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Do Home Care Support Facilities Reduce Healthcare Expenditures? Evidence from Regional Data in Japan

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Abstract

This study examines whether expanding Home Care Support Facilities (HCSFs) reduces healthcare expenditures (HE) in Japan. Using cross-sectional data from 47 prefectures in 2019, we estimate multiple regressions of HE and nursing-related expenditures (NE) on HCSFs, home death rates (HDR), nursing home death rates (NHDR), the share of the population aged 75 and over, and income. Results suggest that HDR and NHDR are associated with lower HE, consistent with limited substitution away from inpatient care. However, HCSFs are positively and significantly associated with both HE and NE. These findings are consistent with a cost-increase pattern: while home care improves access and patient-centeredness, additional coordination and travel costs, together with reimbursement design, may slightly raise total spending. Policymakers should therefore avoid presuming automatic cost containment from home healthcare expansion and instead address supply-side inefficiencies and incentive structures, while carefully monitoring substitution effects on inpatient care.

***Key words*:** Home care support facilities, Healthcare expenditures, Nursing-related expenditures, Prefectural disparities

1 Introduction

From a hospitality management perspective, home healthcare can be characterized as a highly personalized, high-contact, and geographically dispersed form of service delivery in which healthcare professionals provide care within patients' living environments under severe time, mobility, and coordination constraints. Similar to other hospitality and human service operations, its performance depends not only on clinical technology but also on service design, trust formation, and the efficiency of decentralized service systems (Ponsignon et al., 2023).

Japan has faced growing concerns that its traditional hospital-centered healthcare delivery system may be insufficient to address the increasing demand for medical services and rising healthcare expenditures (HE) driven by rapid population aging. In response, the government has promoted the Community-Based Integrated Care System, which aims to provide comprehensive services—including medical care, nursing care, preventive care, housing, and daily living support—in an integrated manner. Within this framework, home healthcare has been positioned as a central component (Ministry of Health, Labour and Welfare [MHLW], 1997). Because home healthcare is generally

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considered less costly than hospitalization, it has been expected that strengthening support systems for home-based care could contribute to containing overall HE (Sun et al., 2023; Saito, 2019).

At the forefront of these developments have been Home Care Support Clinics and Home Care Support Hospitals, which play a central role in ensuring the quality of home-based medical care. The number of such facilities increased from 11,457 in 2008 to 15,753 in 2019.During the same period, the volume of home-visit care and nursing services also rose substantially. Empirical reports indicate that regions with a higher concentration of these facilities tend to exhibit a greater proportion of end-of-life care provided at home (MHLW, 2022; Japan Visiting Nursing Foundation, 2023).

However, because most home healthcare in Japan is delivered by single-physician practices, the costs associated with physicians traveling to patients' homes and coordinating with other care providers have increased. These physical and logistical burdens have resulted in low clinical efficiency and have been cited as potential contributors to rising HE (Kawagoe, 2014). In response, the government introduced relatively high reimbursement rates to compensate for the opportunity costs of providing home healthcare. However, this policy has inadvertently increased the financial burden on patients (Q Life Inc., 2016). Therefore, whether home healthcare truly contributes to cost containment remains a subject of academic debate. For instance, Ito (2018) reported that home healthcare does not lead to reductions in HE, while Saito (2019) highlighted its potential to increase costs. Conversely, other reports have documented substantial cost savings in regions that expanded home healthcare services (Japan Health Insurance Association, 2019), and studies have affirmed its economic benefits (Lee & Kim, 2016), suggesting that academic findings remain inconclusive.

Building on the above, this study aims to clarify the relationship between home healthcare, HE, and nursing-related expenditures (NE) using publicly available prefectural data. Specifically, it empirically examines whether home healthcare contributes to reducing HE, while accounting for related factors such as the proportion of the population aged 75 and over, end-of-life care at home and in nursing facilities, and regional income levels.

This study makes three contributions. First, it provides an explicit theoretical framework linking home healthcare support facilities (HCSFs) expansion to expenditure patterns. Second, it offers empirical evidence challenging the cost-containment assumption. Third, from a hospitality perspective, it demonstrates how decentralized service networks generate both accessibility and coordination costs. These findings provide valuable insights for rethinking sustainable healthcare delivery systems.

2 Method

2.1 Theoretical Framework and Hypothesis Structure

Home healthcare constitutes an important component of the hospitality industry; however, it does not operate as a standard market in which supply is determined by free entry as in the case of ordinary private goods. Instead, it exhibits the characteristics of a quasi-public service that is planned and regulated through strict entry controls based on reimbursement schedules, facility standards, and designation systems, under strong governmental discretion. Within this institutional framework, the supply of home healthcare is more appropriately regarded not as an endogenous variable that passively responds to regional healthcare expenditure levels, but rather as a structural variable that is largely determined exogenously by national policy initiatives. Accordingly, the causal ordering assumed in this study—namely, that the expansion of home healthcare provision affects the structure of healthcare expenditures—is theoretically and institutionally consistent with the design of the Japanese healthcare system.

First, the primary dependent variable, HE_i, is

assumed to be the sum of inpatient expenditures (I_i), outpatient expenditures (O_i), and home healthcare expenditures (H_i). This relationship is expressed by the following equation:

$$HE_i = E_0 + \alpha I_i + \beta O_i + \gamma H_i + \varepsilon i, \quad \alpha, \beta, \gamma > 0.$$

where E_0 is a constant representing the baseline level of HE, and εi is the error term. The parameters α, β, and γ represent the marginal effects of inpatient, outpatient, and home healthcare expenditures, respectively, on total HE.

Here, it is assumed that an increase in the demand for home healthcare directly promotes H_i, while simultaneously substituting for inpatient care (I_i) and outpatient care (O_i). Under this assumption, and by applying the chain rule, the following expression is obtained:

$$\frac{\partial HE_i}{\partial X_1} = \alpha \frac{\partial I_i}{\partial X_1} + \beta \frac{\partial O_i}{\partial X_1} - \gamma \frac{\partial H_i}{\partial X_1}$$

where X_1 denotes the total number of home health care support clinics and home healthcare support hospitals, collectively referred to as HCSFs. If substitution effects are present, then

$\partial I_i / \partial X_1 < 0$ and $\partial O_i / \partial X_1 \leq 0$.

On the other hand, if the additional costs associated with providing home healthcare are substantial, it is possible that $\partial H_i / \partial X_1 > 0$. Therefore, the sign of $\partial HE_i / \partial X_1$ remains theoretically indeterminate.

Based on the above considerations, the following hypothesis patterns can be derived:

Pattern A (Cost Containment): If the substitution effect is strong, then $\partial HE_i / \partial X_1 < 0$.

Pattern B (Cost Increase): If the additional costs associated with providing home healthcare outweigh the substitution effect, then $\partial HE_i / \partial X_1 > 0$.

Furthermore, regarding the second dependent variable, *nursing-related expenditures* (NE_i), an increase in H_i is expected to directly stimulate demand. Accordingly, it is anticipated that $\partial NE / \partial X_1 > 0$.

The potential cost-augmentation effect is theoretically attributable to various operational and coordination burdens inherent in decentralized, high-contact service provision, such as coordination requirements among multiple providers, travel and routing costs, and standby capacity for 24-hour coverage. While these components are not separately identified in the present data, the observed expenditure pattern is consistent with the presence of such aggregate operational costs. This theoretical interpretation, which links the sign indeterminacy of total expenditures to the structural characteristics of decentralized service networks, represents a central originality of this study.

In summary, this study offers originality by explicitly formulating a theoretical model and organizing the economic implications of home healthcare into two distinct hypothesis patterns—Pattern A (cost containment) and Pattern B (cost increase).

2.2 Multiple Regression Models

Building on the theoretical framework presented above, this study constructs two multiple regression models to quantitatively examine the impact of the number of HCSFs on both HE_i and NE_i.

$$HE_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + e_i$$

$$NE_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} + \alpha_5 X_{5i} + \eta_i$$

In this analysis, HE_i denotes the HE by prefecture, and NE_i represents the NE by prefecture. The subscript i refers to each prefecture in Japan. HE serves as a macro-level indicator representing total national HE, whereas NE,

as a service-specific indicator closely associated with home healthcare—such as home-visit nursing and caregiving—is more directly influenced by the provision of home healthcare. Therefore, analyzing only HE_i may obscure the effectiveness of home healthcare within broader expenditure categories such as hospital-based services. By examining both HE_i and NE_i together, this study aims to more comprehensively capture the impact of the number of HCSFs.

Furthermore, the variables X_1 through X_5 are defined as explanatory variables corresponding to the dependent variables HE_i and NE_i, respectively.

- Number of HCSFs (X_1): As noted earlier, an increase in X_1 is expected to raise the level of HE_i. However, its marginal effect on overall HE_i remains theoretically indeterminate.
- Home Death Rate (HDR, X_2) and Nursing Home Death Rate ($NHDR, X_3$): Both are expected to have negative effects on HE_i, as they indicate substitution for inpatient care. In particular, X_2 reflects the extent to which home healthcare replaces hospitalization.
- Population aged 75+ (X_4): Regions with a higher population aged 75 and over are expected to show increased demand for healthcare services, leading to a positive effect on HE_i. This demographic also drives greater demand for home healthcare.
-Income (X_5): Higher income is expected to increase demand for home healthcare, while lower income may limit its utilization due to financial burden.

Note that β_0 and α_0 denote constant terms, β_i and α_i represent regression coefficients, and e_i and η_i are error terms. The estimation was conducted using the least squares method, and the assumptions of normality, independence, and homoscedasticity of the error terms were verified through residual analysis. Given the small share of home healthcare in total expenditures, the constant term tends to be large. Standard errors are shown in parentheses; significance was tested via t-tests. Multicollinearity was assessed using VIF.

This study uses 2019 cross-sectional data by prefecture obtained from the government statistics portal e-Stat. Detailed sources for each variable are provided in the Appendix Table A1.

3 Results

3.1 Descriptive Statistics

Table 1 presents basic statistics for each variable. HE averaged 365.9 million JPY per 1000 people, with a 1.4-fold gap between the minimum and maximum. NE averaged 0.926 million JPY, showing a 1.9-fold difference. The number of HCSFs averaged 0.128 per 1000 population,

Table 1. Descriptive Statistics of Key Variables

Variables	Mean	S.D.	Min	Max
HE	3.659	0.359	3.135	4.539
NE	0.926	0.133	0.661	1.226
HCSFs	335.4	0.051	0.064	0.246
HDR	11.391	2.459	6.800	18.400
NHDR	8.911	1.903	4.600	13.100
Population aged 75+	15.340	1.801	10.600	19.400
Average income	3005.100	490.500	2336	5711

Note. HE and NE are in 100 million JPY per 1,000 population. HCSFs are per 1,000 population. Death rates are percentages of total deaths. Population aged 75+ is the share of those aged 75+ (%). Average income is in thousand JPY per capita.

Table 2. Correlation Matrix among Key Variables

	1	2	3	4	5	6	7
1. HCSFs	1						
2. HE	0.613***	1					
3. NE	0.275*	0.546***	1				
4. Home death rate	-0.116	-0.525***	-0.559***	1			
5. NHDR	0.094	-0.271*	0.174	0.257*	1		
6. Population aged 75+	0.143	0.527***	0.918***	-0.563***	0.132	1	
7. Average income	-0.095	-0.347**	-0.406***	0.595***	0.213	-0.401***	1

Note. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. HE = Healthcare expenditures (100 million JPY); NE = Nursing-related expenditures (100 million JPY). Correlations are based on prefectural-level data (N = 47).

with a fourfold regional gap. HDR (11.39%) and NHDR (8.91%) varied by more than double across prefectures. The proportion of those aged 75 and over averaged 15.34%, with a nearly 9-point difference, indicating uneven aging across regions. Income averaged 3.005 million JPY, with a 2.4-fold gap.

3.2 Correlation Analysis

Table 2 shows that HCSFs correlate positively with HE (r= 0.613) and long-term care (r= 0.275). HE also correlate positively with long-term care (r = 0.546) and Population aged 75+ (r = 0.527), but negatively with home death rate (r= –0.525), NHDR (r= –0.525), and income (r= –0.347). Average income correlates positively with HDR (r= 0.595), and negatively with HE (r= –0.347), NE (r= –0.406), and Population aged 75+ (r = –0.401), suggesting that higher-income regions tend to have more end-of-life care at home.

Overall, regions with more HCSFs tend to have higher

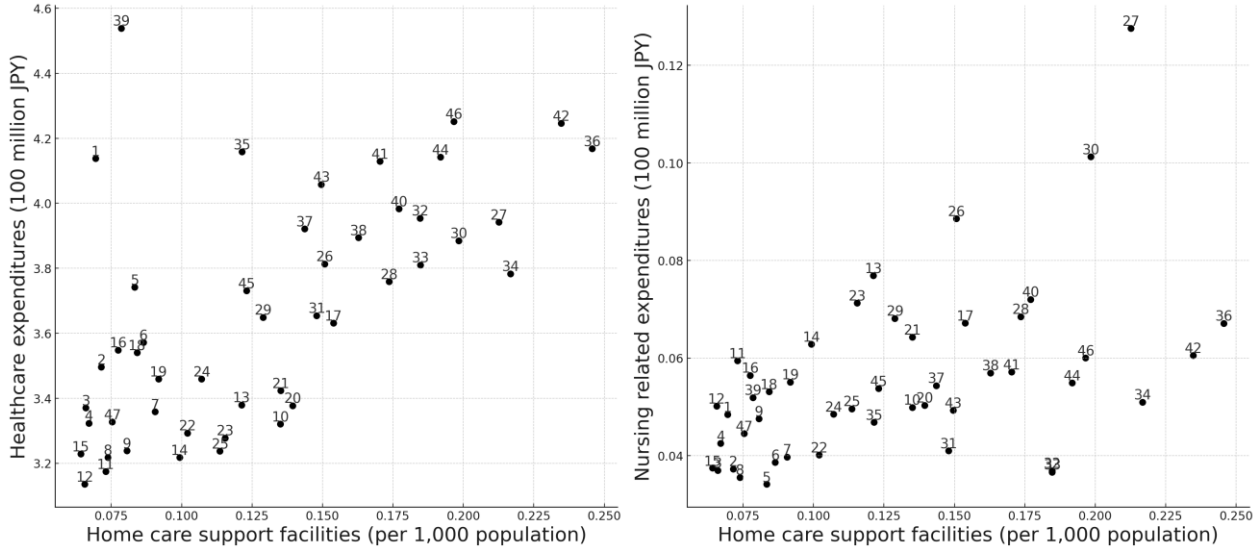

Figure 1. Relationships between HCSFs and Expenditure Indicators

Note. (a) HE vs. HCSFs per 1,000 population (b) NE vs. HCSFs per 1,000 population. Numbers (No.) indicate prefectures (N = 47).

medical and care costs, consistent with the Pattern B hypothesis: home healthcare expansion does not necessarily reduce expenditures.

3.3 Scatter Plot Results

Figure 1 (a) illustrates the relationship between HCSFs per thousand population and HE. The distribution shows a positive trend overall. Tokushima (36) prefecture stands out with a high facility density (0.246 per 1000 people), but its HE are close to the national average (365.9 million JPY). In contrast, Kochi (39) prefecture (453.9 million JPY) and Hokkaido (1) show high medical costs despite low facility numbers. Figure 1 (b) shows a similar upward trend between facility numbers and long-term care expenses, indicating that regions with more facilities tend to incur higher care costs.

These patterns suggest a proportional relationship between facility density and both HE and NE.

3.4 Multiple Regression Results

Based on the preceding findings, multiple regression analysis was conducted (Table 3), using HE and NE as dependent variables. Four models were estimated: with and without income for each outcome. In all models, VIF values were below 5, indicating no multicollinearity issues (Table 4). Income was statistically insignificant throughout.

For HE, the coefficient for HCSFs was significantly positive at the 1% level (4.019), suggesting that one additional facility per thousand population increases HE by approximately 400 million JPY. With variables measured per 1000 population, a one-unit increase in HCSFs corresponds to an increase of approximately 0.040 in HE (100 million JPY per 1,000 population; $\beta \approx 4.02$). For readability, this implies that an additional 100 facilities per million residents is associated with an increase of about 0.40 (100 million JPY) in HE, holding other variables constant. This implies that expanding home healthcare may raise rather than reduce costs.

For NE, the facility coefficient was marginally significant at the 10% level (0.359), indicating an increase of about 36 million JPY in NE per additional facility.

Death rates at patients' homes and nursing homes showed negative signs for HE, but only the latter approached significance. Neither was significant for NE.

Table 3. Results of Multiple Regression Analysis

VARIABLES	HE (1)	HE (2)	NE (1)	NE (2)
HCSFs	4.028***	4.019***	0.356*	0.359*
	(0.579)	(0.573)	(0.149)	(0.148)
HDR	-0.024	-0.020	-0.004	-0.005
	(0.017)	(0.016)	(0.004)	(0.004)
NHDR	-0.066***	-0.065***	0.054	0.005
	(0.017)	(0.017)	(0.004)	(0.004)
Population aged 75+	0.083***	0.082***	0.062***	0.062***
	(0.021)	(0.201)	(0.005)	(0.005)
Income	0.000		-0.000	
	(0.000)		(0.000)	
Constant	2.617***	2.692***	-0.041	-0.060
	(0.451)	(0.415)	(0.116)	(0.107)
Observations	47	47	47	47
Adjusted R-squared	0.701	0.706	0.855	0.858

Note. Robust standard errors in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 4. Variance Inflation Factor (VIF) Results

Variables	VIF	1/VIF
HCSFs	1.03	0.97
HDR	2.14	0.47
NHDR	1.25	0.80
Population aged 75+	1.70	0.59
Income	1.59	0.63
Mean VIF	1.54	

Note. VIF values below 5 indicate that multicollinearity is not a serious concern in the model.

The proportion of the population aged 75+ and over had a significant positive effect on both HE and NE at the 1% level, confirming aging as a major cost driver.

To further validate these results, robustness checks were conducted by decomposing HE. HDR had a significant negative effect on inpatient costs and meal/living expenses, but a positive effect on recuperation-related costs. The lack of significance in total HE may reflect offsetting effects across categories. See Appendix Table A2 for decomposition results.

4 Discussion

This study used prefectural data to examine the link between HCSFs density and HE and NE. While death rates at home and in nursing homes may help reduce HE, the number of HCSFs showed a positive effect on total costs. Notably, regions with more facilities tended to have higher medical spending, contrary to expectations. This is consistent with the Pattern B hypothesis, which suggests that expanding home healthcare may increase rather than reduce costs.

The following discussion explores this paradox from both demand and supply perspectives.

4.1 Demand-Side Factors

Despite the expansion of home healthcare, HE remain high due to several demand-side factors. First, home healthcare may not sufficiently substitute for inpatient care. Cost containment requires a reduction in hospitalization, yet long-term care expenses were positively correlated with HE (Table 2). Home healthcare accounts for just over 2% of national medical spending (approx. 2.2 JPY trillion), and bed occupancy rates remain above 80% (MHLW, 2022; Naruse, 2024), indicating limited substitution.

Although nursing HDR showed a negative association with HE, HDR remain low (13.6%) and are unlikely to rise significantly due to social factors such as nuclear families and single households (MHLW, 2019). The negative correlation between Population aged 75+ and HDR reflects these constraints. International comparisons reveal similar challenges, suggesting that home healthcare does not uniformly reduce costs.

Second, home healthcare often serves severely ill patients—around 70% require advanced equipment or expensive medications (Ministry of Land, Infrastructure, Transport and Tourism, 2024). While income was expected to influence utilization, regression results showed no significant effect (Table 3), likely due to financial support systems such as tax deductions and high-cost coverage (Nippon Foundation, 2021).

In sum, limited substitution for inpatient care and the burden of treating severe cases contribute to rising medical costs from the demand side.

This international evidence is consistent with a recent systematic review showing that the cost-effectiveness of home healthcare is highly heterogeneous and strongly dependent on institutional settings, patient severity, and coordination costs, and that no uniform cost-reducing effect can be established across countries (Curioni et al., 2023).

4.2 Supply-Side Factors

The rise in HE despite the expansion of home healthcare can be attributed to supply-side inefficiencies.

First, geographic constraints limit efficiency. In sparsely populated areas, dispersed housing makes home visits time-consuming. Even in urban settings, physical barriers such as high-rise buildings without elevators and poor road access hinder service delivery (Nippon Foundation, 2021).

Second, economies of scale are lacking. Most home healthcare providers operate solo practices, limiting operational efficiency (MHLW, 2012). Although nursing HDR showed a negative association with medical costs, this may reflect limited hospital beds in urban areas rather than cost-saving effects. In fact, each additional facility was associated with increased medical spending.

Third, the fee structure inflates costs. Home healthcare requires 24-hour availability and coordination across multiple organizations, often without hospital-grade infrastructure. This raises risks of emergency transfers and rehospitalization (Nippon Foundation, 2021; MHLW, 2012). To ensure quality, higher reimbursement rates are set for planned home healthcare, which may drive up overall costs (Saito, 2019).

Therefore, structural inefficiencies—physical, financial, and institutional—hinder the shift from inpatient to home healthcare, making cost containment difficult.

4.3 Limitations and Contributions

This study has several limitations. First, the empirical analysis is based on cross-sectional prefectural data and therefore cannot fully rule out reverse causality or unobserved regional heterogeneity. Regions with higher healthcare expenditures may also possess greater institutional capacity to establish home care support facilities, and such endogeneity cannot be conclusively eliminated within the present data structure. Future research employing panel data, instrumental variables, or policy-induced quasi-experimental variation would be valuable for more rigorous causal identification.

Nevertheless, these limitations do not undermine the central contribution of this study. The purpose of the analysis is not microeconometric causal identification in a narrow technical sense, but the development and empirical examination of a structural, policy-oriented model grounded in the institutional design of the Japanese healthcare system. Given that home healthcare supply is largely determined by reimbursement schemes, facility standards, and designation systems, it is theoretically appropriate to treat the expansion of HCSFs as a policy-driven structural variable rather than as a purely market-driven endogenous outcome.

Within this framework, the study makes three qualitative contributions. First, it explicitly formulates the structural trade-off between substitution effects (potential cost savings) and cost-increasing factors inherent in decentralized home healthcare delivery, such as coordination, travel, and waiting costs. Second, it proposes a two-pattern hypothesis (cost-reducing versus cost-increasing regimes) and provides evidence that the Japanese experience is more consistent with the latter. Third, by conceptualizing home healthcare as hospitality-oriented service provision embedded in patients' living spaces, the study contributes to hospitality management research by linking service delivery structures to cost formation mechanisms.

Thus, while further causal refinement remains an important task for future research, the present findings offer a theoretically grounded and institutionally consistent interpretation of why the expansion of home healthcare does not necessarily lead to cost containment and provide a meaningful qualitative contribution to both healthcare system design and hospitality management.

5 Conclusion

This study examined two competing hypotheses regarding the relationship between home healthcare and HE: Hypothesis A, which posits that a greater number of HCSFs leads to lower costs through efficient service delivery; and Hypothesis B, which suggests that additional costs associated with facility expansion may increase overall expenditures.

The empirical findings suggest that while higher rates of home and nursing home deaths were associated with reduced medical costs, the expansion of HCSFs tended to slightly increase expenditures. This paradoxical result is inconsistent with conventional assumptions and is consistent with Hypothesis B.

Several factors may explain why the expansion of home healthcare does not directly lead to cost containment. These include limited substitution for inpatient care, increased demand due to the complexity of cases handled, and structural constraints on the supply side—such as travel burdens and reimbursement mechanisms. Although home healthcare remains a vital option for patients, inefficiencies in system design and service delivery may inadvertently drive up costs.

Home healthcare plays a critical role in advancing integrated community care, yet it is not inherently a low-cost model. International studies have similarly reported that expanding home-based care can increase hospital stays and overall expenditures (Hedrick & Inui, 1986), and Japan faces comparable risks. Therefore, designing policies solely on the assumption of cost reduction may be misguided. Nonetheless, in the context of mounting fiscal pressures on social security systems, the optimal allocation of limited financial and human resources remains an urgent concern.

This study contributes to the literature by providing rare empirical evidence on the relationship between HCSFs density and *HE*,thereby offering a basis for reexamining the prevailing assumption of cost containment. By incorporating variables such as HDR and income levels, it also presents new insights relevant to policy evaluation.

Our evidence suggests that expanding home healthcare is not inherently cost-saving under current delivery and payment structures. Future reforms should focus on improving operational efficiency—such as team-based care models and optimized patient routing—and on designing payment incentives that reward genuine substitution from inpatient to home settings.

From the perspective of hospitality and service management, the findings of this study have important implications for the design and governance of decentralized, high-contact service systems. Home healthcare can be understood as a geographically dispersed service network whose performance depends not only on technical capability but also on service process design, human resource allocation, and coordination mechanisms, much like other hospitality and human service industries.

The results indicate that expanding such decentralized service networks does not automatically improve cost efficiency, even when access and patient-centeredness are enhanced. Without effective substitution from centralized facilities and institutional arrangements that internalize coordination and travel costs, scale expansion may instead raise total expenditures. This suggests that sustainable performance in hospitality-type service systems hinges on productivity management, capacity utilization, and network governance rather than on volume growth alone.

From a policy perspective, promoting home healthcare should therefore be viewed not merely as a cost-containment measure but as a problem of service system design. Aligning reimbursement schemes, care pathways, and organizational coordination is essential for ensuring that decentralized services function as an integrated network. These insights contribute to hospitality management research by clarifying how accessibility gains and coordination costs jointly shape the cost–quality frontier in high-touch, spatially dispersed service industries.

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Appendix Table A1. Dataset Description

Variable	Definition	Source	Year
HCSFs	Total number of home care support clinics and hospitals	MHLW, Regional Data on Home Care (Regional Bureau survey)	2019
HDR	Share of deaths occurring at home among all deaths	Vital statistics	2019
NHDR	Share of deaths occurring in nursing homes among all deaths	Vital statistics	2019
HE (100 million JPY)	Total national healthcare expenditures	MHLW, National Healthcare Expenditures	2019
NE (100 million JPY)	Expenditures for home-visit nursing and long-term care medical services	MHLW, Statistics on Long-term Care Benefit Expenditures	2019
Population (thousands)	Total population of each prefecture	MIC, Basic Resident Register Statistics	2019
Population aged75+	Total population aged 75+ in each prefecture	MIC, Basic Resident Register Statistics	2019
Share of elderly population (75+)	Share of elderly (75+) in the total population	Computed as Elderly population / Total population × 100	2019
Average income (1,000 JPY)	Average prefectural per capita income	Cabinet Office, Prefectural Accounts	2019
HCSFs per 1,000 population	Number of home care support facilities per 1,000 total population	Computed as Facilities / Population	2019
HCSFs per 1,000 elderly (75+)	Number of home care support facilities per 1,000 elderly population (75+)	Computed as Facilities / Elderly population	2019
HE per 1,000 population (100 million JPY)	Healthcare expenditures per 1,000 total population	Computed as Expenditures / Population	2019
HE per 1,000 elderly (75+) (100 million JPY)	Healthcare expenditures per 1,000 elderly population (75+)	Computed as Expenditures / Elderly population	2019
NE per 1,000 population (100 million JPY)	Nursing related expenditures per 1,000 total population	Computed as Expenditures / Population	2019

Note. *All variables were compiled at the prefectural level for 2019. Data were obtained from official government statistics through the e-Stat portal (https://www.e-stat.go.jp/).*

Appendix Table A2. Robustness Check: Healthcare Expenditure Breakdown

VARIABLES	HE	NE	Inpatient care expenditures	Inpatient meal and living expenditures	Other medical expenditures
HCSFs	4.028***	0.356**	2.278***	0.161***	0.119***
	(0.579)	(0.149)	(0.462)	(0.036)	(0.030)
HDR	-0.024	-0.004	-0.028**	-0.003***	0.030***
	(0.017)	(0.004)	(0.014)	(0.001)	(0.001)
NHDR	-0.066	0.005	-0.046***	-0.003***	-0.002**
	(0.017)	(0.004)	(0.014)	(0.001)	(0.001)
Population aged 75+	0.083***	0.062***	0.047***	0.004**	0.000
	(0.021)	(0.005)	(0.017)	(0.001)	(0.001)
Income	0.000	0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	2.617***	-0.041	1.216***	0.065**	-0.004
	(0.451)	(0.116)	(0.360)	(0.029)	(0.023)
Observations	47	47	47	47	47
Adjusted R-squared	0.701	0.855	0.635	0.659	0.401

Note. Robust standard errors in parentheses. *$p < 0.1$, **$p < 0.05$, *$p < 0.01$. All expenditures are per 1,000 population (100 million JPY); inpatient care, meals/living, and other medical are subcomponents of healthcare expenditures.