Factors affecting the entry of for-profit providers into a price regulated market for formal long-term care services: A case study from Japan

Mutsumi Tokunaga, Hideki Hashimoto*

Department of Health Economics and Epidemiology Research, The University of Tokyo, School of Public Health, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan

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ABSTRACT

While the distinct behaviors of for-profit and non-profit providers in the healthcare market have been compared in the economic literature, their choices regarding market entry and exit have only recently been debated. Since 2000, when public Long-Term Care Insurance was introduced in Japan, for-profit providers have been able to provide formal long-term homecare services. The aim of this study is to determine which factors have affected market entry of for-profit providers under price regulation and in competition with existing non-profit providers. We used nation-wide panel data from 2002 to 2010, aggregated at the level of local public insurers ($n = 1557$), a basic area unit of service provision. The number of for-profit providers per elderly population in the area unit was regressed against factors related to local demand and service costs using first-difference linear regression, a fixed effects model, and Tobit regression for robustness checking. Results showed that demand (the number of eligible care recipients) and cost factors (population density and minimum wage) significantly influenced for-profit providers' choice of market entry. These findings indicate that for-profit providers will strategically choose a local market for maximizing profit. We believe that price regulation should be redesigned to incorporate quality of care and market conditions, regardless of the profit status of the providers, to ensure equal access to efficient delivery of long-term care across all regions.

Introduction

Population aging and the subsequent increase in the demand for long-term care (LTC) are recognized as critical policy issues in both developed and developing countries. The proportion of the Japanese population aged 65 years or older is one of the fastest growing in the world, already reaching 23% in 2010 (Statistical Bureau, 2010). Prior to the 2000 launch of the Japanese government's public Long-Term Care Insurance (LTCI), municipal welfare programs provided free formal LTC services to households with lower incomes and/or a limited capacity for informal care. In all other instances households had to purchase services from private or public care providers, although there was limited demand because of the high cost. Since the introduction of LTCI, beneficiaries (aged 65 years or over), regardless of income or household situation, are entitled to care services once their functional limitations meet the eligibility criteria. The beneficiaries are then allowed to choose their preferred service mix and providers, with a 10% co-payment and a monthly maximum use limit, which has resulted in a rapid increase in formal LTC utilization (Campbell & Ikegami, 2000; Tamiya et al., 2011).

There have been remarkable changes since the introduction of LTCI, particularly in entry of the for-profit (FP) sector into the formal care provision market (Noguchi & Shimizutani, 2005). Under the welfare program prior to the LTCI, care providers were limited to non-profit (NP) organizations with strict legal requirements. The government decided to open the market to FP organizations for homecare services because the introduction of LTCI was expected to result in a rapid increase in LTC demand, and a large number of providers were deemed necessary to meet the demand increase. In addition, the promotion of market participation from a variety of providers, both NP and FP, would make the market grow faster and be more competitive. This in turn would offer beneficiaries a wider selection of LTC providers, ensuring better quality of services and greater efficiency (Cabinet Office Japan, 2002).

However, it is still debatable whether the LTC market has grown and become more competitive. There has been a rich accumulation in the literature suggesting profit maximizing companies behave opportunistically under universal price regulation in postal and delivery services, the railway sector, and telecommunication

* Corresponding author.
 E-mail addresses: hidehashimoto-circ@umin.ac.jp, hashimoto_hideki@hotmail.com (H. Hashimoto).

services (Baldwin, Cave, & Lodge, 2012; Flath, 2005). The LTC market is no exception, as public LTCI has been the single dominant source for formal care provision in Japan and the cost of LTC services has been under tight governmental regulation with a single national fee schedule that determines the price of every service. This schedule also requires that strict conditions are met before reimbursement for the provided services occurs. Although some extra payments are paid for service provision in remote rural areas under the current scheme, it is worth asking whether FP and NP providers behave differently under tight regulation. In this study, we focus on the behavior of FP providers, specifically on their entry into local markets. As we will see in the following section, there is a considerable variation in the number of FP providers across regions, suggesting that FP providers choose their service area. To provide all beneficiaries in the country with choices and quality services, which were the original goals of LTCI, it is imperative to identify barriers to market entry for providers, and to take countermeasures to put FP and NP providers on an equal footing. In addition, the market for LTC services provides a unique laboratory with which to study how FP and NP providers compete with or differentiate from each other without price competition. We may even obtain some lessons appropriate to the medical services market, where the entry of FP providers is currently a hot topic of debate.

This paper is organized as follows. The next section briefly reviews previous research on FP and NP providers in the healthcare market and presents our theoretical model. The third section describes the data used for the empirical analysis, while the fourth section presents the results and evaluates which factors contribute to the participation of FP providers in the market. The final section includes further discussion and offers some policy implications.

Theoretical background of for-profit LTC providers

A large number of studies have compared the behavior of FP and NP providers in the United States healthcare market, including nursing homecare (Chakravarty, Gaynor, Klepper, & Vogt, 2005; Hansmann, 1980; Hansmann, Kessler, & McCellan, 2002; Hirth, 1999; Hirth, Chernew, & Orzol, 2000; Lakdawalla & Philipson, 1998; Newhouse, 1970; Weisbrod, 1988). In these studies, FP providers are assumed to be rational profit maximizers, while NP providers face different behavioral incentives. One school of study regards NP providers as a utility-maximizing altruistic firm (Mukamel, Ladd, Weimer, Spector, & Zinn, 2009; Newhouse, 1970). In this line, the "contract failure model" proposed by Hansmann (1980) indicates that FP providers will take advantage of the asymmetry of information between providers and users about the quality and quantity of services, and will behave opportunistically by cutting the cost of service provision in a trade-off with quality of service to gain larger profits (Folland, Goodman, & Stano, 2009). Empirical studies have yielded mixed results on the differences in the quality and quantity of service provided between NP and FP providers in hospital and nursing homecare (Chillem & Gui, 1911; Hirth, 1999). Shimizutani and Suzuki (2002) conducted a questionnaire survey for LTC providers in the Kanto area of Japan to evaluate contract failure among FP providers. Their analysis indicated no statistically significant differences in service quality between FP and NP providers. Since the Japanese LTCI strictly controls the price of services and reimbursement conditions via the national fee schedule, there should be less room for FP providers to manage their service quality and quantity opportunistically.

Another recent school of thought places NPs as profit-deviating firms (Lakdawalla & Philipson, 1998). In this line of reasoning, the difference between NPs and FPs was sought in the difference in cost tolerance. Since an NP is expected by the community to provide adequate quality and quantity of services, they count not only

monetary benefit but also the benefits obtained by meeting local expectations, which gives them a higher threshold against cost. In addition, NPs are likely to receive donations as well as advantages in tax treatment and public subsidies, which should make NPs more tolerant to high cost than their FP counterparts. Empirical studies based on the above theory have consistently found that FP hospitals are quicker to exit the market in response to local demand changes (Chakravarty et al., 2005; Hansmann et al., 2002), though similar studies on the LTC service market are scarce.

In the Japanese LTC market with tight price regulations, it is hypothesized that FP providers might enter or exit the local market they serve based on their expectations of profitability. Suppose that the probability of an FP provider choosing the i-th area for service provision ($Prob_i$) is a function of profit (Π_i), which is further determined by total revenue (R_i) and total cost (C_i). That is,

$$Prob_i = f(\Pi_i) = f(R_i, C_i), \tag{1}$$

where R_i is a function of prices (P_j) and quantities (Q_{ij}) of service provision of the j-th type. Note that the price (P_j) does not include the subscript i because the single price schedule is applied universally across regions. An FP provider may choose a mix of service types (j) to maximize profit, that is $R_i - C_i$, by minimizing total costs. On the other hand, an NP provider uses the strategy of maximizing Q_{ij} and therefore R_i:

$$R_i = \sum_j (P_j * Q_{ij}). \tag{2}$$

The quantity of service, Q_{ij}, should further be determined by local demand for service (D_{ij}). Finally, the cost of service provision in a selected region is determined mainly by the degree of competition in a local service area (CMP_{ij}). the personnel cost for wage payment (W_{ij}), and factors related to the efficiency of service provision (E_i). Consequently, the probability that an FP provider chooses the i-th area for service provision is a function of P_j, D_{ij}, CMP_{ij}, W_{ij}, and E_i:

$$Prob_i = f(P_j D_{ij} CMP_{ij} W_{ij} E_i). \tag{3}$$

Data sources and variables

To test the hypothetical model of the behavior of FP providers regarding local market entry and service provision, we used a nation-wide 2-wave panel data in the fiscal years of 2002 and 2010. Because both FPs and NPs are required to have certification from prefectural authorities to provide services and have contracts with municipal insurers, all datasets were aggregated and are presented as panel data at the level of municipal insurers, the basic area unit of service provision. Since all the data were publicly available and anonymously aggregated, ethical approval was waived.

Dependent variable

The number of FP providers per 1000 people aged 65 years or over was set as the dependent variable because it reflects the FP providers' choice to enter a local market. We sourced our data regarding providers from *Fukushi Iryo Kiko* (Welfare and Medical Service Agency). The 2010 dataset is publicly available on the WAMNET homepage (WAMNET, 2010), and the 2002 data are available on request from the Agency.

Local demand for service variables (D_{ij})

Local LTC approval boards evaluate the cognitive and physical conditions of applicant beneficiaries aged 65 years or over, and if