

Market characteristics and entry strategy decision making: The market perspective of Croatian elderly care homes

Višić, Josipa

Source / Izvornik: **Strategic Management, 2024, 29, 5 - 15**

Journal article, Published version

Rad u časopisu, Objavljena verzija rada (izdavačev PDF)

<https://doi.org/10.5937/StraMan2300050V>

Permanent link / Trajna poveznica: <https://um.nsk.hr/um:nbn:hr:124:915091>

Rights / Prava: [Attribution 4.0 International](#) / [Imenovanje 4.0 međunarodna](#)

Download date / Datum preuzimanja: **2025-03-13**

Repository / Repozitorij:

[REFST - Repository of Economics faculty in Split](#)



Market characteristics and entry strategy decision making: the market perspective of Croatian elderly care homes

Josipa Višić

University of Split, Faculty of Economics, Business and Tourism, Split, Croatia

<https://orcid.org/0000-0002-2536-8317>

Abstract

Background: Socio-demographic changes increase the need for long-term elderly care. Consequently, providing formal institutional service in elderly care homes is an interesting opportunity for entrepreneurs. However, the entry strategy decision is influenced by numerous external variables.

Purpose: The main goal is to answer what determines market concentration as one of the most important market entry determinants.

Study design/methodology/approach: A linear regression model has been formed and tested on the Croatian elderly care home market, observed on a county level, using data for 2021. Further, a cluster analysis, as a decision-support tool, has been made to assess market characteristics that are more likely to attract new entrants to the elderly care home market.

Findings/conclusions: Results indicate that demand for long-term care services plays a significant role, and the market with more elderly will attract more competitors. When the level of GDP per capita and the unemployment rate are observed together, markets with stronger economies tend to attract entrepreneurs. In other words, it is more likely that someone will open an elderly care home in a densely populated county with individuals that can afford formal institutional long-term care for themselves or family members.

Limitations/future research: The shortcomings are mainly related to the lack of data on prices and quality measures. Further, information on the number of beds in each elderly care home would enable an alternative calculation of the Herfindahl-Hirschman index, while data on service prices and structure of employees as a proxy for quality (medical and non-medical staff) would enable a more reliable comparative analysis of obtained results. Future studies on this subject include variables related to the portion of unemployed females in the market since female family members more often provide informal care, and at the same time, they are more likely to be employed in formal long-term care institutions.

Keywords

long-term care (LTC), elderly care home, market competition, market competition, new entrant, Herfindahl-Hirschman index (HHI), Croatia

Introduction

Ageing society, changes in family structure in the sense that the portion of multigenerational families decreases, and expanded life expectancy provide numerous business opportunities in the context of the silver economy. When we observe their nature, many elderly-adjusted products and services belong to the group of normal, i.e. luxury goods such as various hospitality industry

products and services. However, in some cases, elderly consumers are compelled to use certain products/services, such as in the long-term care (LTC) industry. Therefore, the aforementioned socio-demographic changes and the nature of the LTC increase demand for LTC products/services (both formal/informal and institutional/non-institutional). Consequently, providing formal institutional LTC services in elderly care homes might be an interesting opportunity for investors.

However, even though existing demand is a necessary precondition, numerous internal and external factors determine the entrepreneurial decision to enter a specific market.

When it comes to the formal institutional LTC sector as an entrepreneurial opportunity, external determinants are rather specific. Users of the service are elderly individuals, often with physical and mental health issues, which makes this business both labor-intensive and specific in requiring more or less trained medical staff. Further, since the nature of the service requires residential premises, high capital investments are necessary if the company needs to rent or build them. Also, in many cases, along with consumers, family members and/or government subsidies cover the cost of the service. If they cannot cover it, families often provide informal non-institutional care or pay for formal non-institutional care for their elderly family members. Therefore, the decision on whether and where to open an elderly care home is under the influence of several complex external and internal determinants, ranging from level of demand, consumers' ability to pay for the service, choice consumers have in terms of substitutes for the service, to availability of suitable employees.

In that sense, this paper is focused on determinants of the formal institutional LTC market structure, i.e. market concentration as an external choice element, to provide a decision support tool while deciding whether to enter the respective market in the context described in Figure 1.

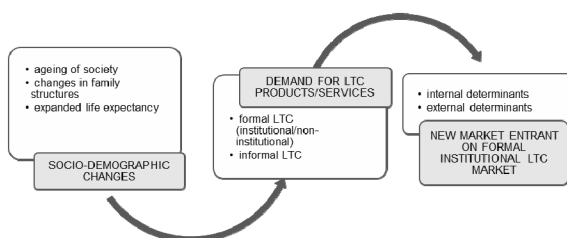


Figure 1 New market entrant – context of formal institutional LTC market

Source: the author

A market concentration determining market structure is considered one of the most important elements of the decision whether to enter the market. Namely, it is reasonable to expect that market structure, i.e. market concentration, is correlated to the company's profitability. However, the nature of their correlation and causality is a source of debate. On the one hand, according to the Harvard school of economic

thought, a company will strive to increase its market share to increase its market power manifested via more control over prices resulting in higher profits (for detailed insight on market concentration as a determinant of profitability cf. Pervan, Pervan, & Ćurak, 2019). In that setting, a higher market concentration would imply a lower level of competition, which might attract new entrants. On the other hand, lower market concentration resulting from higher competition might indicate demand sufficient to accommodate additional entrants to the market. Therefore, it is reasonable to expect market concentration to influence the new entrant's decision. Still, the outcome will result from a combined analysis of the entrant's internal and external factors.

Here presented analysis is an additional tool because the information entrepreneurs can derive from their internal factors should be complemented by market concentration. More precisely, their business outcome will be, among other factors, influenced by the fact whether they own appropriate real estate, the amount and cost of the available capital, specific knowledge about the LTC sector in terms of optimizing work processes, and the possibility of using innovations to increase efficiency.

Another important element of formal institutional LTC markets, besides overlapping of their social care and healthcare elements, is their diversity depending on the respective country. In that sense, LTC systems in countries that spent a relatively low portion of their GDP on LTC are rarely the focus of scientific interest. This is even more emphasized if we focus on their market concentration. Croatia belongs to those insufficiently analyzed, growing LTC markets. Consequently, here presented analysis will, on the sample of the Croatian formal institutional LTC market, try to answer two following research questions:

1. What determines the market concentration on market for formal institutional LTC?
2. What market characteristics are more likely to attract new entrants to the elderly care home market?

This paper adds to the field in several aspects. To the authors' best knowledge, it is the only paper that focuses on determinants of market concentration in LTC markets in countries that spend a rather modest portion of GDP for LTC and do not have highly developed quality control systems in formal institutional elderly care homes. Meaning that this paper might serve as a decision-

support tool for both possible new entrants to the formal institutional LTC market and for policymakers in the respective country since obtained results can serve as an indicator of probable market concentration. The rationale behind it is that it is easier to make entrepreneurial decisions if there are available detailed data on existing competitors, i.e. characteristics of their elderly care homes, consumers satisfaction etc., but there is room for improvements when it comes to making these decisions on under-analyzed areas. Therefore, since empirical analysis was made in Croatia, the presented analysis can be applied in countries with similar LTC systems and a lack of publicly available data on this sector. Further, policymakers might find presented findings useful in a situation when it is necessary to anticipate the level of market concentration. In other words, when it is necessary to predict which areas are more likely to be underserved by privately owned elderly care homes and consequently to plan for public action or development of substitutional LTC products.

The following chapter provides a brief literature overview. Chapter 2 provides data and a sample description. The methodology is explained in the third chapter, and it is followed by results presented in the fourth chapter. Discussion is given in Chapter 5 while concluding remarks are presented in the last chapter.

1. A brief literature review

Studies dealing with a market concentration in LTC systems are often directed to a connection between market concentration on one side and price and/or quality on the other. As expected, more studies deal with the US market (Fulton, 2017; Nyman, 1994; Zinn, 1994 etc.), and there are studies dealing with elderly care homes in European countries with developed LTC systems, such as Sweden (e.g. Broms, Dahlström & Nistotskaya, 2020), England (e.g. Forder & Allan, 2014), Netherlands (e.g. Mosca, Pomp & Shestalova, 2010). However, market competition is also analyzed from different perspectives. In that sense, Gandhi, Song and Upadrashta (2020) focused on the impact of private equity acquisitions on the quality of care in US nursing homes. Grant, Kesternich and Van Biesebroek (2020) analyzed competition between non-profit and for-profit LTC homes in Germany, while Yeh, Tsay, Wang, Lo and Shi (2021) used market concentration as one of the variables that determine nursing home accreditation in Taiwan.

Grabowski (2008), on the other hand, deals with several issues related to LTC research and, along with emphasizing unanswered policy questions, raises the question of the construction of standard measures of LTC market boundaries. Although his research is focused on the US market, his critical standpoints are widely applicable. Scourfield (2007) also criticized marketization and the privatization of the LTC elderly care system. Even though his focus was on the UK, concerns expressed in the term “caredalization” might be applied to all countries with developed or developing LTC systems. In other words, this criticism of the commodification of long-term care for the elderly can serve as a corrective to both researchers and policymakers while advocating for efficiency increase and marketization without taking into account possible adverse effects on users of these services.

Besides the aforementioned papers that deal with market concentration, there are numerous papers on LTC covering various economic aspects of this specific sector. Productivity and efficiency have often been at the center of many studies focused on one country (Barsanti, Bunea, & Colombini, 2021; Višić & Kordić, 2021; Luasa, Dineen, & Zieba, 2018; Veloso, Vaz, & Alves, 2017; Garavaglia, Lettieri, Agasisti, & Lopez, 2011; Laine, Finne-Soveri, Björkgren, Linna, Noro, & Häkkinen, 2005, etc.) or more countries (Wichmann, et al., 2018; Ozbugday, Tirgil, & Kose, 2020, etc.).

Institutional elderly care is a substitute for home care, and the financial repercussions of these options are interesting from an individual as well as from a state perspective, where it is necessary to project the demand for these services and analyses the development and sustainability of the social protection system (Manojlović, 2020; Bađun, 2017; Mihić, Todorović, & Obradović, 2014). Closely related to the issue of sustainability of this sector are products such as LTC insurance that are designed to satisfy customers’ needs and, at the same time, relieve financial pressure on the government (e.g. Fuino, Ugarte Montero, & Wagner, 2022; Karagiannidou & Wittenberg, 2022; Bađun & Krišto, 2021; Wang, Abihiro, Yang, Li, & De Allegri, 2021; Eling & Ghavibazoo, 2019; Courbage, 2010, Zhou-Richter, Browne, & Gründl, 2010, etc.). Besides financial-type innovations such as LTC insurance, the very nature of long-term care requires continuous improvements in the social aspect of the provided service, and there is

growing literature focused on social innovations (e.g. Mali (2019) provides an excellent overview of innovations mainly related to improving quality of life in elderly nursing homes). Closely related, residents' quality of life in elderly care homes is a focus of many studies (e.g. Orr, et al., 2023; Xu, et al., 2023; Harouni, Tabrizi, Fallahi-Khoshknab, Fadayeveatan, & Maddah, 2022; Olumekor, Stojić, Kehler, & Polo, 2022; Sjölund, Mamhidir, & Engström, 2021; Lovreković & Leutar, 2010, etc.)

Further, there is rising interest in technological innovations related to social robots (cf. Lavin, et al., 2022; Blindheim, Solberg, Hameed, & Alnes, 2022, etc.) while Lapp, et al., (2022) for example provide an overview of studies focused on clinical decision support tools in elderly LTC homes. Similar, Chiang, Hsieh and Wu (2022) analyses the implementation and acceptance of information and communication technology (ICT) in LTC institutions in Taiwan.

In countries with highly developed LTC systems, such as Sweden, more specific themes gather researchers' attention, such as the question of inequality in the use of this care in diverse ageing societies with sizable migrant populations (cf. Innes, Walsh, & Österberg, 2021).

2. Data and sample description

Empirical analysis has been made on Croatian companies operating in activities under code 87.3 Residential care activities for the elderly and disabled in NACE Rev. 2 classification of economic activities in the European Community. Data on each business subject registered for this formal institutional LTC service were retrieved in January 2023 from Croatian Financial Agency (FINA) database named info.BIZ. The sample covers 233 companies that operate in the respective sector with total revenue for 2021 higher than 0 euros.

The elderly prefer to stay in nursing homes relatively close to their family, friends and primary healthcare providers. Therefore, following the rationale presented in Zwanziger, Mukamel and Indridason (2002) and Grant et al. (2020), counties are selected as separate markets for elderly care homes. Hence, 198 micro and 35 small-sized companies have been grouped according to the 21 counties they are registered.

Herfindahl-Hirschman index (HHI) has been selected as a standard measure of market concentration. It is calculated by summing the squared market shares of each competing company in the industry, and its value lies

between 0 and 10 000 (the higher the value, the more concentrated market; in a monopoly, it is $100^2=10\ 000$). There are other several widely used market concentration measures, such as concentration ratio and Gini coefficient, but following Yeh et al. (2021), Fulton (2017), Forder and Allan (2014), Mosca et al. (2010), Zwanziger et al. (2002), Zinn (1994) and Nyman (1994) we used HHI. However, the aforementioned studies mainly used the number of beds to measure the size of an elderly care home. Since the aim of this paper is rather different, the market share of each company has been calculated based on the respective total revenue so it can better relate with the entrepreneurial segment of decision that is based on the level of market concentration.

Since the main purpose is to find what determines the level of market concentration in the formal institutional LTC market, it was necessary to select explanatory variables. Demand for products/services is positively correlated with the population, yet when it comes to the LTC market for the elderly, it is necessary to slightly adjust this variable. Namely, it is expected that the higher number of elderly will increase demand for elderly care homes, consequently increasing market competition, i.e. lowering market concentration. Therefore, the analysis includes the number of individuals that are 65 and older in each county. Further, the cost of formal institutional LTC in the majority of cases is covered by users of this care or by their family members. Hence, it is expected that higher purchasing power will have the same effect on market concentration as higher demand. Or in other words, higher GDP per capita will more likely mean that those in need can afford to be admitted to elderly care homes, which will indirectly attract more entrants to the market and decrease market concentration. These two variables have often been used in studies related to market competition (Yeh et al., 2021; Nyman, 1994; Fulton, 2017, Forder & Allan, 2014).

The unemployment rate is another important variable that seems to have a relevant direct impact on market competition in the respective market. However, its influence is twofold. On one side, a higher unemployment rate indicates a higher number of individuals potentially available to take care of the elderly, whether in an informal non-institutional way, i.e. taking care of their family members, or taking care of non-related elderly that are not admitted in elderly care homes. In this sense, a higher unemployment rate

would imply a lower demand for elderly care homes, i.e. higher unemployment rate would mean lower market competition and higher market concentration. However, LTC is labor-intensive, and as in many other (health-related) industries, companies struggle to find employees. From this perspective, a higher unemployment rate might be perceived as an opportunity for new entrants to the LTC market since they represent a possible source of necessary inputs (employees) that might attract new entrants. Or in other words, there is a possibility that this variable might have an adverse effect than in the previous case depending on which effect prevails.

All data on these three variables have been retrieved from the Croatian Bureau of Statistics (“Census of population, households and dwellings in 2021” and for data on GDP “Gross domestic product for Republic of Croatia, HR_NUTS 2021. – HR NUTS 2 AND COUNTIES, 2020”). IBM Statistics SPSS 23 has been used for the analysis.

3. Methodology

The empirical segment of this paper is divided into two parts. The first part is focused on the determinants of market concentration on the market for formal institutional elderly long-term care measured by HHI. Therefore, to test whether selected explanatory variables affect HHI as a measure of market concentration and what is the nature and strength of their impact, the following linear regression has been used:

$$HHI_{it} = \beta_0 + \beta_1 GDPPC + \beta_2 POP65 + \beta_3 UNEMP + \epsilon_{it} \quad (1)$$

$i=1, 2, \dots, 21; t=2021$

HHI - Herfindahl-Hirschman index, county level (units)

POP65 - the number of individuals in a county that is 65 and older

GDPPC - gross domestic product per capita, county level (units, EUR)

UNEMP - registered unemployment rate, county level (percentage).

In this manner, by analyzing data for a single year, it will be possible to answer the first research question.

The aim of the second empirical part is to determine what characteristics of the market are more likely to attract new entrants to the elderly care home market. Hence, to answer the second research question and detect how objects (counties) are classified into groups, a cluster analysis has been performed following the same logic Morrison and Bryan (2010) used to find spatial clusters of elderly consumers in the U.S.A. Three previously mentioned explanatory variables (POP65, GDPPC, UNEMP) have been used in k-means clustering. In order to perform the analysis, this method requires selecting the number of clusters prior to the analysis. Consequently, taking into consideration studies with similar logic (Kočanová, Kováč, Serzhanov, & Buleca, 2023; Zhang, et al., 2022; Tobis, et al., 2021) and the size of Croatia, the analysis is set to be performed with three cluster groups.

4. Results

As previously stated, the empirical analysis consists of two segments. Consequently, obtained results for regression and cluster analysis are presented separately.

4.1. Regression analysis

The model summary is presented in Table 1, and according to the Durbin-Watson test, there is no autocorrelation in this model since the value of 2.429 is within the acceptable range (1.5-2.5). Results of the Breusch-Pagan test for heteroscedasticity are available at request, and they indicate that heteroscedasticity is not present ($p=0.09; p>0.05$). With a p-value of 0.013, the estimated regression model is statistically significant (Table 2).

Table 1 Model Summary

R	R Square	Adjusted R Square	Std. The error of the Estimate	Durbin-Watson
.680 ^a	.463	.368	2351.34346	2.429

Source: the author

Note: a. Predictors: (Constant), UNEMP, POP65, GDPPC;

b. Dependent Variable: HHI

Table 2 ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	80908281.487	3	26969427.162	4.878	.013
Residual	93989873.423	17	5528816.084		
Total	174898154.909	20			

Source: the author

Note: Predictors: (Constant), UNEMP, POP65, GDPPC;
Dependent Variable: HHI

As seen in Table 3, all explanatory variables, except for the constant, have a statistically significant impact on the dependent variable. Values for Tolerance are greater than 0.2, and all

Variance Inflation Factors (VIF) are less than 5, indicating no multicollinearity problem.

Table 3 Model coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-6692.328	4140.559		-1.616	.124		
GDPPC	1.017	.365	1.046	2.783	.013	.224	4.471
POP65	-.102	.029	-1.152	-3.550	.002	.300	3.334
UNEMP	336.297	144.762	.535	2.323	.033	.595	1.680

Source: the author

4.2. Cluster analysis

As previously stated, a cluster analysis has been used to answer the second research question, and three previously used explanatory variables, along with the value of HHI for each county have been included in the analysis. Their descriptive analysis

is given in Table 4. Sixteen out of twenty-one counties belong to cluster 1, City of Zagreb is the only member of cluster 2, while the remaining four counties belong to cluster 3 (Table 7).

Table 4 Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
HHI	21	564.16	10000.00	3410.0240	2957.17902
GDPPC	21	7514.00	21829.00	10402.7143	3043.58935
POP65	21	11098.00	158714.00	41250.9524	33559.39787
UNEMP	21	4.00	18.50	11.0476	4,70814
Valid N (listwise)	21				

Source: the author

Table 5 Cluster membership

County	Cluster	Distance
Bjelovar-Bilogora	1	3249.922
Slavonski Brod-Posavina	1	4136.603
Dubrovnik-Neretva	1	6044.241
City of Zagreb	2	.000
Istria	1	20672.165
Karlovac	1	1875.329
Koprivnica-Križevci	1	5389.096

Krapina-Zagorje	1	3215.087
Lika-Senj	1	16667.131
Međimurje	1	6085.183
Osijek-Baranja	3	13654.871
Požega-Slavonia	1	12583.540
Primorje-Gorski Kotar	3	3246.227
Sisak-Moslavina	1	7769.209
Split-Dalmatia	3	21835.625

Šibenik-Knin	1	3302.808
Varaždin	1	7061.562
Virovitica-Podravina	1	11669.894
Vukovar-Sirmium	1	6621.320
Zadar	1	11568.309
Zagreb County	3	6438.816

Source: the author

The presented Euclidean distance between each case, i.e. county (Table 5), as measures of similarity, and final cluster centers (Table 6) reveal that clusters are not uniform. It is evident that Cluster 2, with intense competition (the lowest level of HHI), also has the highest GDP per capita and the number of individuals 65 and older, while the unemployment level is the lowest. The difference between “mid-range competition” Cluster 3 and “low competition” Cluster 1 is most pronounced in the population segment, while concerning GDP per capita and unemployment level differences are not as drastic.

Table 6 Final Cluster Centers

	Cluster		
	1	2	3
HHI	4110.15	625.79	1305.57
GDPPC	9604.31	21829.00	10739.75
POP65	26670.75	158714.00	70206.00
UNEMP	11.21	4.30	12.08

Source: the author

Table 7 Distances between Final Cluster Centers

1	2	3
	132653.698	43640.267
132653.698		89202.577
43640.267	89202.577	

Source: the author

5. Discussion

Considering both regression and cluster analysis results, it is evident that when it comes to GDP per capita, its effect is stronger in terms of increased demand for elderly care homes. In other words, in areas with higher GDP per capita, individuals and their family members will be able to afford formal institutional LTC, which will attract new entrants to the market and decrease market concentration. This logic is supported by results for the unemployment rate indicating that in the areas with a higher unemployment rate, it is more likely that unemployed individuals will provide non-institutional care for the elderly,

consequently leading to lower competition and higher levels of HHI. Li, Li and Huang (2022) indirectly confirmed results presented here since their research indicates that rural areas, usually with lower GDP per capita and higher unemployment levels than urban areas, have underdeveloped elderly care institutions. However, managing elderly care homes in areas with low unemployment levels might result in problems of labor shortages. In that sense, Vogt and König (2021) propose increased use of robotic devices and ICT to reduce employees’ physical hardships and mental stress. Even though their study is focused on Japan, their findings are beneficial to both managers and policymakers in all areas with high levels of emigration of medical and nursing staff (Cabanda, 2023; Byrne, et al., 2021; Lanati & Thiele, 2021; Žuk, Žuk, & Lisiewicz-Jakubaszko, 2019, etc.).

The importance of a population aged 65 and older is confirmed by both methodologies. Namely, more individuals that are potential residents in elderly care homes increase demand for this service, attract new entrants, decrease market concentration and increase market competition. June, et al., (2022) obtained similar results regarding population density, and even though their research deals with factors that are associated with the closure of assisted living facilities, respective results take into consideration that an oversaturated market increases the risk of being unprofitable. However, a new entrant in the formal institutional LTC market should, along with the level and portion of the population older than 65, take into consideration a growing trend of ageing-in-place, i.e. deinstitutionalization of ageing individuals (Szweda-Lewandowska, 2022; Salime, Clesse, Jeffredo, & Batt, 2022, etc.). Namely, future demand for this type of service will increasingly consist of high-need elderly (Alders & Schut, 2019), and in that sense, market entrants should adopt their supply of institutional LTC care to residents that have severe physical and mental health issues. In other words, demand for elderly care homes is likely to be delayed, observed from the age of a resident entering the LTC institution, because of aforementioned efforts invested in deinstitutionalization on the government’s level and substitutes developed on the free market, such as assisted living facilities (Bogataj, Bogataj, & Drobne, 2023; Kim, et al., 2022; Bowblis, 2014, etc.).

Additional comparative analysis of here obtained results shows that the variable related to

population seems to have the same effect as in Yeh et al. (2021) and Fulton (2017). Further, both papers used household income variable and obtained contradictory results, while Fulton's (2017) analysis revealed the negative impact of unemployment level on HHI. However, a comparison of here presented results should be made with caution. Namely, these two studies, even though they follow the same logic regarding the LTC sector as a segment of the health sector, are different since one is focused on determinants of accreditation scores for nursing homes (Yeh et al., 2021) and the other on the market concentration for hospitals, physician organizations and health insurers (Fulton, 2017).

Along with presented factors that affect new entrants' decisions, the elderly care homes market structure in highly developed countries has an additional element that concerns policymakers. Namely, observed increased ownership transfers might result in the emergence of local monopolies, which increases the possibility of a decline in the quality of care for residents (Holden, 2002). Even though this research does not include quality in empirical analysis, concerns related to the connection between market concentration and quality should not be neglected and should be taken into consideration by both managers and policymakers involved in formal institution LTC care (c.f. Espuny Pujol, Hancock, Hviid, Morciano, & Pudney, 2021; Hirth, et al., 2019; Castle, Engberg, & Liu, 2007, etc.).

Conclusion

The main purpose of this paper has been to analyse what determines the market concentration on the formal institutional LTC market, i.e. to detect characteristics of the market that is more likely to have higher market competition. This is important both for new market entrants and policymakers since LTC has a social and health dimension, and providing this service should not be left solely to market forces. By observing obtained results, it is evident that all analyzed variables play a significant role. As expected, demand for LTC service plays a significant role, and the market with a higher number of elderly will attract more competitors. When the level of GDP per capita and the unemployment rate are observed together, it appears that markets with stronger economies tend to attract entrepreneurs. In other words, it is more likely that someone will open an elderly care home in a densely populated county with

individuals who can afford formal institutional LTC for themselves or their family members. From an entrepreneurial perspective, this is expected and logical. Still, from the perspective of necessary social and health protection, obtained results can serve policymakers to more easily detect areas/counties where the free market economy might not satisfy the needs for LTC for all elderly in need. In other words, this study helps detect areas where: a) developing non-institutional formal LTC might be needed or b) it might be beneficial to develop measures/incentives to attract entrepreneurs to the formal institutional LTC market.

However, even though empirical analysis has been made on Croatian counties, obtained results and conclusions are applicable in all countries with similar social protection and health care systems. This is especially important in areas where there is no (publicly available) data on many segments of LTC for the elderly such as internal characteristics of LTC providers and their users that might help entrepreneurs decide whether to enter the respective market.

The shortcomings of this paper are mainly related to the lack of data on prices and quality measures. Information on the number of beds in each elderly care home would enable an alternative calculation of HHI, while data on service prices and structure of employees as a proxy for quality (medical and non-medical staff) would enable a more reliable comparative analysis of obtained results. Further, as Grabowski (2008) stated, changing market boundaries might distort the results, but the analysis has been optimized according to the available data.

Therefore, future studies on this subject will be directed at minimizing the aforementioned shortcomings. Further, the analysis will be widened by including variables related to the portion of unemployed females in the market since many studies indicate that female family members more often provide informal care, which is a substitute for the observed formal institutional LTC market, and at the same time, they are more likely to be employed in formal LTC institutions. Hence, including additional variables might provide additional information to potential entrants and policymakers related to the LTC system.

References

- Alders, P., & Schut, F. T. (2019). Trends in ageing and ageing-in-place and the future market for institutional care: scenarios and policy implications. *Health economics, policy, and law*, 14(1), 82–100. <https://doi.org/10.1017/S1744133118000129>
- Bađun, M., & Krišto, J. (2021). Financial industry views on the prospective role of long-term care insurance and reverse mortgages in financing long-term care in Croatia. *Journal of Aging & Social Policy*, 33(6), 673–691. <https://doi.org/10.1080/08959420.2020.1750541>
- Bađun, M. (2017). Financiranje domova za starije i nemoćne osobe u Hrvatskoj. *Revija za socijalnu politiku*, 24(1), 19–42. <https://doi.org/10.3935/rsp.v24i1.1370>
- Barsanti S., Bunea, A. M., & Colombini, G. (2021). What counts in nursing homes' quality and efficiency? Results from data envelopment analysis in Italy. *The Journal of Health Care Organization, Provision, and Financing*, 58, 1–9. <https://doi.org/10.1177/00469580211059730>
- Blindheim, K., Solberg, M., Hameed, I. A., & Alnes, R. E. (2023). Promoting activity in long-term care facilities with the social robot Pepper: a pilot study. *Informatics for Health and Social Care*, 48(2), 181–195. <https://doi.org/10.1080/17538157.2022.2086465>
- Bogataj, M., Bogataj, D. & Drobne, S. (2023). Planning and managing public housing stock in the silver economy. *International Journal of Production Economics*, 260. <https://doi.org/10.1016/j.ijpe.2023.108848>
- Bowblis, J. (2014). Nursing home prices and market structure: the effect of assisted living industry expansion. *Health Economics, Policy and Law*, 9(1), 95–112. <https://doi.org/10.1017/S174413311300025X>
- Broms, R., Dahlström, C., & Nistotskaya, M. (2020). Competition and service quality: evidence from Swedish residential care homes. *Governance*, 33, 525–543. <https://doi.org/10.1111/gove.12436>
- Byrne, J. P., Conway, E., McDermott, A. M., Matthews, A., Prihodova, L., Costello, R. W., & Humphries, N. (2021). How the organisation of medical work shapes the everyday work experiences underpinning doctor migration trends: the case of Irish-trained emigrant doctors in Australia. *Health policy*, 125(4), 467–473. <https://doi.org/10.1016/j.healthpol.2021.01.002>
- Cabanda, E. (2023). Moderating the impact of nurse emigration on the health sector: the state and policy instrument choice. *World Medical & Health Policy*. <https://doi.org/10.1002/wmh3.398>
- Castle, N. G., Engberg, J., & Liu, D. (2007). Have nursing home compare quality measure scores changed over time in response to competition?. *Quality & safety in health care*, 16(3), 185–191. <https://doi.org/10.1136/qshc.2005.016923>
- Chiang, Y. C., Hsieh, Y. C., & Wu, F. (2022). Implementation and acceptance of information and communication technology incorporated into long-term care. *Healthcare*, 10(7), 1253. <https://doi.org/10.3390/healthcare10071253>
- Courbage, C. (2010). Insuring long-term care risk, *Insurance Economics*, 61.
- Croatian Bureau of Statistics (2023). Retrieved February 15, 2023 from <https://podaci.dzs.hr/hr/>
- Croatian Financial Agency (FINA) database “info.BIZ” (2023). Retrieved February 02, 2023 from <https://infobiz.fina.hr/Login?ReturnUrl=%2F>
- Eling, M. & Ghavibazoo, O. (2019). Research on long-term care insurance: status quo and directions for future research. *The Geneva Papers on Risk and Insurance - Issues and Practice*, 44, 303–356. <https://doi.org/10.1057/s41288-018-00114-6>
- Espuny Pujol, F., Hancock, R., Hviid, M., Morciano, M., & Pudney, S. (2021). Market concentration, supply, quality and prices paid by local authorities in the English care home market. *Health economics*, 30(8), 1886–1909. <https://doi.org/10.1002/hecc.4286>
- Forder, J., & Allan, S. (2014). The impact of competition on quality and prices in the English care homes market. *Journal of Health Economics*, 34, 73–83. <https://doi.org/10.1016/j.jhealeco.2013.11.010>
- Fuino, M., Ugarte Montero, A., & Wagner, J. (2022). On the drivers of potential customers' interest in long-term care insurance: evidence from Switzerland. *Risk Management and Insurance Review*, 25, 271–302. <https://doi.org/10.1111/rmir.12218>
- Fulton, B. D. (2017). Health care market concentration trends in the United States: evidence and policy responses. *Health Affairs*, 36(9), 1530–1538. <https://doi.org/10.1377/hlthaff.2017.0556>
- Gandhi, A., Song, Y., & Upadrashta, P. (2020). Private equity, consumers, and competition: Evidence from the nursing home industry. *SSRN*. <http://dx.doi.org/10.2139/ssrn.3626558>
- Garavaglia, G., Lettieri, E., Agasisti, T., & Lopez, S. (2011). Efficiency and quality of care in nursing homes: an Italian case study. *Health Care Management Science*, 14(1), 22–35. <https://doi.org/10.1007/s10729-010-9139-2>
- Grabowski, D. C. (2008). The market for long-term care services. *Inquiry*, 45(1), 58–74. <https://doi.org/10.5034/inquiryjrnl.45.01.5>
- Grant, I., Kesternich, I., & Van Biesebroeck, J. (2020). Entry decisions and asymmetric competition between non-profit and for-profit homes in the long-term care market, *Working Papers of Department of Economics*, Leuven 652689, KU Leuven, Faculty of Economics and Business (FEB), Department of Economics, Leuven. Retrieved January 15, 2023, from <https://ideas.repec.org/p/ete/ceswps/652689.html>
- Harouni, M. D., Tabrizi, K. N., Fallahi-Khoshnab, M., Fadayevevan, R., & Maddah, S. S. (2022). Older people's perceptions of intergenerational relationships in nursing homes: a qualitative content analysis. *Journal of family medicine and primary care*, 11(8), 4395–4403. <https://doi.org/10.4103/jfmpc.jfmpc.273.22>
- Hirth, R. A., Zheng, Q., Grabowski, D. C., Stevenson, D. G., Intrator, O., & Banaszak-Holl, J. (2019). The effects of chains on the measurement of competition in the nursing home industry. *Medical Care Research and Review*, 76(3), 315–336. <https://doi.org/10.1177/1077558717701771>
- Holden, C. (2002). British government policy and the concentration of ownership in long-term care provision. *Ageing & Society*, 22(1), 79–94. <https://doi.org/10.1017/S0144686X02008607>

- Innes, H. M., Walsh, K., & Österberg, T. (2021). The inverse care law and the significance of income for utilization of long-term care services in a Nordic welfare state. *Social Science & Medicine*, 282, 114-125. <https://doi.org/10.1016/j.socscimed.2021.114125>
- June, J. W., Dobbs, D., Molinari, V., Meng, H., Bowblis, J. R., & Hyer, K. (2022). Factors associated with assisted living facility closure. *The Gerontologist*, 62(2), 181–189. <https://doi.org/10.1093/geront/gnab105>
- Karagiannidou, M., & Wittenberg, R. (2022). Social insurance for long-term care. *Population Ageing*, 15, 557–575. <https://doi.org/10.1007/s12062-022-09366-6>
- Kim, M., Ramdin, V., Pozzar, R., Fombelle, P. Zhou, X., Zhang, Y., & Jiang, M. (2022). Healthy aging adviser: designing a service to support the life transitions and autonomy of older adults. *The Design Journal*, 25(2), 143-164. <https://doi.org/10.1080/14606925.2021.2021662>
- Kočanová, D., Kováč, V., Serzhanov, V., & Buleca, J. (2023). Differences and similarities in patterns of ageing society in the European Union. *E&M Economics and Management*, 26(1), 45–64. <https://doi.org/10.15240/tul/001/2023-1-003>
- Laine, J., Finne-Soveri, U. H., Björkgren, M., Linna, M., Noro, A., & Häkkinen, U. (2005). The association between quality of care and technical efficiency in long-term care. *International Journal for Quality in Health Care*, 17(3), 259–267. <https://doi.org/10.1093/intqhc/mzi032>
- Lanati, M., & Thiele, R. (2021). Aid for health, economic growth, and the emigration of medical workers. *Journal of International Development*, 33(7), 1112-1140. <https://doi.org/10.1002/jid.3568>
- Lapp, L., Egan, K., McCann, L., Mackenzie, M., Wales, A., Maguire, R. (2022). Decision support tools in adult long-term care facilities: scoping review. *Journal of Medical Internet Research*, 24(9). <https://doi.org/10.2196/39681>
- Lavin, P., Lesage, M., Monroe, E., Kanevsky, M., Gruber, J., Cinalioglu, K., Rej, S., & Sekhon, H. (2022). Humanoid robot intervention vs. treatment as usual for loneliness in long-term care homes: Study protocol for a pilot randomized controlled trial. *Frontiers in Psychiatry*, 13:1003881. <https://doi.org/10.3389/fpsy.2022.1003881>
- Li, X., Li, C. & Huang, Y. (2022). Spatial-temporal analysis of urban-rural differences in the development of elderly care institutions in China. *Frontiers in Public Health*, 10, 1-18. <https://doi.org/10.3389/fpubh.2022.1086388>
- Lovrekić, M. & Leutar, Z. (2010). Kvaliteta života osoba u domovima za starije i nemoćne osobe u Zagrebu. *Socijalna ekologija*, 19 (1), 55-79.
- Luasa, S. N., Dineen, D., & Zieba, M. (2018). Technical and scale efficiency in public and private Irish nursing homes - a bootstrap DEA approach. *Health Care Management Science*, 21, 326-347. <https://doi.org/10.1007/s10729-016-9389-8>
- Mali, J. (2019). Inovacije u dugoročnoj skrbi: slučaj domova za starije osobe u Sloveniji. *Revija za socijalnu politiku*, 26(2), 225-225. <https://doi.org/10.3935/rsp.v26i2.1584>
- Manojlović, N. (2020). Obiteljski domovi kao rastući vid obiteljskog poduzetništva i otvaranja novih radnih mjesta. *Obrazovanje za poduzetništvo - E4E*, 10 (2), 107-125. <https://doi.org/10.38190/ope.10.2.10>
- Mihić, M. M., Todorovic, M. L.J., & Obradovic, V. L.J. (2014). Economic analysis of social services for the elderly in Serbia: two sides of the same coin. *Evaluation and Program Planning*, 45, 9-21. <https://doi.org/10.1016/j.evalprogplan.2014.03.004>
- Morrison, P. A., & Bryan, T. M. (2010). Targeting spatial clusters of elderly consumers in the U.S.A. *Population Research and Policy Review*, 29(1), 33–46. <http://www.jstor.org/stable/40608414>
- Mosca, I., Pomp, M. & Shestalova, V. (2010). Market share and price in Dutch home care: market power or quality? *De Economist*, 158, 61–79. <https://doi.org/10.1007/s10645-010-9137-2>
- Nyman, J. A. (1994). The effects of market concentration and excess demand on the price of nursing home. *The Journal of Industrial Economics*, 42(2), 193-204. <https://doi.org/10.2307/2950490>
- Olumekor, M., Stojić, A., Kehler, T., & Polo, F. (2022). The impact of COVID-19 on the quality of life and happiness of care home residents in Croatia: a cross-sectional study. *Behavioral sciences*, 12(11), 463. <https://doi.org/10.3390/bs12110463>
- Orr, N., Abbott, R., Bethel, A., Paviour, S., Whear, R., Garside, R., & Coon, J. T. (2023). What are the effects of animals on the health and wellbeing of residents in care homes? A systematic review of the qualitative and quantitative evidence. *BMC geriatrics*, 23(1), 170. <https://doi.org/10.1186/s12877-023-03834-0>
- Ozbugday, F. C., Tirgil, A., & Kose, E. G. (2020). Efficiency changes in long-term care in OECD countries: a non-parametric Malmquist Index approach. *Socio-Economic Planning Sciences*, 70, 10733. <https://doi.org/10.1016/j.seps.2019.100733>
- Pervan, M., Pervan, I., & Ćurak, M. (2019). Determinants of firm profitability in the Croatian manufacturing industry: evidence from dynamic panel analysis. *Economic research - Ekonomska istraživanja*, 32(1), 968-981. <https://doi.org/10.1080/1331677X.2019.1583587>
- Salime, S., Clesse, C., Jeffredo, A., & Batt, M. (2022). Process of deinstitutionalization of aging individuals with severe and disabling mental disorders: a review. *Frontiers in Psychiatry*, 13, 813338. <https://doi.org/10.3389/fpsy.2022.813338>
- Scourfield, P. (2007). Are there reasons to be worried about the "caretization" of residential care? *Critical Social Policy*, 27(2), 155–180.e <https://doi.org/10.1177/0261018306075707>
- Sjölund, B. M., Mamhidir, A. G., & Engström, M. (2021). Pain prevalence among residents living in nursing homes and its association with quality of life and well-being. *Scandinavian journal of caring sciences*, 35(4), 1332–1341. <https://doi.org/10.1111/scs.12955>
- Szweda-Lewandowska, Z. (2022). The role of health and social care workers in long-term care for elders in Poland, Czechia, Hungary and Slovakia: the transition from institutional to community care. *International Social Security Review*, 75,145–166. <https://doi.org/10.1111/issr.12311>

- Tobis, S., Jaracz, K., Kropińska, S., Talarska, D., Hoe, J., Wieczorowska-Tobis, K., & Suwalska, A. (2021). Needs of older persons living in long-term care institutions: on the usefulness of cluster approach. *BMC Geriatrics*, 21(1). <https://doi.org/10.1186/s12877-021-02259-x>
- Veloso, A. S., Vaz, C. B., & Alves, J. (2018). Determinants of nursing homes performance: the case of Portuguese Santas Casas da Misericórdia. *Congress of APDIO, the Portuguese Operational Research Society*, 393-409. https://doi.org/10.1007/978-3-319-71583-4_26
- Višić, J., & Kordić, L. (2021). Patterns of productivity changes in nursing homes by using Malmquist DEA index. *Croatian operational research review*, 12 (2), 151-160. <https://doi.org/10.17535/crorr.2021.0013>
- Vogt, G., & König, A. S. L. (2021). Robotic devices and ICT in long-term care in Japan: Their potential and limitations from a workplace perspective. *Contemporary Japan*, 1-21. <https://doi.org/10.1080/18692729.2021.2015846>
- Wang, Q., Abihiro, G. A., Yang, J., Li, P., & De Allegri, M. (2021). Preferences for long-term care insurance in China: results from a discrete choice experiment. *Social Science & Medicine*, 281, 114104. <https://doi.org/10.1016/j.socscimed.2021.114104>
- Wichmann, A. B., Adang, E. M. M., Vissers, K. C. P., Szczerbińska, K., Kylänen M., & Payne, S. (2018). Technical-efficiency analysis of end-of-life care in long-term care facilities within Europe: a cross-sectional study of deceased residents in 6 EU countries. *PLOS ONE*, 13(9), 1-12. <https://doi.org/10.1371/journal.pone.0208199>
- Xu, J., Guan, Y. X., Liu, W. T., Zhang, Y., Zheng, J., Zhang, J., Wang, C., Yang, F., & Yang, Q. (2023). Intervention and application of clown care in nursing homes: a scoping review. *Aging clinical and experimental research*, 35(5), 937-952. <https://doi.org/10.1007/s40520-023-02376-0>
- Yeh, S.-C., Tsay, S.-F., Wang, W. C., Lo, Y.-Y., & Shi, H.-Y. (2021). Determinants of successful nursing home accreditation. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 58. <https://doi.org/10.1177/00469580211059998>
- Zhang, Y., Zhao, X., Zhao, B., Xu, L., Chen, X., & Ruan, A. (2022). Nursing factors associated with length of stay and readmission rate of the elderly residents from nursing home based on LTC focus database. *Public Health*, 213, 19-27. <https://doi.org/10.1016/j.puhe.2022.09.011>
- Zhou-Richter, T., Browne, M. J., & Gründl, H. (2010). Don't they care? Or, are they just unaware? Risk perception and the demand for long-term care insurance. *The Journal of Risk and Insurance*, 77(4), 715-747. <https://doi.org/10.1111/j.1539-6975.2010.01362.x>
- Zinn, J. S. (1994). Market competition and the quality of nursing home care. *Journal of Health Politics, Policy and Law*, 19(3), 555-582. <https://doi.org/10.1215/03616878-19-3-555>
- Zwanziger, J., Mukamel, D. B., & Indridason, I. (2002). Use of resident-origin data to define nursing home market boundaries. *Inquiry - Blue Cross and Blue Shield Association*, 39(1), 56-66. <https://doi.org/10.5034/inquiryjml.39.1.56>
- Žuk, P., Žuk, P., & Lisiewicz-Jakubaszko, J. (2019). Labour migration of doctors and nurses and the impact on the quality of health care in Eastern European countries: the case of Poland. *The Economic and Labour Relations Review*, 30(2), 307-320. <https://doi.org/10.1177/1035304619847335>

✉ Correspondence

Josipa Višić

University of Split, Faculty of Economics, Business and Tourism

5 Cvite Fiskovića, Split 21000, Croatia

E-mail: josipa.visic@efst.hr