The Substitutability of Adult Foster Care for Nursing Home Care in Oregon

Medical Care, 35 (8), 801-813

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Supported by a contract from Oregon Senior Services Division, Department of Human Resources, with additional support from The Administration on Aging, Southmark Foundation on Gerontology, and The Hartford Foundation. The views contained in this study are not necessarily those of the funding agencies.

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Abstract

Objectives. This study investigates the degree of substitutability of adult foster care for nursing home care in Oregon.

Methods. Using three tests, the authors determined (1) the extent to which an additional adult foster care resident in a county reduces the number of nursing home residents in that county, (2) which characteristics of residents and facilities are important in sorting residents into either nursing homes or adult foster care facilities, and (3) the price elasticity of demand for adult foster care, using the county as the unit of observation.

Results. It was found that for every additional foster care resident in a county, a nursing home loses 0.85 residents—almost a one-to-one substitution ratio.

Conclusions. Despite the high degree of substitutability, residents perceive important differences in the characteristics of the two forms of care. Indeed, private residents are, on average, willing to pay twice as much for nursing home care as for adult foster care, suggesting that these differences are important. Finally, private consumers are sensitive to price differences among adult foster care facilities. The implications for policy are discussed.
Much of long-term care (LTC) policy has focused on promoting the development of alternatives to nursing home care. To many policymakers, care in a nursing home is considered too intensive for the care needs and level of dependency of some of its residents. Nursing home care also is viewed as undesirable because care is provided in an environment that is too restrictive and hospital-like to be a resident's long-term living space. According to this view, care in a nursing home should be considered only after all other alternatives have been exhausted.

The policy response throughout the 1970s and 1980s was to encourage the substitution of LTC alternatives for nursing home care. This response primarily took two forms. First, states sought to constrain the availability of nursing home care. Policies such as certificate-of-need restrictions and construction moratoria were used in part to force the development of alternative forms of care. It was thought that if the bed supply were constrained, the resulting excess demand would compel those who would otherwise be nursing home residents to "choose" an alternative form of care and thus provide the catalyst for the development of a new industry in the provision of home- and community-based LTC services (HCBS).

Second, public coverage of alternative forms of care was expanded. Although coverage of certain home health care services is mandated nationally under Medicare, Medicaid coverage policy for the broad array of HCBS varies at the discretion of the states. In the 1970s and 1980s, many states used Medicaid waivers to promote a variety of such alternatives, including small group homes, board-and-care homes, residential care facilities, assisted living, and adult foster care. A number of these programs were analyzed as Health Care Financing Administration-sponsored demonstration projects to determine to what extent the funding of such services reduced the number of nursing home patients and Medicaid program costs. 1-4

According to economic theory, the funding of alternative HCBS is a more efficient policy than constraining the supply of nursing home beds. This is because markets with a greater selection of alternative commodities can better match the preferences of the various consumers. Constraining the supply of beds, conversely, forces some consumers (who would have been in a nursing home) to accept the next best alternative available in the market. Moreover, it also allows nursing home owners to select the persons they want to exclude. As a result, those who are forced to choose among the
existing alternatives to nursing home care sometimes have the least flexible care requirements. The evidence suggests that nursing homes have responded to bed supply constraining policy in a way that is more in their interests than in the interests of consumers.5-10*

The problem with public funding for alternative forms of LTC is that it appears seldom to substitute for nursing home care. The demonstration projects mentioned above generally show that, when HCBS are funded, only a small and usually statistically insignificant reduction in the number of nursing home patients results.11,12 Other work indicates that a significant reduction may take place, but that the extent of substitutability is generally small.8,13,14 Despite these slightly more encouraging results, conventional wisdom held that HCBS is generally ineffective in reducing the number of nursing home residents.

Oregon began offering Medicaid coverage for adult foster care (AFC) homes in the early 1980s. By the late 1980s (the time of the data collection effort for the present study), an AFC home in Oregon was a private home in a residentially zoned area that was licensed for up to five disabled residents, only one of whom was permitted to be bedbound or to require "heavy care." Each home was required to have a live-in resident manager who was responsible for the provision of care. Foster home managers (or other staff) not holding nursing licenses were permitted under the Oregon Nurse Practice Act to perform nursing functions if they had been instructed and delegated by a nurse.

Thus, because of Oregon's AFC program, it would appear that in much of the state in 1989, a choice existed for disabled older people between nursing homes and AFC homes. It was not known, however, to what extent LTC clients regard AFC as a substitute for nursing home care, nor how the presence of AFC in a geographic area affected nursing homes. This study represents an attempt to derive quantitative measures of the degree of substitutability between AFC and nursing home care in Oregon.

**Oregon's Adult Foster Care Program**

The impetus for Oregon's AFC program came from 1981 legislation creating an umbrella agency-the Oregon Senior Services Division-for overseeing the provision of LTC to Oregon's elderly. The bill explicitly charged this agency with providing care "at the least cost and in the least confining situation" (ORS 410.050). This language was interpreted as implying that not only should nursing home care no longer be the only option available to dependent elderly (Medicaid and private alike), but also that it should be regarded as a "necessary last resort."15 This interpretation resulted in a
number of policies designed to encourage the Medicaid residents to seek home- or community-care. Foremost of these policies was the creation of AFC homes.

In late 1981, Oregon requested and received a Medicaid HCBS Waiver as part of Section 2176 of the Omnibus Budget Reconciliation Act of 1981, the first statewide waiver to be issued under this Act. With this waiver, the Senior Services Division was permitted to use Medicaid dollars to pay for LTC services delivered to nursing home-eligible clients in a range of settings, including home care, residential care facilities, and AFC. All services are coordinated by a case manager, who assesses the client's functional status, authorizes the care, and monitors the client periodically.

Oregon's Senior Services Division actively encouraged the development of an AFC industry, which existed in embryonic form before 1981. In the early 1980s, the Senior Services Division sent "resource development specialists" into communities to help develop a supply of AFC homes. To aid in recruitment, the regulatory requirements were deliberately kept to a minimum. Even though the AFC system was well established by the time of our study, the state continued to recruit providers at the local level. Presentations were made to small informal groups who may be interested in providing foster care, advertisements were placed in local newspapers, and individual caregivers in the community were contacted personally to see if they were interested in establishing an AFC home. An active nursing home diversion policy also was pursued with specially designated case managers who identified specific Medicaid nursing home residents to relocate to AFC homes.

The nursing home industry, however, regarded the State's general support of AFC homes as creating rivals for their clientele. The nursing home industry also complained about the lack of regulation of AFC homes. It argued that this represented a double standard, and that the additional nursing home regulations were costly and placed nursing homes at a competitive disadvantage. Whether nursing homes are truly at a competitive disadvantage, however, depends on whether or not the consumers are willing to pay for the additional goods and services (in the broadest sense of the word) that stem from these regulations. If prospective nursing home residents undervalue the additional services required of nursing homes compared with the costs of providing them, then nursing homes may truly be at a competitive disadvantage.

Although the AFC industry appears to have been stimulated by the Medicaid waiver program, a particularly interesting development is the growth of AFC as an option for private paying residents. In all, there were more than 6,000
AFC residents by the end of 1988, and approximately two thirds of them were private. There were just fewer than 1,500 AFC homes by the end of 1988, most of which were licensed for four or five residents. At the same time, there has been both a relative and absolute decline in the use of nursing home care. For example, in 1980 there were 5,054,541 nursing home resident days, whereas in 1988 the number had declined to 4,872,248. During the same period, the number of nursing home residents per thousand elderly dropped from 46 to 37, and average occupancy rates in nursing homes fell from 92% to 87%. This juxtaposition of growth in the use of AFC and decline in the use of nursing home care suggests that these two forms of care are substitutes to some extent.

As part of the present study, we conducted a census of all AFC homes in Oregon in 1989. In other work, we show that privately paying residents were more disabled, physically and cognitively, than residents supported by Medicaid, yet the latter needed to meet at least the minimum disability criteria for nursing home admission to qualify for the waiver. We also conducted a cross-sectional interview survey that entailed the assessment of a representative sample of 400 AFC residents and 400 nursing home residents in four parts of the state. This survey found that AFC residents were less disabled than nursing home residents, but the distribution overlapped substantially. Private pay residents in AFC homes again were found to be more functionally, physically, and cognitively impaired than were Medicaid residents. At comparable levels of disability, foster care residents were more socially involved than were those in nursing homes. Conversely, foster care residents used more emergency room services.

Previous studies have been limited by a lack of data on outcomes. Stark et al compared changes in functional ability during a 1 year period. This study, which was limited to Medicaid clients and which relied on imperfect assessments completed by case managers, showed that, for the most part, functional status remained unchanged in either setting, but for those who did show differences between the two time periods, nursing home residents tended to show improvement, whereas AFC residents tended toward decline.

In Oregon, as on the national level, policymakers were interested in substitution not only because of the belief that AFC would offer more desirable care for some residents, but also because AFC could be less expensive for both public and private payers. It costs Medicaid approximately two thirds of the nursing home rate to pay for a patient day of AFC (in rent charges and Medicaid waiver payments), and the private pay differentials are approximately the same. To the extent that state officials
could redirect Medicaid nursing home clients into AFC homes, they could presumably save money.

**Methods**

**Tests for Substitutability**

The degree of substitutability between AFC and nursing home care cannot be summarized adequately with one statistic. We have adopted three statistical tests to try to describe this relationship. The three tests show (1) the extent to which an additional AFC resident in an area displaces a nursing home resident, (2) the characteristics of the institution that seemed to be decisive in the choice between the two, and (3) the effect of the price of AFC in determining the extent of demand for AFC by private payers. These three tests are described next.

**Displacement of Nursing Home Residents.** One way to determine the degree of substitutability is to compare how the use of nursing home care in an area varies as the use of AFC varies, holding other things constant. That is, we would expect that, if these two services were perfect substitutes, a given geographic area would have one fewer nursing home resident for every additional AFC resident. If they were not substitutes, we would expect that an additional AFC resident would have no effect on the number of nursing home residents in an area.²¹

To estimate this relationship empirically, we regressed the number of nursing home residents in an Oregon county on the number of AFC residents in that county. The county was chosen as the unit of analysis because it seemed the most reasonable of the geographic units available. We expected a negative coefficient between 0 and -1. As the coefficient approaches -1, an additional AFC resident is increasingly likely to displace an entire nursing home resident, and the two forms of care can be considered closer substitutes.

We attempted to control for the variability in the need for care of the populations served in each county by including a number of additional independent variables in the regression equation: the number of elderly in the county, the percentage of elderly older than 75 years in the county, the percentage of elderly who are female in the county, and the death rate among the elderly in the county—a crude measure of the health status of the elderly in the county. We expected that as the elderly population increases, as their age level increases, as their health status declines, and as the availability of beds increases, the utilization of nursing home care would also increase. It is not clear what sign to expect on the coefficient for the percentage of elderly who are women. A larger percentage of elderly women
could represent the availability of more informal caregivers to male spouses, resulting in a negative relationship. Conversely, it could represent more surviving spouses in need of formal care, resulting in a positive relationship. As is the case in a number of other studies encountering this problem, no variable was available that would distinguish these two effects.

We also included the number of nursing home beds in the county to determine to what extent the bed supply constrained nursing home use. We also would have liked to have included measures of the amount of noninstitutional care and the availability of informal caregivers, but no reasonable measures of these variables were available at the time.‡

Because we were primarily interested in the overall extent of substitutability between AFC and nursing home care, we have specified the dependent variable as the number of nursing home residents, rather than the number of nursing home residents per thousand elderly, as is often done in studies of nursing home utilization. This specification permits us to interpret the coefficient on the AFC residents variable as representing the number of nursing home residents displaced by an additional AFC resident.

The major econometric problem caused by this specification is the possible introduction of heteroskedasticity. Although heteroskedasticity does not bias the coefficients, even in small samples, it may bias the variance.22 Because the most likely direction of the bias is to make the standard errors on the $t$ statistics too small, this may result in a coefficient being judged more significant than it actually is. Accordingly, we used White's test for heteroskedasticity and calculated the $t$ statistics using consistent standard errors.

**Characteristics Affecting the Choice.** This question was investigated using data from a random sample of 807 residents, half of whom had chosen AFC and half who had chosen nursing home care.§ These residents (or their family proxy if the resident was cognitively impaired) were asked a series of questions about whether each of a list of facility characteristics was important in influencing their choice. Therefore, for each resident, we know the choice made and what characteristics they claimed were important in making that choice.

We attempted to test the relative role of the described importance of these characteristics in making the choice by regressing the resident's care choice against the characteristics that the respondents claimed were important in making that choice. We used a logistic regression where 1 indicated that an AFC home had been chosen. In addition to the variables representing the salient characteristics of the care setting, we included the variables
representing aspects of the functional impairment of the resident. Clearly, certain functional dependencies may predispose a resident to one or the other type of care settings. We also included a series of variables indicating whether each of a series of alternatives was considered in their choice. Finally, we included a variable that indicated whether the resident (or his or her proxy) thought that the resident had complete control over the decision at the time of admission.

**The Price Elasticity of Private AFC Demand.** In a two-stage least squares regression model, the number of private AFC residents in a county was regressed on the predicted average AFC price of AFC homes in the county, the per capita income in the county, the number of elderly in the county, the percentage of elderly in the county who are women, the percentage of elderly in the county who are older than age 75 years, the deaths per elderly per year in the county, the number of private and Medicaid nursing home residents in the county (as a test of our earlier hypothesis that AFC residents were exogenous), the number of AFC homes in the county, and the number of AFC beds in the county. To be able to interpret the co-efficients as elasticities, we used a double log specification.

**Results**

**Displacement of Nursing Home Residents**

The results of the analysis of displacement of nursing home residents appear in Table 1. The coefficient for the number of AFC residents in the county is -0.85, indicating that an additional 100 AFC residents in a county would replace approximately 85 nursing home residents. All the other "need" variables showed significant coefficients. The variable representing the percentage of elderly who are women in the county showed a negative coefficient, suggesting that this variable represents the availability of informal caregivers in the county rather than increased percentage of elderly in need of care. The coefficient on the nursing home bed variable showed that an additional bed in a county in Oregon has only an 83% probability of being filled.
The high R² no doubt stems from including both the number of elderly in the county and the number of beds in the county, because both are correlated highly with the number of nursing home residents in the county. Because this correlation is likely to inflate the standard errors, the findings of significance in the regression are more remarkable.

Characteristics Affecting the Choice

The above findings suggest that a large portion of residents in AFC homes would have resided in nursing homes if AFC homes were not available. That some otherwise nursing home residents have chosen AFC suggests that consumers may consider these two types of LTC facilities different and that these differences may be crucial to the choice between nursing home and AFC. This raises the question of which of the differences between the two forms of care were instrumental in the residents' choice between the two services.

The results of this regression are reported in Table 2. Although 807 were surveyed, we had complete data for only 637 residents. The overall fit of the model was quite good. Using on-the-modal marginal counts would have resulted in correctly predicting 51% of the choices of the subjects. Using our model, however, resulted in classifying 73% of the sample correctly.
Of the institutional characteristics, those who chose AFC tended to claim that a home-like atmosphere, privacy, and flexible routines were important. Those who chose nursing homes claimed that getting medical care, safety and supervision, and organized activities were important. The question indicating whether costs of care were important in the decision was not significant, possibly because the sample included both Medicaid and private residents and only the private residents would be concerned with costs.

To investigate this issue further, we divided the observations into Medicaid and private subsamples and ran a modified version of the regression on each group separately. The "cost-of-care-important" variable was still not significant, even for the private group. This was an unexpected result because anecdotal evidence suggested that the lower prices of AFC seemed to be an important factor in the growth of that industry. Perhaps this means that, although costs were important in the decision of the residents who chose AFC, they were also important for those who went to nursing homes and therefore not distinguishing. For residents in the generally higher priced nursing homes, costs were important in choosing among nursing homes; however, there were other overriding considerations—for example, dependency level and preferences for certain facility characteristics—that were more important in the choice between AFC and nursing home care.

Returning to the entire sample results reported in Table 2, only two of the functional dependencies were significant. Those needing help transferring and toileting were more likely to choose nursing homes. This was to be expected not only because nursing homes are equipped to handle more

<table>
<thead>
<tr>
<th>Table 2. Logistic Regression Results$^a,b$</th>
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<tbody>
<tr>
<td>Variable</td>
<td>Odds Ratio</td>
</tr>
<tr>
<td>Home-like atmosphere</td>
<td>0.881</td>
</tr>
<tr>
<td>Privacy</td>
<td>0.922</td>
</tr>
<tr>
<td>Flexible routines</td>
<td>0.937</td>
</tr>
<tr>
<td>Medical care</td>
<td>0.902</td>
</tr>
<tr>
<td>Safety and supervision</td>
<td>0.923</td>
</tr>
<tr>
<td>Organized activities</td>
<td>0.922</td>
</tr>
<tr>
<td>Cost of care important</td>
<td>0.972</td>
</tr>
<tr>
<td>Other considerations</td>
<td>0.953</td>
</tr>
</tbody>
</table>

*a* indicates significance at the 0.05 level; *b* indicates significance at the 0.01 level.
severe cases, but also because AFC homes are constrained from admitting more than one bed-fast resident. Of the variables exploring whether the specific alternative care settings considered had any effect on the choice, none were significant. Finally, those who thought they had complete control over the decision were significantly more likely to choose AFC.

We used this regression model to predict placement in AFC home or nursing home for the residents in our sample. Our predictions were fairly accurate for the AFC residents in that we predicted correctly for 302 (97%) of 312 residents. In predicting the placement of nursing home residents, however, our model did not predict as well: only 165 residents (51%) out of 325 were correctly assigned to nursing homes. The model predicted that 160 of the 325 residents in nursing homes would be in AFC homes. This means that we failed, relative to chance, to predict the place of residence for those who were actually in nursing homes. This lack of predictive power may suggest that some nursing home residents were in nursing homes despite their preference for AFC. One explanation is that the new and expanding AFC market had not yet caught up with demand and that a large portion of nursing home residents would have been in AFC homes if beds had been available.

Finally, it is important to note that although we have tried to determine which of the care characteristics were actually important in the decision and which way each significant characteristic predisposed a resident's choice, these questions were answered after the resident was, in fact, living in their chosen institution. For this reason, the residents might have rationalized the choice they had already made by claiming that some characteristic that is obviously associated with their institution was important. Different results may have been obtained if they were asked the question before or at the time when the choice was being made. That is, the ideal data would come from those who were just making the choice between nursing home care and AFC but had not entered the institution. This problem should be kept in mind when evaluating the reliability of these findings.

The Price Elasticity of Private Adult Foster Care Demand

Conventionally, the degree of substitutability between two commodities is measured by the cross elasticity of demand. This statistic shows the percentage increase in the quantity of good A demanded as a result of a 1% increase in the price of good B. As the cross elasticity increases, the goods are deemed to be closer substitutes.

Data on the private price of nursing home care was unusable because of the lack of uniformity and the large number of missing observations. This meant
that we could only look at the effect of the AFC price on private nursing home demand, rather than the effect of the private nursing home price on private AFC demand. Unfortunately, the specification of the private nursing home demand equation in this model still would require the private nursing home price to establish the extent of the price difference benefit of switching to AFC. This meant that it was impossible to estimate a cross elasticity of nursing home demand because not only was there an important omitted variable (the private nursing home price), but the omitted variable was highly likely to be correlated with an included explanatory variable (the private AFC price), biasing the coefficients and inextricably confounding the results.

Instead, we simply estimated the private price elasticity of AFC demand using the county as the unit of observation. This specification, however, permitted insights into the substitutability of AFC for nursing home care because, by using the county as the unit of observation and aggregating both the private price (to the mean) and private demand, the other AFC homes were excluded as alternatives. If the AFC home were used as the unit of observation, the other AFC homes in the county would be the implied alternatives, plus nursing homes and the other forms of LTC. With the county as the unit, only nursing homes and the other forms of LTC in the county are the implied alternatives. From our first regression analysis, we know that the major alternative form of LTC is nursing home care: there is almost a one-to-one (0.85) correspondence between AFC residents gained in a county and nursing home residents lost. So, if persons in need of the type of LTC delivered in AFC homes are very responsive to the private AFC price, then it follows that they must consider nursing home care a close substitute. If, conversely, private AFC residents are not responsive to changes in the AFC price, then it follows that nursing home care is not a close substitute because residents tend to choose AFC over nursing home care regardless of price.

The results of this analysis are reported in Table 3. They show that a 1% decrease in the average private price of AFC in a county increases the number of AFC private residents by more than 5%. This large elasticity was significant at the 1% level. We also show that a 1% increase in per capita income causes a better than 2% increase in the number of AFC residents, again significant at the 1% level. A greater percentage of women among the elderly is associated with a significantly greater number of private residents in a county, as is an increase in the death rate and in the number of AFC beds. The coefficient for the AFC beds variable shows that a 1% increase in the number of beds leads to a 1.4% increase in the number of private residents. This indicates that private residents are more likely to fill additional AFC beds than Medicaid residents. The high correlation between
the number of beds and the number of residents accounts for the high R² value.

### Table 3. Demand Equation Regression Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
</tr>
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<tbody>
<tr>
<td>Intercept</td>
<td>21.504 (\times 10^2)</td>
</tr>
<tr>
<td>Average AFC average price in county (log)</td>
<td>-0.109 (2404)</td>
</tr>
<tr>
<td>Per capita income in county (log)</td>
<td>2.897 (0.769)</td>
</tr>
<tr>
<td>Number of elderly in county (log)</td>
<td>0.291 (0.535)</td>
</tr>
<tr>
<td>Percent of senior among elderly (log)</td>
<td>0.380 (1.005)</td>
</tr>
<tr>
<td>Percent 75+ among elderly (log)</td>
<td>0.488 (0.104)</td>
</tr>
<tr>
<td>Elderly deaths per elderly (log)</td>
<td>0.066 (0.409)</td>
</tr>
<tr>
<td>Private nursing home residents in county (log)</td>
<td>0.113 (0.168)</td>
</tr>
<tr>
<td>Nonprivate nursing home residents in county (log)</td>
<td>-0.107 (0.004)</td>
</tr>
<tr>
<td>Number of AFC beds in county (log)</td>
<td>0.050 (0.500)</td>
</tr>
<tr>
<td>Number of AFC beds in county (log)</td>
<td>1.676 (1.279)</td>
</tr>
</tbody>
</table>

AFC, adult foster care.

*Dependent variable: adult foster care residents, 1987 to 1990 in county (log).

Two-stage least squares results.

- Indicates significance at the 5% level.
- Indicates significance at the 1% level.

Note: Data for the number of nursing home residents, the number of elderly, the number of foster care home beds, the elderly deaths per capita, the number of home care residents are from the same sources specified in Table 5. Data on the average private price are from the Oregon adult foster care survey, unpublished. Data on per capita income are from US Department of Commerce, 1987. For other states, the average private price is from the private intermediate care facility prices of 66.

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### Discussion

We were able to show that an additional 100 AFC residents in an area displaces approximately 85 nursing home residents. Displacement of nursing home residents with AFC is much greater here than for other services thought to be substitutes for nursing home care. This is in contrast to results shown in previous work. For example, the channeling demonstrations showed only small and statistically insignificant differences between the rate of nursing home use between those who had access to HCBS and those that did not, indicating that the types of HCBS studied in the channeling studies were poor substitutes for nursing home care. Nyman found that an additional 100 home health residents in Wisconsin replaces only five private nursing home residents and that the effect on Medicaid residents was insignificant. This effect is small compared with the AFC estimates from the present study.

A resident's choice between AFC and nursing home care seems to be influenced by consumer preferences, suggesting that there are differences between AFC homes and nursing homes that prospective consumers perceive and to which they respond. It is not clear, however, how important these differences are. Some evidence suggests that these differences are important. Based on the private intermediate care facility prices of 66.
Oregon nursing homes, we found that the average per diem price was just less than $60 per resident day or approximately $1800 per 30-day month. The average private price for a month of AFC was approximately $900.  

This would mean that some people are willing to pay twice the price of AFC for the perceived better access to medical care, increased safety and supervision, and organized activities associated with nursing home care. This would suggest that these preferences are quite strong, and that the two forms of care are not perfectly substitutable at least in the minds of some consumers.

Conversely, the low hit rates for predicting the location of the residents in nursing homes suggest that the consumer behavior we are observing may be constrained. If so, there may be nursing home residents who would prefer the characteristics of an AFC home, but who are in nursing homes, perhaps because there are not enough AFC beds available. Nevertheless, even though nearly 70% of the residents in AFC homes are private, the hit rates for private nursing home residents were as bad or worse than for Medicaid residents. If there were a shortage of AFC beds, we would expect that the hit rates would be better for the private residents because they have better access to AFC care than do Medicaid residents by virtue of their higher payments. If there is no AFC bed shortage, an alternative explanation of the low hit rates is that the logistic model is misspecified: some variables are missing that are crucial to the choice between nursing home and AFC home.

We also were able to show evidence of a large price elasticity of demand for private AFC residents using the geographic area as the unit of observation. This indicated that a 1% reduction in the average AFC price results in a 5% increase in the number of AFC residents in the area. Because 85% of these residents would have been in nursing homes otherwise, this indicates that price differences were crucial in the choice between nursing homes and AFC homes. If residents (and their agents) were so sensitive to price differences, this would seem to indicate that, at least for some residents on the margin between choosing AFC and nursing home care, few characteristics of nursing home care are so important as to override the importance of price. Because the AFC price was so important in the choice of care, we can infer that these two forms of care are close substitutes for the private residents at the margin.

Overall, we suspect that this pattern of results means that the entry of AFC homes into the LTC markets initiated a sorting of residents from nursing homes (primarily) into AFC homes. Those residents that chose AFC homes tended to prefer the "noninstitutional" characteristics of AFC life, were generally less dependent, and were less likely to have help in making their
decision. Those that "chose" nursing homes tended to be more dependent, preferred the safety and programmed life associated with nursing home care, and were less likely to have made the decision alone. Moreover, some private residents chose to buy nursing home care despite the higher price. For some of these people, nursing home care and AFC were not close substitutes. To the extent that these differences are associated with the presence or absence of regulation, the regulation of nursing homes did not put them at a disadvantage at least for these people.

For Medicaid residents in nursing homes, there may not have been sufficient access to AFC in 1989. The percentage of Medicaid residents in AFC homes is lower than the percentage of those in nursing homes, and the hit rates for predicting nursing home use among the Medicaid nursing home residents were lower than the hit rates for predicting AFC use among the AFC residents. This situation is consistent with a shortage of AFC beds and Medicaid reimbursement rates that are lower (approximately $200 per month lower in 1988) than private prices. Because there is no equilibrating price for Medicaid residents (the reimbursement rate is predetermined based on a formula) and no obvious barrier to entry (like certificate-of-need laws in nursing home care markets in many states), it is likely that the Medicaid reimbursement rate is inhibiting the expansion of the Medicaid portion of the market.

We cannot tell, however, whether there is a shortage for private residents. Although the low hit rates for private residents suggest that there are a number of existing private nursing home residents who would substitute AFC care for nursing homes care, the model could be misspecified, especially for private residents. Price is an important variable that is omitted from the logistic regressions. Moreover, the high elasticity of demand suggests that price is likely to be an equilibrating force, at least for this portion of the market. Also, the private price difference between nursing home and AFC may be exaggerated: nursing home prices are often more comprehensive than AFC prices, and the add-ons in AFC might reduce the extent of the difference.

It seems clear that nursing homes are affected significantly by AFC policy in Oregon. Policies designed to increase either the number of private or Medicaid residents in AFC homes will result in fewer nursing home residents, although not quite on a one-for-one basis. This is, however, probably not a process that can go on indefinitely. There are limits on the number of residents that can substitute AFC for nursing home care that are imposed by the preferences and physical needs of the residents in nursing homes. In part, nursing home regulations no doubt have contributed to this differentiated product for which some people will pay twice the AFC price.
Although we have no direct evidence, it also is likely that the advent of AFC has injected some competition into the LTC marketplace, potentially resulting in better care being delivered in both nursing homes and AFC homes than would have been the case otherwise. To make good public policy in the LTC arena, these interrelationships must be recognized and integrated into the policymaking process.

References


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Preadmission screening of Medicaid patients and casemix-adjusted reimbursement rates have been used to lessen the adverse consequences of constraining the bed supply. Nevertheless, imperfections in these measures have allowed nursing homes to continue to take advantage of differences in profitability. For example, Minnesota's casemix-adjusted reimbursement system has been shown to have made some residents more profitable than others and that nursing homes have responded by serving more of the profitable residents and fewer of the less profitable ones.10

†Since 1989, several developments have occurred in Oregon. The supply of foster care has continued to increase. In 1989, however, Oregon began licensing and covering under Medicaid waivers another form of residential LTC called assisted living facilities (ALFs).19,20 By licensure, an ALF must be composed of individual apartments, singly occupied except by clear choice, with locking doors, complete bathrooms inside, refrigerators, and cooking facilities. Care plans are provided on an individualized basis, but an ALF is required to have at least one staff member awake and on duty at night. ALFs are expected to be able to provide heavier levels of care than AFC homes, though they also entail exposing older people to more risk as well as more normal lifestyles than is the case in nursing homes.

Under Medicaid, ALFs cannot be paid more than nursing homes. By 1986, there were 48 ALFs in Oregon, serving more than 2,000 people. At the same time, residential care facilities (RCFs) have become more differentiated: although not meeting ALF standards of privacy or required service, many have begun providing nursing services under the nurse delegation provisions and have catered to heavier care clientele, including persons with dementia. Finally, nursing homes are diversifying in Oregon: some have developed clear rehabilitation foci, and many have developed residential care facilities and related programs. [Context Link]

‡The number of Medicaid home health patients in the county were available, but we had no information about the private home health patients. As a result, we could not determine the total number of home health patients in the county, the appropriate variable for this regression. [Context Link]

§All logit models have been adjusted to reflect this choice-based sampling.24

Key words: adult foster care; nursing homes; long-term care substitutes

Accession Number: 00005650-199708000-00006