory is a significantly better predictor of shifts in concentration, and ceteris paribus shifts in competition, than the first. That is, the introduction of Medicare and Medical Assistance caused a significant shift in the long-term concentration trends in the Michigan nursing home industry markets. The F-statistic was also significant at the five-percent level when the introduction date was 1966, but not for either 1964 or 1965.

This is not surprising, since the dummy variable was significant for 1966 and 1967, but not for the two previous years.

The sign of χ_{4jt} indicates whether there was a shift upward or downward in four-firm concentration ratios as a result of the two programs and therefore whether market competition decreased or increased, respectively. For all four years χ_{4jt} was positive indicating an increase in concentration and a decrease in market competition.

Similar results were attained when the set of equations, with eight-firm concentration ratios as the dependent variable, were estimated. In this case the best fit came from using 1965 as the introduction date.

$$(1)\quad C_{jt} = 0.93100 + \underset{(0.02537)}{0.03846}\chi_{1jt} - \underset{(0.00007)}{0.00049}\chi_{2jt} - \underset{(0.00003)}{0.00009}\chi_{3jt}$$

$$(2)\quad C_{jt} = 1.10892 + \underset{(0.02448)}{0.03345}\chi_{1jt} - \underset{(0.00007)}{0.00038}\chi_{2jt} - \underset{(0.00005)}{0.00020}\chi_{3jt} + \underset{(0.04486)}{0.14268}\chi_{4jt}$$

where C_{jt} = eight-firm concentration ratio in the j^{th} market in year t,

χ_{1jt}, χ_{2jt}, χ_{3jt}, j, and t are same as for four-firm concentration ratio and

$$\chi_{4jt} = \begin{cases} 0 \text{ if } t < 1965 \\ 1 \text{ if } t \geq 1965. \end{cases}$$

The R^2 for equation (1) was 0.4703 and for equation (2) was 0.5131. An F-test was conducted and the appropriate

statistic, $F_{1,115} = 10.097$, was significant at the one-percent confidence level. Therefore, the second theory is a significantly better predictor of changes in concentration. The F-statistic was also significant at the one-percent level when 1966 and 1967 were used as introduction dates and at the five-percent level when 1964 was used. In all four cases χ_{4jt} was significant and positive, indicating an upward shift in concentration resulting from changes brought about by the introduction of Medicare and Medicaid.

Herfindahl indexes were not explained by the independent variables. In no case did the R^2 reach a value of 0.2000 and the dummy variable, even though it was positive in each case, was not significant nor did it significantly better explain the dependent variable than did the other variables. The only independent variable which was significant was per capita income, which had an R^2 of 0.1454. When the dummy variable using 1967 as the introduction date was added to per capita income, the F-statistic comparing this equation with one containing only per capita income as an independent variable was just significant at the five-percent confidence level. This was not the case when any other year was used.

Three additional sets of equations were estimated, using total number of nursing home beds, number of proprietorship- and partnership-owned nursing home beds, and

number of corporate-owned nursing home beds as the dependent variables. For the case of privately-owned beds, the equations were estimated for each region but the Sault Ste. Marie Region, which had no beds in this category during the 1960's. In estimating these equations, it was not necessary to standardize the independent variables to account for differences in the planning regions as was done above. The independent variables used, therefore, were population, disposable income, and the number of persons 65 years of age and over.

For the dependent variable total number of nursing home beds, the best fit was attained when 1964 was used as the introductory date for Medicare and Medicaid.

$$(1)\quad B_{jt} = \underset{}{339.55859} + \underset{(0.35917)}{0.30260}\chi_{1jt} + \underset{(0.13668)}{0.17740}\chi_{2jt} + \underset{(0.00005)}{0.00092}\chi_{3jt}$$

$$(2)\quad B_{jt} = \underset{}{228.61177} + \underset{(0.35233)}{0.23659}\chi_{1jt} + \underset{(0.14332)}{0.31029}\chi_{2jt} + \underset{(0.00005)}{0.00087}\chi_{3jt} + \underset{(67.65573)}{174.34335}\chi_{4jt}$$

where B_{jt} = total number of nursing home beds in the jth market in year t,

χ_{1jt} = number of persons 65 years of age and over in the jth market in year t,

χ_{2jt} = population of the jth market in year t,

χ_{3jt} = disposable income of the jth market in year t,

$\chi_{4jt} = \begin{cases} 0 \text{ if } t < 1964 \\ 1 \text{ if } t \geq 1964, \end{cases}$

$j = 1, 2, \ldots, 13,$

$t = 1960, 1961, \ldots, 1969.$

The R^2 for equation (1) was 0.9881 and for equation (2) was 0.9887. While the increase in R^2 was marginal, χ_{4jt} was significant. In addition, the F-statistic, $F_{1,125} = 6.640$, was significant at the five-percent confidence level. Therefore, equation (2) was a significantly better predictor of changes in the total number of beds than equation (1). When 1965 was used as the introductory year, similar results were found and the F-statistic was significant at the five-percent level. While equation (2) was not significantly better than equation (1) when χ_{4jt} equaled 1966 or 1967, the variable was positive in all four cases. This indicates that the total number of nursing home beds rose as a result of the introduction of Medicare and Medical Assistance.

The increase in the total number of nursing home beds, resulting from the introduction of Medicare and Medical Assistance, is not in conflict with increase in concentration as a result of the introduction of the two programs shown in the above sets of equations. This increase in total beds does show that Medicare and Medicaid significantly increased the demand for nursing home care and that industry capacity expanded to meet it. In isolation, this increased industry capacity would tend to decrease concentration, if the conclusions of Nelson and Shepherd are accepted. They have found that concentration

is likely to decline in rapidly growing industries.[5] Increased demand, however, is only one change brought about by the two programs and, therefore, can not be considered by itself. The marked shifting of funding sources and the tightening of operating regulations must also be considered, especially their effect on the number of long-term care facilities. Table 9 showed that the number of long-term care facilities varied only about ten percent during the 1960's. Thus, the increased number of beds were due to an expansion of existing facilities and new, larger facilities replacing smaller ones which had closed. This increase in number of beds with a relatively constant number of facilities is compatible with either increased or decreased concentration.

The introduction of Medicare and Medicaid, regardless of year chosen, did not significantly better explain the number of corporate- or privately-owned beds, than did the other independent variables. With respect to privately-owned beds, the only variable which was significant was population. The resulting equation had an R^2 of 0.8478.

$$P_{jt} = 207.21973 + \underset{(0.01857)}{0.47623} X_{2jt}$$

where P_{jt} = number of privately-owned beds in $_j$th market in year t,

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[5] See Chapter II, p. 46.

X_{2jt} = population in $_j$th market in year t,

j = 1, 2, . . ., 12,

t = 1960, 1961, . . ., 1969.

Only population and disposable income were significant independent variables in explaining the number of corporate-owned beds in a region, accounting for 0.9874 of the variation among the number of beds.

$$COR_{jt} = - 96.46484 - \underset{(0.08311)}{1.50093}X_{2jt} + \underset{(0.00003)}{0.00109}X_{3jt}$$

where COR_{jt} = number of corporate-owned beds in the $_j$th market in year t,

X_{2jt} = population in the $_j$th market in year t,

X_{3jt} = disposable income in the $_j$th market in year t,

j = 1, 2, . . ., 13,

t = 1960, 1961, . . ., 1969.

It is clear from the above analysis that changes, resulting from the introduction of Medicare and Medical Assistance, caused significant shifts in long-term concentration trends in the Michigan nursing home industry. Sepcifically, the introduction of the two programs caused concentration to increase and, thus, competition to decrease. Medicaid and Medicare brought about four changes with respect to the Michigan nursing home industry: a sharp shift from private to public funding sources, a tightening of operating regulations, a significant increase in demand, and a shift

from private to corporate ownership of facilities. The first two changes tended to result in increased concentration; the third, decreased concentration; and the fourth had offsetting effects depending upon whether corporate facilities were new or expansions of already existing facilities. From the results of the testing of the model, it appears that the shift in funding sources and the tightening of operating regulations outweighed the increased demand for nursing care services. The introduction of Medical Assistance and Medicare did not significantly effect the ownership of facilities. Policy implications which can be drawn from these findings are explored in Chapter VII.

CHAPTER VII

SUMMARY AND POLICY IMPLICATIONS

In this chapter the arguments presented in previous chapters are summarized. Then the policy implications arising from the conclusions based on those arguments are examined, as they apply to competition in Michigan's nursing care services markets.

Summary

The purpose of this study has been to determine what, if any, effect the availability of Medicare and Medicaid payments for nursing care services has had on the nursing home industry market structure in Michigan. The industry is composed of nursing homes, county medical care facilities, and long-term care units of hospitals. The distinguishing characteristic of these facilities is that their primary output is the provision of nursing care services.

It is reasonable to expect that industry structure would have changed as a result of the introduction of these two programs, since they induced several major changes in the operation of nursing homes. First, the source of financing nursing care services was altered from predominantly private to primarily public funding.

Second, regulations under which the facilities operated were tightened. Third, there was a sharp increase in the demand for nursing care services.

These three changes had offsetting effects on the market structure of the Michigan nursing home industry. Both the shift from private to public sources of funding and the tightening of regulations tended to make markets less competitive. As a result of the former, nursing homes were held more accountable for the services they provided. This forced nursing homes to learn how to cope with a bureaucratic process and to acquire a technical knowledge of government-run programs. As a result, many marginally profitable homes chose to close or merge with other homes in the face of these requirements. Tighter regulations had a similar effect, since many facilities probably could not or did not find it profitable to meet the tighter regulations, particularly the increased building regulations, and went out of business.

Increased demand for nursing care services, on the other hand, tended to alter market structure so that the industry became more competitive. This increased demand could be met either by the opening of new facilities or the expansion of existing ones. Given limited economies of scale, the sharp increase in demand was not met only by the expansion of existing facilities. The small number of beds required to achieve minimum efficient size and the

low level of other barriers to entry made it relatively easy for new facilities to enter the market. Thus, the increased demand was met by a combination of small homes expanding to achieve economies of scale and new facilities opening. The expansion of existing facilities and the replacement of small facilities which closed by new, larger facilities tended to alter market structure so that the industry became more competitive.

These three major changes, resulting from the introduction of Medical Assistance and Medicare, caused a fourth change which had offsetting effects on the competitiveness of the industry. This change was the rapid expansion of corporate ownership as a type of facility ownership. It tended to cause competition to increase when the corporate-owned facilities were new and to perpetuate it when they were expansions of previously-existing noncorporate facilities.

The net effect of these four changes on the market structure of the Michigan nursing home industry is a priori uncertain. To determine if these changes had a significant effect on that structure, two theories of the evolution of the market structure were posed. The first theory was that structural changes occurred due to a long-term growth in demand resulting from changing demographic characteristics. That is, as the number of aged, both absolutely and as a percentage of total population,

urbanization, and per capita income increased, the demand for nursing care services increased. While the second theory took account of long-term trends in market structure, it stated that the changes resulting from the introduction of Medicaid and Medicare caused a shift in market structure. Whether concentration increased or decreased is determined by the direction and significance of the shift. Each theory was stated in equation from and sets of equations were estimated by the ordinary least squares technique, using four-firm concentration ratios, eight-firm concentration ratios, Herfindahl indexes, total number of nursing care beds, number of corporate-owned beds, and number of privately-owned beds as dependent variables. For each set an F-test was conducted to determine whether the second theory was a significantly better predictor of the dependent variable than the first tyeory.

When sets of equations were estimated for four-firm and eight-firm concentration ratios, the second theory was found to be a significantly better predictor of the dependent variable than the first. In all cases the sign of the dummy variable for the introduction of the two programs was positive, meaning that, ceteris parbius, concentration increased as a result of Medicare and Medicaid. When the dependent variable was Herfindahl indexes, concentration significantly increased when the equation with percapita income and 1967 as the introductory

date for the dummy variable as independent variables was compared to one with only per capita income as an independent variable.

The second theory was a significantly better predictor of the total number of nursing home beds than the first for 1964 and 1965 being used as the introductory years. Again, the dummy variable for the introduction of Medicare and Medicaid was positive in all cases, indicating that the total number of nursing home beds rose as a result of the programs' introduction. This increased capacity would tend to decrease concentration, if considered in isolation. However, the increase in demand which this reflects is only one change brought about by the two programs and cannot be considered in isolation. The introduction of Medicare and Medicaid, regardless of year chosen, did not significantly better explain the number of corporate- or privately-owned beds, than did the other independent variables.

It is clear from the test of the model that changes, resulting from the introduction of Medicare and Medical Assistance, caused significant shifts in long-term concentration trends in the Michigan nursing home industry markets. Specifically, the introduction of the programs caused concentration to increase and competition to decrease. Therefore, the shift in funding sources and the tightening of operating regulations had a stronger effect

on market structure and offset the effect of increased demand for nursing care services. Any shift in type of ownership did not significantly effect long-term trends in market structure.

Policy Implications

What policy implications are there for the adoption of new or the expansion of existing state and federal programs with respect to the provision of nursing care services and the competitiveness of the markets in which they are provided? It has been the tenet of industrial organization theory that the structure of an industry is important since it influences the conduct and performance of that industry. If that structure is altered, through a change in public policy, conduct and performance will change. With respect to the Michigan nursing home industry, it is unlikely that the adoption of a new or an expanded state or federally administered program will significantly change current industry competitiveness, due to the environment within which the industry already operates. That is, the changes which resulted from the introduction of Medicare and Medical Assistance were one-time shifts that could not be altered or extended through the expansion of an existing program or the adoption of a new government-sponsored program. The reason for this is clear if the changes in the environment within which nursing homes operated are examined.

The first change was the marked shift in the funding sources of payments for nursing care services. As stated above, this forced facilities to learn how to cope with a bureaucratic process and to acquire a technical knowledge of government-run programs. Those operators who could not acquire this expertise were forced to close their facilities. The operators who did develop it would have little difficulty in applying it to a new program. A second change was that operating regulations were tightened, especially building requirements. It is doubtful that major changes could be made in these regulations, particularly the ones concerning building specifications. Michigan and the country as a whole have a relatively new capital stock with respect to nursing care facilities. An attempt to upgrade it would be faced with substantial resistance from the owners of that stock. Another factor which must be considered is that the owners of that capital stock represent a powerful lobby, both in Michigan and in the nation's capitol. Any attempt to significantly upgrade the services provided by nursing care facilities must overcome the obstacles of increased costs of providing the services, limited numbers of health manpower, and the resistance of the owners. The third change was that demand increased sharply. When Medicare was implemented, that group of persons most likely to demand nursing care services, the aged, was covered. Furthermore, most

elderly persons have very limited resources and almost no income-earning capacity. This means that by the time they have purchased nursing care services privately for a short period of time, their medical bills are usually sufficiently large to have reduced their assets and income to such an extent that they become eligible for Medicaid. This is also true for those nonaged persons who through long illnesses demand nursing care services. Thus, Medicare and Medicaid already provide coverage for those most likely to demand these services. The final change was the expansion of corporate ownership of facilities. Since this is the predominant form of ownership now, there cannot be a significant change in this direction.

Two policy implications arise from the discussion in Chapter I regarding the acceptance of the assumption that increased competition is preferable to decreased competition under current industry conditions. The first implication is that the extent of economies of scale might be increased, if the current fixed staff-bed ratios were removed from state licensing and certification requirements. One reason for the limited economies of scale currently found in nursing homes is that the primary input, personnel costs, is fixed. Allowing the number and quality of staff to fluctuate might increase economies of scale. At the same time, economies of scale could be measured directly, giving a more accurate measurement of the true minimum

efficient scale than is possible using the survivor technique.

The second policy implication is that as the percentage of Medicaid patients to total patients increases and as licensing and certification requirements are tightened and more strictly enforced, the scope of price and nonprice competition in the nursing care services markets will decline. Also, if large economies of scale are found after the removal of fixed staff-bed ratios, the number of firms which can efficiently operate in a given market will decrease. In either case, as the scope of competition is limited, policy makers should consider alternative market solutions, such as the adoption of a public utility concept of regulation.

In addition, this study can be directly applied to those states with much less comprehensive public programs for the purchase of nursing care services. That is, the changes in the structure of Michigan's nursing home industry are an indication of those changes which are likely to occur in other states if they adopt comprehensive programs equal to the scope of Michigan's. Application can also be made to the introduction of other public programs for the purchase of services or products on a large scale from an industry. A prime example of such an industry is the industry providing day care for children. The industry is just developing and issues, similar to those faced by

the nursing home industry in the early 1960's, are being raised. Principal among them is whether the federal and state governments should subsidize the purchase of day care services on a large scale basis. In both areas, it is important that prospective changes in the structure of the industry involved be considered, since they will cause changes in conduct and performance.

APPENDICES

APPENDIX A

SOCIAL SECURITY ACT - TITLE XVIII - SECTION 1861 (j)[1]

Extended Care Facility

(j) The term "extended care facility" means (except for purposes of subsection (a)(2)) an institution (or a distinct part of an institution) which has in effect a transfer agreement (meeting the requirements of subsection (l)) with one or more hospitals having agreements in effect under section 1866 and which-

(1) is primarily engaged in providing to inpatients (A) skilled nursing care and related services for patients who require medical or nursing care, or (B) rehabilitation services for the rehabilitation of injured, disabled, or sick persons;

(2) has policies, which are developed with the advice of (and with provision of review of such policies from time to time by) a group of professional personnel, including one or more physicians and one or more registered professional nurses, to govern the skilled nursing care and related medical or other services it provides;

(3) has a physician, a registered professional nurse, or a medical staff responsible for the execution of such policies;

(4)(A) has a requirement that the health care of every patient must be under the supervision of a physician, and (B) provides for having a physician available to furnish necessary medical care in case of emergency;

(5) maintains clinical records on all patients;

(6) provides 24-hour nursing service which is sufficient to meet nursing needs in accordance with the policies developed as provided in paragraph (2), and has at least one registered professional nurse employed full time;

(7) provides appropriate methods and procedures for the dispensing and administering of drugs and biologicals;

(8) has in effect a utilization review plan which meets the requirements of subsection (k);

(9) in the case of an institution in any State in which State or applicable local law provides for the licensing of institutions of this nature, (A) is licensed pursuant to such law, or (B) is approved, by the agency of such State or locality responsible for licensing institutions of this nature, as meeting the standards established for such licensing; and

(10) meets such other conditions relating to the health and safety of individuals who are furnished services in such institution

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[1]U.S. Congress, House of Representatives, Compilation of the Social Security Laws, Vol. 1, section 1861 (j) (Washington, D.C.: U.S. Government Printing Office, 1968), pp. 311-312.

or relating to the physical facilities thereof as the Secretary may find necessary (subject to the second sentence of section 1863); except that such term shall not (other than for purposes of subsection (a)(2)) include any institution which is primarily for the care and treatment of mental diseases or tuberculosis. For purposes of subsection (a)(2), such term includes any institution which meets the requirements of paragraph (1) of this subsection. The term 'extended care facility' also includes an institution described in paragraph (1) of subsection (y), to the extent and subject to the limitations provided in such subsection.

APPENDIX B

GEOGRAPHICAL BOUNDARIES OF GOVERNOR'S PLANNING REGIONS AND HEALTH FACILITY SERVICE AREAS [1]

Governor's Planning Regions

Planning Region	County
1. Detroit	Monroe Washtenaw Wayne Livingston Oakland Macomb St. Clair
2. Jackson	Hillsdale Lenawee Jackson
3. Kalamazoo-Battle Creek	St. Joseph Branch Kalamazoo Calhoun Barry
4. Benton Harbor-St. Joseph	Berrien Cass Van Buren
5. Flint	Shiawassee Genesee Lapeer
6. Lansing	Eaton Ingham Clinton
7. Saginaw Bay	Gratiot Saginaw Tuscola Sanilac Isabella Midland Bay Huron

[1] Michigan Department of Public Health. Michigan State Plan for Hospital and Medical Facilities Construction 1970-1971 (Lansing, Michigan: Michigan Department of Public Health, 1971), pp. 58, 64-65.

Planning Region	County
7. Saginaw Bay (Cont.)	Clare
	Gladwin
	Arenac
	Roscommon
	Ogemaw
	Iosco
8. Grand Rapids-Muskegon	Allegan
	Ottawa
	Kent
	Ionia
	Muskegon
	Montcalm
	Oceana
	Newaygo
	Mecosta
	Mason
	Lake
	Osceola
9. Alpena	Crawford
	Oscoda
	Alcona
	Otsego
	Montmorency
	Alpena
	Cheboygan
	Presque Isle
10. Traverse Bay	Manistee
	Wexford
	Missaukee
	Benzie
	Grand Traverse
	Kalkaska
	Leelanau
	Antrim
	Charlevoix
	Emmet
11. Sault Ste. Marie	Mackinac
	Luce
	Chippewa
12. Marquette-Iron Mountain-Escanaba	Dickinson
	Menominee
	Delta
	Marquette
	Alger
	Schoolcraft
13. Houghton-Ironwood	Gogebic
	Iron

Planning Region		County
13.	Houghton-Ironwood (Cont.)	Ontonagon Baraga Houghton Keweenaw

Health Facility Service Areas

Service Area		County	Township(s)
1.	Marquette	Marquette	All but Wells, Ewing
2.	Stambaugh-Crystal Falls	Iron	All
3.	Escanaba	Marquette	Wells, Ewing
		Delta	All but Garden, Fairbanks
		Menominee	Spalding, Harris Nadeau, Gourley
4.	Hancock	Keweenaw	All
		Houghton	All but Laird, Duncan
5.	Iron Mountain	Dickinson	All
		Menominee	Meyer, Faithorn
6.	L'Anse	Baraga	All
		Houghton	Laird, Duncan
		Ontonagon	Interior
7.	Manistique	Schoolcraft	All but Seney
		Delta	Garden, Fairbanks
		Mackinac	Newton
8.	Munising	Alger	All but Burt
9.	Newberry	Alger	Burt
		Schoolcraft	Seney
		Luce	All
		Chippewa	Hulbert, Whitefish
		Mackinac	Portage, Garfield
10.	Ontonagon	Ontonagon	All but Bergland, Matchwood, Interior
11.	St. Ignace	Mackinac	All but Newton, Portage, Garfield, Clark
12.	Sault Ste. Marie	Chippewa	All but Hulbert, Whitefish
		Mackinac	Clark

Service Area	County	Township(s)
13. Menominee	Menominee	Holmes, Daggett, Cedarville, Lake, Stephenson, Mellen, Ingallston, Menominee
14. Wakefield	Gogebic	All
	Ontonagon	Bergland, Matchwood
15. Petosky	Emmet	All but Bliss, Wawatam, Carp Lake, McKinley
	Charlevoix	All
	Antrim	Torch Lake, Central Lake, Banks, Echo, Jordan, Forest Home, Kearney
	Cheboygan	Tusca Rora, Mentor, Wilmot
16. Cheboygan	Emmet	Bliss, Wawatam, Carp Lake, McKinley
	Cheboygan	All but Tusca Rora, Mentor, Wilmot, Nunda, Waverly, Forest
17. Gaylord	Otsego	All
	Antrim	Warner, Star
	Cheboygan	Nunda
	Montmorency	Vienna, Albert
18. Rogers City	Presque Isle	All but Presque Isle
	Cheboygan	Waverly, Forest
	Montmorency	Montmorency
19. Traverse City	Leelanau	All
	Benzie	Almira, Inland
	Grand Traverse	All
	Wexford	Wexford, Hanover, Springville
	Antrim	Elk Rapids, Milton, Helen, Custer, Chestonia, Mancelona
	Kalkaska	All but T-27-N R-5-W, T-26-N R-5-W, T-25-N R-5-W, T-25-N R-6-W
20. Cadillac	Wexford	All but Wexford, Hanover, Springville
	Lake	Dover
	Osceola	Burdell, LeRoy, Sherman, Rose Lake, Highland, Hartwick, Maxion, Middle Branch

Service Area	County	Township(s)
20. Cadillac (Cont.)	Clare	Winterfield, Redding
	Missaukee	All
21. Frankfort	Benzie	All but Almira, Inland
	Manistee	Arcadia, Pleasanton, Springdale, Cleon
22. Grayling	Kalkaska	T-27-N R-5-W
		T-26-N R-5-W
		T-25-N R-5-W
		T-25-N R-6-W
	Roscommon	All but AuSable
		Backus, Richfield, Nester
	Crawford	All
23. Manistee	Manistee	All but Arcadia, Cleon, Pleasanton, Springdale
	Mason	Freesoil, Grant, Meade
	Lake	Elk, Eden
24. Bay City	Bay	All but Beaver, William
	Arenac	All but Moffett, Clayton, Whitney, Sims
	Tuscola	Wisned, Akron, Gilford
25. Saginaw	Tuscola	Denmark, Tuscola, Vassar
	Saginaw	All but Chapin, Brady, Chesaning
26. Alma	Gratiot	All but Washington, Elba
	Midland	Jasper, Porter
	Clinton	Lebanon
	Ionia	North Plains
	Montcalm	Howe, Richland, Ferris, Crystal, Bloomer
27. Alpena	Presque Isle	Presque Isle
	Montmorency	All but Albert, Vienna, Montmorency
	Alpena	All
	Oscoda	Clinton
	Alcona	All but Curtis, Millen, Mikado, Greenbush
28. Bad Axe	Huron	All but Sebewaing, Brookfield, Grant
	Sanilac	Austin
29. Cass City	Sanilac	Greenleaf, Evergreen
	Huron	Brookfield, Grant, Sebewaing

	Service Area	County	Township(s)
29.	Cass City (Cont.)	Tuscola	All but Akron, Wisned, Gilford, Denmark, Tuscola, Vassar, Koylton, Arbela, Millington, Watertown
30.	Midland	Bay	Beaver, William
		Midland	All but Warren, Geneva, Greendale, Jasper, Porter
		Gladwin	All but Bourret,
		Clare	Franklin, Hamilton, Arthur
31.	Mt. Pleasant	Clare	All but Winterfield, Redding, Franklin, Hamilton, Arthur
		Midland	Warren, Geneva, Greendale
		Isabella	All
		Mecosta	Wheatland
32.	Tawas City	Alcona	Curtis, Millen, Mikado, Greenbush
		Iosco	All but Burleigh, Plainfield, Reno
		Arenac	Whitney, Sims
33.	West Branch	Oscoda	All but Clinton
		Roscommon	AuSable, Backus, Richfield, Nester
		Ogemaw	All
		Gladwin	Bourret
		Arenac	Moffatt, Clayton
		Iosco	Plainfield, Reno, Burleigh
34.	Port Huron	Sanilac	Worth
		St. Clair	All but Ira, Berlin, Mussey, Emmett, Lynn, Broadway, Greenwood
35.	Thumb Area	Sanilac	All but Worth, Austin, Evergreen, Greenleaf
		St. Clair	Lynn, Mussey, Emmett, Broadway, Greenwood
		Lapeer	Burlington, Burnside
		Tuscola	Koylton

Service Area	County	Township(s)
36. Muskegon	Muskegon	All but Holton, Casnovia
	Ottawa	Spring Lake, Crockery, Polkton, Grand Haven, Robinson
37. Fremont	Muskegon	Holton, Casnovia
	Oceana	Greenwood
	Newaygo	All but Troy, Lilley, Howe, Barton, Monroe, Norwich, Goodwell
38. Hart	Oceana	All but Greenwood
	Newaygo	Troy
39. Ludington	Mason	All but Grant, Meade, Freesoil
40. Grand Rapids	Allegan	Dorr, Leighton, Hopkins, Wayland
	Ottawa	Wright, Allendale, Tallmadge, Georgetown, Chester
	Kent	All but Spencer, Oakland, Grattan
	Ionia	Boston
41. Big Rapids	Mecosta	All but Hinton, Millbrook, Wheatland
	Newaygo	Lilley, Howe, Barton, Monroe, Norwich, Goodwell
42. Greenville	Mecosta	Hinton, Millbrook
	Kent	Spencer, Oakfield, Grattan
	Ionia	Otisco, Keene, Orleans, Ronald
	Montcalm	All but Bloomer, Crystal, Ferris, Home, Richland
43. Holland	Ottawa	Port Sheldon, Olive, Blendon, Park, Holland, Zeeland, Jamestown
	Allegan	Laketown, Fillmore, Salem, Overisel, Saugatuck, Heath, Manlius, Ganges
44. Ionia	Ionia	Easton, Ionia, Lyons, Berlin, Orange, Odessa, Sebewa

Service Area	County	Township(s)
45. Reed City	Lake	All but, Elk, Eden, Dover
	Osceola	Lincoln, Richmond, Cedar, Hersey, Osceola, Evart, Sylvan, Orient
46. Benton Harbor	Berrien	All but New Buffalo, Three Oaks, Weesaw, Galien, Buchanan, Bertrand, Niles, Berrien
	Van Buren	Hartford
47. Dowagiac	Van Buren	Keeler
	Cass	Silver Creek, Pokagon, Wayne, LaGrange, Volivia, Penn
48. Niles	Berrien	Berrien, Weesaw, Galien, Buchanan, Niles, Bertrand
	Cass	Howard, Milton, Jefferson, Ontwa, Calvin, Mason
49. Kalamazoo	Kalamazoo	All but Ross, Climax
	Barry	Prairieville
	Allegan	Martin, Ostego, Gunplain
50. Battle Creek	Kalamazoo	Ross, Climax
	Barry	Barry, Johnstown, Assyria
	Eaton	Bellevue
	Calhoun	All but Burlinton, Tekonsha, Eckford, Clarendon, Homer, Albion, Sheridan, Clarence
51. Allegan	Van Buren	Bloomingdale, Pine Grove
	Allegan	Monterey, Clyde, Valley, Allegan, Watson, Cheshire, Trowbridge
52. Coldwater	Calhoun	Burlington, Tekonsha
	Branch	All but Noble
53. Hastings	Ionia	Campbell
	Eaton	Vermontville
	Barry	All but Prairieville, Barry, Johnstown, Assyria
54. Paw Paw	Van Buren	Waverly, Almena, Lawrence, Paw Paw, Antwerp Hamilton, Decatur, Porter

Service Area	County	Township(s)
55. South Haven	Allegan	Casco, Lee
	Van Buren	South Haven, Geneva, Columbia, Covert, Bangor, Arlington
56. Sturgis	Branch	Noble
	St. Joseph	Mottville, White Pigeon, Florence(SE half), Sherman, Sturgis, Colon, Burr Oak, Fawn River
57. Three Rivers	Cass	Marcellus, Newberg, Porter
	St. Joseph	Flowerfield, Fabius, Park, Constantine, Lockport, Florence(NW half Nottawa, Mendon, Leonidas
58. Jackson	Ingham	Onondaga, Leslie, Bunker Hill, Stockbridge
	Jackson	All but Springport, Parma, Concord, Pulaski
59. Albion	Jackson	Springport, Parma, Concord Pulaski
	Calhoun	Clarence, Sheridan, Eckford, Albion, Clarendon, Homer
60. Hillsdale	Hillsdale	All but Somerset, Wheatland, Pittsford, Wright
61. Lansing	Ingham	All but Onondaga, Leslie, Bunker Hill, Stockbridge
	Eaton	Oneida, Delta, Windsor
	Ionia	Portland, Danby
	Clinton	Westphalia, Eagle, Watertown, DeWitt, Bath
	Shiawassee	Woodhull, Perry
62. Charlotte	Eaton	All but Vermontville, Bellevue, Oneida, Delta, Windsor
63. St. Johns	Clinton	All but Lebanon, Eagle, Westphalia, Watertown, DeWitt, Bath
	Gratiot	Washington, Elsa

Service Area	County	Township(s)
64. Flint	Genesee	All
	Tuscola	Arbela, Millington
65. Lapeer	Oakland	Oxford
	Lapeer	All but Almont, Burnside, Burlington
	Tuscola	Watertown
66. Owosso	Shiawassee	All but Woodhull, Perry
	Saginaw	Chapin, Brady, Chesaning
67. Ann Arbor	Washtenaw	All
	Livingston	Putnam, Hamburg, Green Oak
	Oakland	Lyon
	Monroe	Milan, London
68. Adrian	Lenawee	All
	Monroe	Summerfield
	Hillsdale	Somerset, Wheatland, Pittsford, Wright
69. Howell	Livingston	All but Putnam, Hamburg, Green Oak
70. Monroe	Monroe	All but, Milan, London, Summerfield, Whiteford, Bedford, Erie
71. Central Detroit	Wayne	*Bounded by Detroit River in south, Outer Drive and Conner Blvd. in east, Davison Avenue in north, and Livernois Ave. and eastern city limits of City of Dearborn in east.
72. Northwest Detroit	Oakland	Novi, Farmington, Royal Oak, Southfield
	Wayne	*Northville, Livonia, Northwest Detroit
73. Northeast Detroit	Macomb	*Cities of Warren, Center Line, Fraser, Roseville, East Detroit, St. Clair *Shores
	Wayne	Bounded by Covant, McNicho Conner Avenues in west, Macomb Co. in north, Lake St. Clair in east.

*Not townships.

Service Area	County	Township(s)
74. Wayne	Wayne	Canton, Nankin, Van Buren, Romulus, Sumpter, Huron
75. Dearborn-Wyandotte	Wayne	*Brownstown Cities of Dearborn, Melvindale, River Rouge, Ecorse, Allen Park, Lincoln Park, Southgate, Wyandotte, Riverview, Woodhaven, Trenton, Flat Rock, Gibralter, Rockwood
76. Pontiac	Oakland	All but Holly, Groveland, Addison, Oxford, Lyon, Novi, Farmington, Southfield, Royal Oak
	Macomb	Shelby (West Half) Washington (SW Quarter)
77. Mt. Clemens	Lapeer	Almont
	St. Clair	Berlin, Ira
	Oakland	Addison
	Macomb	Bruce, Amanda, Richmond, Washington (all but S W Quarter), Shelby (East Half), Ray, Lenox, Macomb, Chesterfield, Sterling, Clinton, Harrison

The townships of New Buffalo and Three Oaks in Berrien County and Whiteford, Bedford, and Erie in Monroe County are part of health facility services areas with population centers in other states.

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