



# Distribution costs in home-care production: what are the effects of local regulations on productive efficiency and spatial equity?

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# Distribution costs in home-care production: what are the effects of local regulations on productive efficiency and spatial equity?

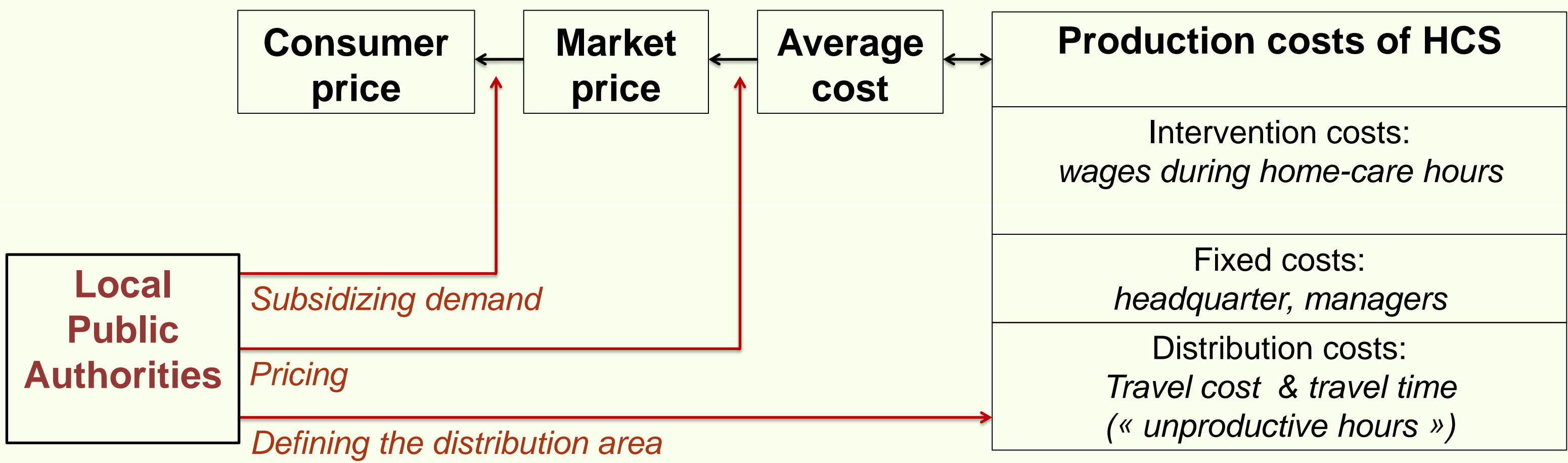
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## Introduction

In France, public policies encourage home care for the elderly.  
→ Development of a specific sector : home-care structures (HCS).

Particularities of HCS:

- ❑ Going at the customer's home: implies **distribution costs**
- ❑ Regulation of HCS by local districts:
  - 1) **Pricing**: they price the regulated HCS according to their average production cost
  - 2) **Distribution area**: they define the area that HCS will serve within the district
- ❑ Demand is subsidized by the APA policy of the basis on the market price



→ Distribution area affects production costs, market price and consumer price

## Key words

Supply of home-care services  
Disabled elderly (in the community)  
Decentralization of public action

## Literature

- ❑ French public reports: mostly from interviews with HCS managers, show that production costs are affected by the geographical location of customers.
- ❑ Academic analysis of pricing process and APA policy but few elements on production costs in HCS
- ❑ Up to now, as far as I know, no empirical work on the effect of spatial location of costumers on production costs for this kind of structures
- ❑ Theoretical contributions on spatial equity and cost sharing in networks and distribution services (Fleurbaey & Trannoy, 1998; Crampes & Laffont, 2014)

## Figures on distribution costs

**Travel cost**: from **1,03%** (HCS serving only urban areas) to **5,20 %** of total production costs (HCS serving in all the district)

**Travel time**: **5%** of paid work (cost analysis of five HCS).

Source : Aube-Martin et al., 2010.

## Research questions

In home-care production, how do production costs vary with the geographical location of users?  
What are the effects of local public regulation in terms of productive efficiency and spatial equity?

## Theoretical framework

Hypothesis 1: average distribution costs to serve a given area increase if :  
- Accessibility costs are high (time and/or distance) ;  
- Density of users is low in the area.

We can thus differentiate between several types of areas.

	Easily accessible	Hardly accessible
Highly populated	Area 1 (ex : urban area)	Area 3 (ex: rural towns)
Sparsely populated	Area 2 (ex : suburbs)	Area 4 (ex : moutains)

→ Different types of users : “non-costly users”, “middle-cost users” and “costly users”.

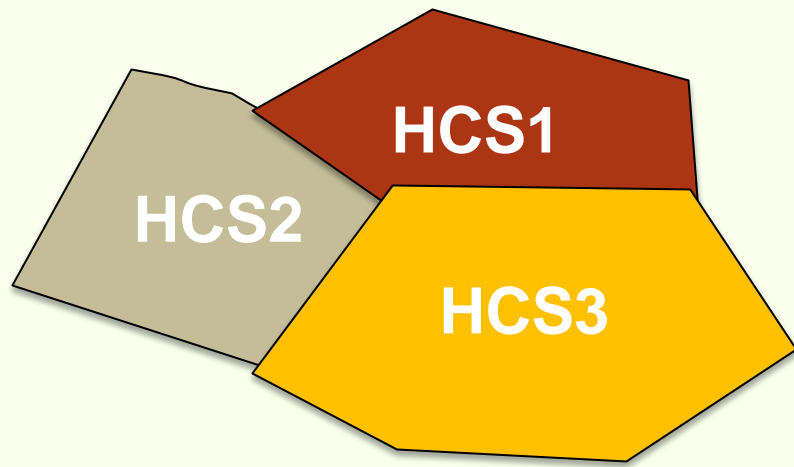
Effect of **pricing** at the average production costs:

- transfers among users: distributive issue?
- higher price for HCS serving costly areas than HCS serving only non-costly areas: equity issue?

Effect of the **definition of distribution areas** :

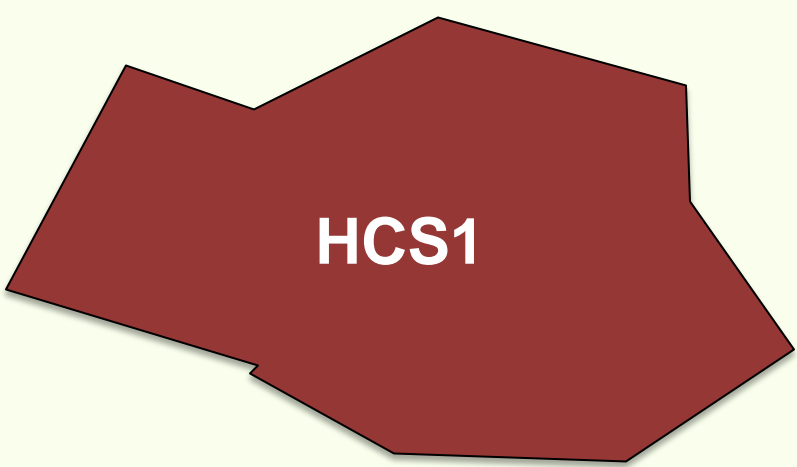
We consider a local district authority having the choice between two policy options in terms of distribution areas of HCS. These two options have different implications for productive efficiency and spatial equity.

**Option 1 :**  
**District divided between HCS**



- ❑ Minimises the distribution costs
- ❑ But increases the variance of prices within the district, with higher prices in costly areas

**Option 2 :**  
**One HCS in the district**



- ❑ Increases the distribution costs
- ❑ But guarantees an spatial equalization through transfers between costly and non costly customers

## Empirical preliminary work

Aim: testing the statistical link between the size of the distribution area (city, district, region) and the average production cost.

Data: sample of HCS from the national survey *Associations* (INSEE, 2013)

Method: econometric analysis, controlling for HCS characteristics (years of service, diversification of activities, human resources, affiliation to networks...)

## Empirical contribution

Aim: testing H1 by measuring the impact of distribution cost on the average production cost in subdivisions of distribution area and concluding on the effect of local public regulation.

Data: from a federation of HCS with a large distribution area in a French district. Approximately 15 000 users living in all the district.

- ❑ Data on users: socio-demographic characteristics, disability level, location, consumption of home care
- ❑ Data on employees: wage rate, location, organization of the round
- ❑ Data on home-care interventions: hours, user, employee

Method:

Computation of the average production cost (analytically, cf pricing process):

- ❑ At the whole distribution area level: **overall average production cost** (1)
- ❑ In subdivisions of the distribution area: **local average production cost** (2)

- Comparison of (1) or (2) to market price and consumer price
- Comparison of (1) to (2) in order to characterize transfers between users
- Simulation of several options of pricing and geographical division on the basis of the previous results.

## Potential extensions

- ❑ Robustness check: reproducing the analysis on the data of HCS in another French district to compare the results with two different local regulations
- ❑ Using these results for nursing-home services (differently regulated)

## Scientific collaboration

This work is part of the **DITAPA** project studying the link between decentralization of public action and the spatial inequalities in home-care services for the elderly. This project is financed by the **DREES** (call for projects 2015 on local social policies.)

It is also part of a collective work with the **MODAPA Project (ANR / IRESP)**. The MODAPA project brings together economists specialized in the field of long-term care to study demand for home care of the disabled elderly.  
[www.modapa.cnrs.fr](http://www.modapa.cnrs.fr)

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