Differential market entry determinants for for-profit and non-profit at-home care providers in large Japanese cities

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Differential market entry determinants for for-profit and non-profit at-home care providers in large Japanese cities*

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Abstract

Japan's long-term care insurance system requires that for-profit and non-profit at-home care service providers provide the same services at the same prices. Both types of providers compete on completely equal terms, though they may have different determinants of entry. This study considers market entry determinants for both for-profit and non-profit at-home long-term care providers in large Japanese cities. The estimation results show that potential for-profit entrants were sensitive to issues of profit, and that potential non-profits enter disadvantaged municipalities. The net entry rates of both potential entrants have gradually declined. The results show that both providers' entries compensate for the gap between at-home long-term care demand and supply in each religion. Non-profit entrants supplement for-profit entrants because non-profits enter regions with low profitability. However, the insurance systems will face an issue due to the increase in premiums and decrease in unit prices, which discourage new entries.

Keywords: Determinants of Entry; Long-term care; For-profit; Non-profit

JEL classification codes: I11, L33, R30

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1. Introduction

The Japanese long-term care (LTC) insurance system requires that for-profit and non-profit at-home care service providers offer the same services at the same unit-prices. Both types of providers compete on completely equal terms, though they may have different determinants of entry.

For-profit providers aim to maximize profits, while non-profit providers may have different goals, such as increasing common welfare (e.g., Anthony and Young, 2003; Hansmann, 1980; Salamon and Anheier, 1994). Non-profit providers do occasionally have profit-oriented aims, such as business expansion or borrowing from a bank (e.g., Chang and Tuckman, 1990; Eldenburg et al., 2011). If both types of providers have the same determinants for entry, then both will enter only profitable areas.

A potential entrant decides whether to enter based on expected profit and market structure.[1] This paper investigates the difference in market entry determinants between for-profit and non-profit at-home LTC providers in large Japanese cities.

2. Variables and data

I calculate rate of entry based on the number of providers in each municipality by year. Thus, I could use the *net* data of for-profit/non-profit providers.

$$Ent_{i,t,p} = \frac{(N_{i,t,p} - N_{i,t-1,,p})}{N_{Total,i,t-i}} \qquad (1)$$

[1] Geroski and Schwalbach (1991) discuss the relationship between entry and market structure. Siegfried and Evans (1994) survey the empirical studies on the determinants of entry/exit. Pehrsson (2009) presents a detailed discussion on the barriers to entry.

Ent is the net entry rate. The right denominator N of expression (1) represents the number of existing providers. The subscripts *i*, *t*, and *p* represent municipality, year, and provider type (for-profit/non-profit), respectively.

Potential (for-profit) entrants would prefer profitable municipalities. It is important for potential entrant to determine how much it will cost to acquire a potential user in the new municipality because providers must charge the prices established for LTC services under the LTC insurance scheme. In addition, it is better for the provider if potential clients use the LTC services often.

Potential user acquisition is a strong incentive for market entry. The first variable is the ratio of eligible insured individuals to total employees of professional caregivers of at-home LTC services (*EII_care*), which indicates the degree of accessibility to potential users[2]. The second variable is the at-home LTC benefit per user (*benefit*), which is the average number of LTC uses in a municipality. I adopt the current facility care services per elderly resident (*faci*) because the amount of facility care services might substitute for at-home care service.

Potential entrants should compete with existing providers on non-price characteristics (e.g., service quality). The ratio of full-time caregivers to total employees (*r_full*) represents the cost of supply of each municipality. Moreover, the provider also needs to know the cost to employ caregivers because LTC services have the feature of a labor-intensive business. Providers should pay a comparatively higher salary to employ full-time caregivers, who are difficult to replace. A high ratio of full-time caregivers is a cost-pushing factor for potential entrants. However, this

[2] When an elderly resident needs long-term care, the municipality's Certification Committee for Long-term Care Need assesses eligibility by evaluating the person's physical and mental conditions that require care. The conditions requiring care range from mild to severe in a multistep approach. The degree of eligibility ranges across seven levels from "support care required I" (lowest level) to "long-term care required V" (highest level). The Committee allocates benefits based on points and limits care according to the degree of eligibility.

indicator is not a barrier to entry for non-profit entrants that intend to invest in the quality.

Potential for-profit entrant should be more sensitive to these variables than potential non-profit entrants. The empirical analysis is limited to large-scale municipalities with 200,000 or more residents because they have at-home LTC data (e.g., number of employee) publicly available. Municipal-level benefit data are available from 2003. This study uses unbalanced panel data for 60 municipalities from 2003 to 2012 (525 observations). However, some municipalities were amalgamated in this period. To control for the influence of amalgamation, I adopt a dummy variable for amalgamated municipalities from the year of amalgamation (*d_amalg*). Table 1 reports the descriptive statistics.

[Table 1 here]

3. Estimation results

This study uses a fixed effect estimation and balanced panel data as a robustness check. Table 2 presents the estimation results.

[Table 2 here]

The results of the F and Hausman tests indicate the presence of fixed effects. The estimation results for for-profit entrants seem to support the hypothesis that potential for-profit entrants strongly consider the (regional) market structure of profitability. On the other hand, potential non-profit entrants did not react to *EII_care*, as do the for-profit entrants. Moreover, non-profit entrants did not react to *benefit* and *Full*. The results support the hypothesis that potential non-profit entrants did not consider the market structure of profitability.

The year dummies were strongly negative for all estimation results. The LTC insurance unit-prices and benefits change every three years, called the program management period. These were reduced from the 3rd program management period (2006-2008), which led to a fall in new entries.

The results of the balanced panel data matched those from the unbalanced data. The estimation results were robust.

Finally, I ran seemingly unrelated regression (SUR) to estimate a system of equations involving contemporaneous correlations between the errors of different equations for the same period. After estimating SUR, I checked the hypothesis of independence of both equations using the Breusch-Pagan (BP) test. The BP test results, of 0.732 and 1.646 for unbalanced and balanced data, respectively, did not reject the independency of both estimation equations for all estimation results.

4. Conclusion

The reform of the Japanese LTC care system in 2000 allowed for-profit providers to offer LTC services, though must charge the same price for its services as non-profit providers in the same region. This study examines the differential determinants of entry both for-profit and non-profit entrants using unbalanced or balanced panel data for large Japanese cities. The results show that both types of entrants tend to enter regions where there are few professional caregivers compared to the number of eligible elderly residents who need LTC. In addition, potential for-profit entrants were more sensitive to profitability factors than non-profit entrants, who did not avoid entering low profitability regions. Finally, the year dummies were strongly negative for both for-profit and non-profit entrants.

These results indicate that for-profit and non-profit entrants compensate for the gap between

at-home LTC demand and supply in each region. Moreover, non-profit entrants supplement for-profit entrants because non-profit entrants do enter regions with low profitability. However, the year dummies indicate that the net entry rate did decline, implying that municipalities should improve unit-prices to encourage new entrants of both business types. Despite this result, raising the prices may be untenable for regional LTC insurance systems because the premiums has increased over the period.

Though the results in this study are robust, it is limited to large cities due to data limitations. For-profit and non-profit entrants may make different decisions for other types of municipalities, which will become an issue in the future.

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Table 1. Descriptive statistics and data sources

Variables	Unit	Mean	S.D.	Min	Max
Ent (for-profit)	%	11.667	21.516	-21.428	115.151
Ent (non-profit)	%	6.328	17.646	-14.342	95.833
EII_care	1 Person	26.786	8.089	14.384	57.768
Benefit	1,000 JPY	45.935	11.104	20.879	102.389
Faci,	1,000 elderly	12.585	2.248	6.394	19.272
r_full	%	49.002	6.900	26.340	73.320
d_amalg	dummy	0.057	0.232	0	1

Sources: National survey of long-term care facilities and offices (2002–2012), Ministry of Health, Labour and Welfare. Annual reports of long-term care insurance (2002–2013), Ministry of Health, Labour and Welfare.

Table 2. Estimation results

	Unbalanced		Balanced	
	For-profit	Non-profit	For-profit	Non-profit
EII_care	0.856*** (0.181)	0.464* (0.241)	0.729*** (0.197)	0.469* (0.267)
Benefit	0.427*** (0.149)	-0.108 (0.091)	0.469*** (0.114)	-0.110 (0.106)
Faci	-1.421*** (0.534)	-1.746*** (0.745)	-1.282* (0.739)	-2.046** (0.969)
r_full	-0.256** (0.126)	0.101 (0.102)	-0.256* (0.149)	0.168 (0.167)
d_amalg	0.835 (1.912)	2.575* (1.575)	1.446 (1.713)	2.665 (1.810)
constant	55.650*** (13.194)	70.049*** (8.489)	55.272*** (15.776)	71.056*** (10.262)
Year dummy				
2004	-54.905*** (3.991)	-55.789*** (3.516)	-56.019*** (4.464)	-55.978*** (3.765)
2005	-48.449*** (3.830)	-50.431*** (3.836)	-48.988*** (3.585)	-49.726*** (4.062)
2006	-61.137*** (3.886)	-56.106*** (3.734)	-61.736*** (4.295)	-56.031*** (4.091)
2007	-62.869*** (3.784)	-57.066*** (3.740)	-64.470*** (3.890)	-57.368*** (4.084)
2008	-63.516*** (3.801)	-60.225*** (3.865)	-62.617*** (3.944)	-59.999*** (4.242)
2009	-63.695*** (3.672)	-60.752*** (3.363)	-63.401*** (3.663)	-60.780*** (3.656)
2010	-61.857*** (4.613)	-64.920*** (3.923)	-61.302*** (3.636)	-65.793*** (4.235)
2011	-74.951*** (4.208)	-61.747*** (2.760)	-73.935*** (4.275)	-62.370*** (2.837)
2012	-53.321*** (3.643)	-59.889*** (3.031)	-53.253*** (3.370)	-60.298*** (3.203)
Fixed Effect	Yes	Yes	Yes	Yes
F test	1.32*	1.34*	1.38*	1.53**
Hausman test	46.66***	54.74***	30.80***	56.52***
R-sq.	0.794	0.852	0.820	0.861
Sample	525	525	400	400
Group	60	60	40	40

Notes: ***, **, and * indicate statistical significance at the 0.01, 0.05 and 0.1 levels, respectively. Figures in parentheses are robust standard errors.