

Do higher accommodation prices reflect better care quality in residential aged care facilities?

Anne Penneau^{1,2}
Zeynep Or¹

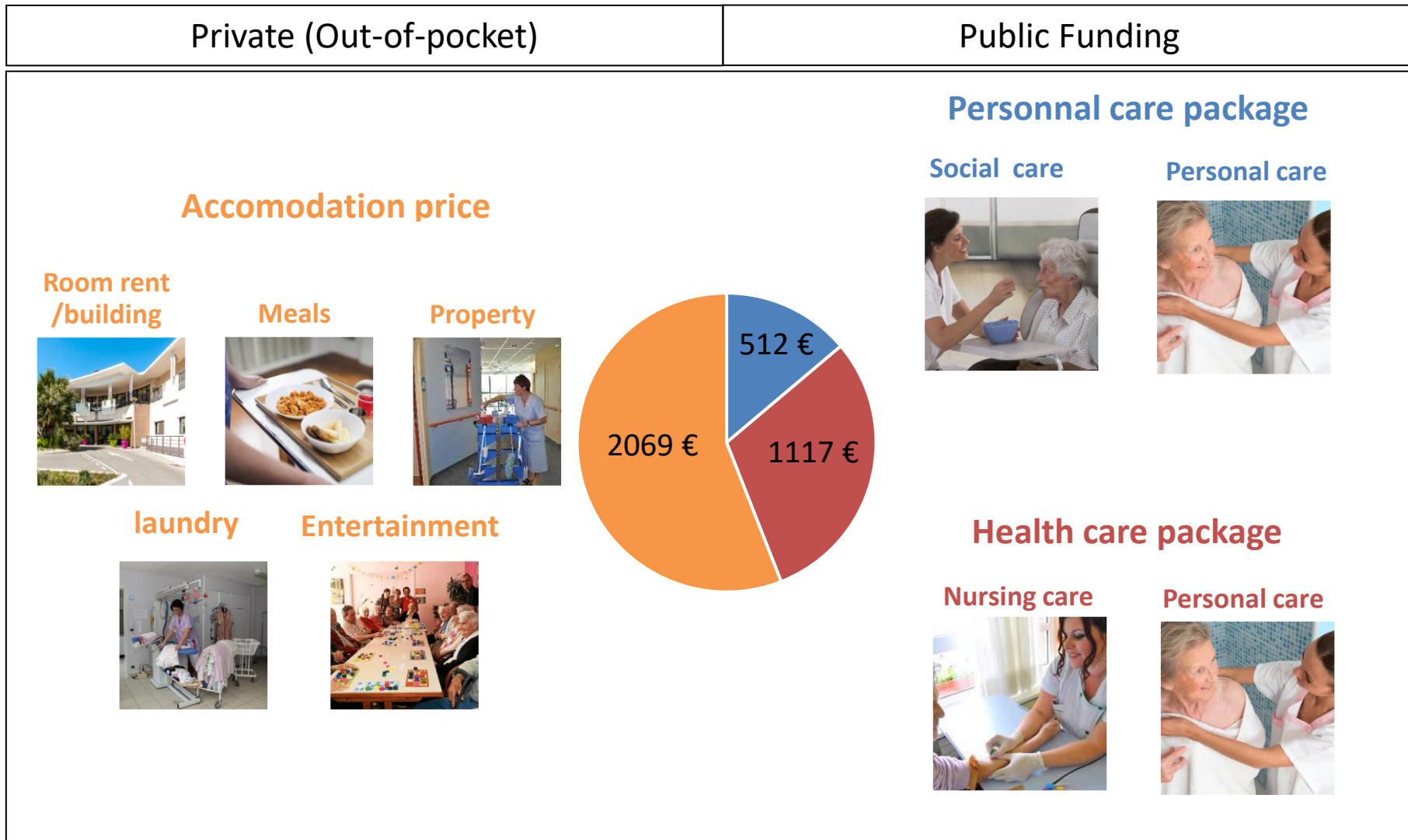
1) Institut for Research and information in Health Economics (IRDES), Paris

2) University Paris Dauphine, PSL

Context

- **700 000 older adults live in residential aged care facilities (RACF) in France**
 - One tenth of people aged 70 and over
 - One third of people aged 90 and over
- **Care (medical and social care) in these facilities is funded by public funds**
 - for all facilities (for profit or not)
- **Residents need to pay the cost of accommodation by out-of-pocket**
 - On average 2,000 euros per month while the average French retirement pension of about 1,500 euros per month
 - The prices vary significantly depending on the facility (1 to 6 ratio)
- **Yet very little is known about what these large price variations reflect and how they relate to the quality of care in these facilities**

Facility funding (in euros per month and resident)



Price variation

- **Personal and health care packages are regulated through national formulas**
 - based on residents' health and dependency status
- **Accommodation prices are either negotiated with local authorities (LA) or set freely by facilities.**
 - The poorest residents receive financial assistance from the LA to pay their accommodation cost (20% of residents)
 - LA negotiate with each facility a price for places for “social assistance”
 - All facilities can have both private and social assistance places.
- **¾ of facilities have all their places at social assistance price**
 - All public facilities and 77% private not for profit facilities
 - Named public price facilities in this study
- **¼ of facilities set freely most of their prices but often have some social places**
 - Private for-profit facilities (and 23% of private not-for-profit facilities)
 - Named private not for profit and for-profit facilities in this study

Research question

Do higher accommodation prices reflect better care quality in residential aged care facilities?

Hypothesis :

- In principle, the accommodation price should not be used to finance nursing and personal care
- But residents and their family chose the facility based on their perceived quality and the accommodation price
- In a competitive market where the facility is free to set (or negotiate with local authorities) its accommodation price, facilities may wish to differentiate themselves and increase their market power and prices by providing an additional quality of care.

Product differentiation theory (Chamberlin, 1933)

Empirical litterature

■ Most empirical studies come from the United States

- Tested empirically Scanlon's Theory of excess demand paradigm :
An increase in the Medicaid reimbursement rate (public price) would result in a quality reduction in excess demand context
- Results show evidence of Scanlons theory :
 - A higher reimbursement rate is associated with a lower quality when excess demand was high in US in 1970s and 1980s (Nyman, 1985; Gertler, 1989; Gertler,1992)
 - After the 1990s a positive relationship is observed with the decrease of excess demand in US (Grabowski, 2001; Grabowski, 2004; Grabowski et al, 2004; Grabowski et Angelelli, 2004; Reichert et stroka, 2018).

■ In Europe :

- German and Swiss studies shows that quality and prices correlate positively (Herr & Hottenrott, 2016; Heger & al, 2022)
- In contrast, a recent Flemish study finds a negative and small effect of price on quality of life (Raes et al., 2020).

Data

- **We matched several administrative and survey data :**
 - An individual level data from residential care facilities (Resid-Ehpad administrative database)
 - Healthcare consumption data from the National Health Data System (SNDS) from 2014 to 2019.
 - A survey of RACFs (“Enquête auprès des établissements d’hébergement pour personnes âgées”, EHPA) from 2015
 - Accommodation price comes from the 2019 National Solidarity Fund for Autonomy (CNSA) database

- **Analysis focuses on facilities present over the entire 2014-2019 period :**
 - 3259 RACFs that care 708,008 residents between 2014 and 2019.
 - We lose nearly 40% of the facilities after matching the Resid-Ehpad data to the EHPA survey, but our sample is representative of the facilities in France.

Estimation strategy

- Establish the relationship between accommodation price (P_i) and the three indexes of care quality (Staffing (SQ_i); Process (PQ_i); Outcomes (OQ_i)) from the following linear regression :

$$P_i = \alpha + \beta_1 SQ_i + \beta_2 PQ_i + \beta_3 OQ_i + \beta_4 AQ_i + \beta_5 F_i + \beta_6 IP_i + \beta_7 C_i + \beta_8 Com_i + \beta_9 O_i + \varepsilon_i$$

- **Controlling for :**
 - The accommodation quality (AQ_i) :
 - Entertainment level and building quality
 - Public funding received (F_i)
 - Input prices (IP_i) :
 - The price per square meter in the municipality of the facility
 - Size and Case-mix of facilities (C_i) :
 - Market competition in the local area of the facility (Com_i) :
 - RACFs supply and the for-profit facility proportion in the local authority
 - Ownership type :
 - Public price facilities, private price not for-profit facilities and for-profit facilities

Care quality measurement

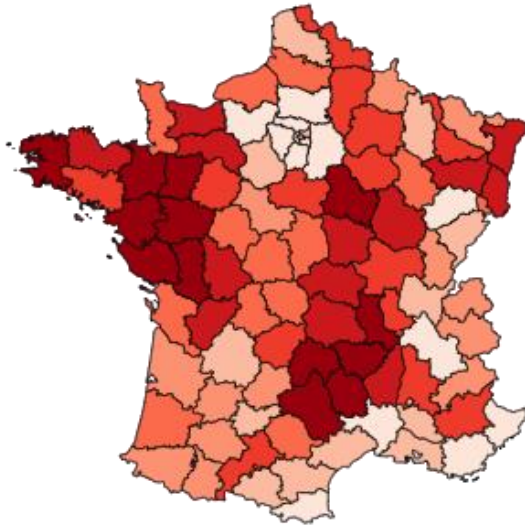
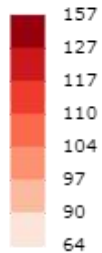
- **Three dimensions following Donabedian (1988):**
 - human resource structure (staffing ratio), process, and outcome.
- **For each of these dimensions :**
 - I calculated a pool of indicators
 - used a multiple correspondence analysis (MCA) to compute an index (the first factorial axis of the MCAs)

Staffing quality index	Process quality index	Outcome quality index
Caregivers and nurses' ratio per 100 residents (during the day, at night, and during the weekend); Reported recruitment difficulties; Annual turnover of caregivers and nursing staff (in %)	Collaboration between the facility and primary care and hospital providers: teleconsultation and intervention by mobile hospital teams	Hospitalizations of residents: acute care admissions, 30-day rehospitalization rate, potentially avoidable acute care hospitalizations, emergency admissions to acute care hospital

Market competition accross local authorities

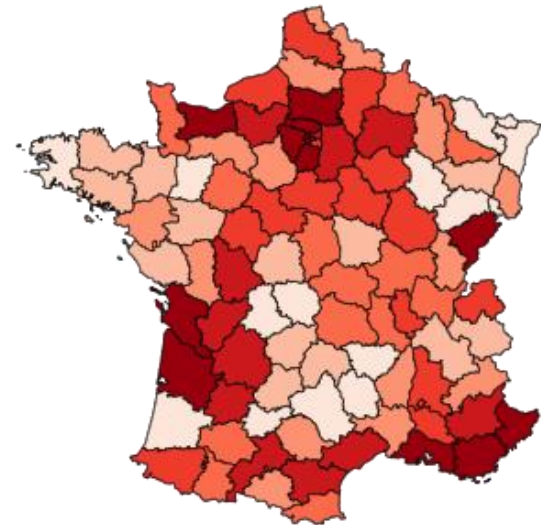
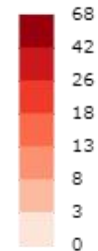
RACF supply

No. of beds within one hour drive per 100 prospective residents*



Proportion of for-profit RACFs

Share of for-profit facilities in the territory (in %)



* The number of prospective residents is estimated by the Ministry of Health using the age-specific facility utilization rate at the national level. This is applied to the population structure of each municipality (Carrère et al. 2021).

Determinants of accommodation Prices (1/3)

	Accommodation price			
	Public prices Facilities	Private Not-for profit	Private for profit	All Facilities
Staffing quality index	69.9*** (20.8)	103.4 (77.1)	206.5** (83.0)	102.2*** (22.7)
Process quality index	58.3*** (18.1)	99.2 (67.2)	139.7* (73.7)	84.9*** (19.5)
Outcome quality index	-31.9** (14.0)	-131.3*** (46.4)	15.2 (59.1)	-42.4*** (14.9)
Control variables	yes	yes	yes	yes
R-square	0.277	0.381	0.531	0.631
Sum of partial R-square (care quality indexes)	0.011	0.031	0.018	0.015

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Determinants of accommodation Prices (2/2)

- **Ownership types (38% of the price variation) :**
 - All else being equal : accommodation prices are 671 euros/month higher in for-profit facilities than in facilities with public prices
- **Real estate price per M² in the facility municipality (20% of the price variation)**
 - All else being equal, 1000 euros more per square meter is associated with a higher price of 116 euros per month
- **Building quality and entertainment staff ratio (1,8% of the price variation)**
 - No significant impact of entertainment staff ratio
 - A higher price in facilities with rooms with wheelchair accessible showers and higher living space per resident
- **Market competition (0,72% of the price variation)**

	Accommodation price			
	Public prices Facilities	Private prices Not-for profit	Private prices for profit	All Facilities
No. of beds within one hour drive per 100 prospective residents	-1.72***	0.37	-2.68**	-1.52***
Share of for-profit facilities in the territory (in %)	1.1***	4.1***	-4.6***	0.4

Instrumentation results

- **The instrument:**

- A proxy of GP expertise/quality for care in RACFs
- Average number of RACFs patients per GP which intervene in the facility
- I assume that a higher number of patients residing in RACF would increase the ability of GPs to provide better care organisation and reduce hospital admission of residents

- **Fist stage analysis results :**

	Outcome care quality index			
	Facilities with negotiated public prices	Facilities with private prices		All facilities
		Not-for-profit	For-profit	
Average number of RACFs patients per GP which intervene in the facility (per year)	0.002*** (0.001)	0.004* (0.002)	0.003* (0.001)	0.002*** (0.001)
N	2448	329	482	3259
F-test (Cragg-donald wald F statistic)	13.86	4.22	3.80	22.50
Control variables (other care quality indexes, Indicators of accommodation quality, and facility characteristics)	yes	yes	yes	yes
Control for ownership type	No	No	No	yes

Results with instrumental variable

	Accommodation price			
	Facilities with negotiated public prices	Facilities with private prices		All Facilities
		Not-for profit	For profit	
Staffing quality index	106.3*** (33.8)	16.3 (113.1)	230.3** (94.2)	158.7*** (44.4)
Process quality index	-14.0 (60.3)	180.9 (102.1)	137.2* (73.8)	-0.255 (58.7)
Outcome quality index	-287.7 (202.9)	322.9 (424.2)	-240.8 (679.1)	-304.1 (225.7)
Control variables	yes	yes	yes	yes
R-square	0.276	0.376	0.532	0.631

Discussion

- **I tested the hypothesis that facilities would like to differentiate themselves in the market by offering additional care quality**
 - It appears that quality differentiation is weak in French residential care market
 - The link between price and quality varies by the quality dimension considered :
 - Easily observable dimensions of quality by the residents and their families (staffing care volume and building quality) are more strongly linked to prices
 - While there is no link or even a negative link between care outcomes index and accommodation price
 - The market competition reduces the prices (consistent with the literature)
 - There are significant disparities in LTC market characteristics across local authorities in France which may impact prices and quality

Discussion

- **The higher prices in Private-for-profit facilities (of 670 euros on average per month) correspond to their profit margin**
 - the lack of price regulation may be questioned since the care quality is not seems higher in these facilities as show in literature
- **In public facilities, a small part of the variations in prices is explained by observable factors compared to for-profit facilities**
 - Indicates the need for more transparency in price setting in public and non-profit facilities negotiating their prices with local authorities
- **Results call for :**
 - more research for understanding the variations in LTC policy regulations and price setting practices across local authorities
 - improving the public information on LTC quality
 - Integrating quality objectives in the funding