

Being *dependent* rather than *disabled* in France:  
does the institutional barrier at age 60 affect care  
arrangements ?

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## Disability-compensating schemes

- For some individuals: **impossibility to perform activities of daily living**
  - Eating, bathing, using a phone, doing one's shopping, etc.
- Two kinds of **costs associated with impairments**
  - 1 Revenue costs
  - 2 Extra expenditure costs
- In developed countries, **public policies** implemented to:
  - 1 Provide individuals with a replacement income
  - 2 Enable them to **get assistance in the activities of daily living** (→ LTC)
    - Subsidies on home care services or nursing home fees, support to informal caregivers

## France: Disabled adults vs dependent elderly

- In France, **two different regimes** of public intervention compensating for extra-expenditures costs

- 1 **Disability**: adults less than 60
- 2 **Dependence**: the “elderly” (60 or more)

→ In terms of home car benefits, eligibility rules and benefits vary with age [▶ Benefits](#)

Table 1: Disability and dependence HC benefits in 2008

	Total spending	Nb recipients	Average benefit per month
Disability transfers	1.0 B€	148,000	571€
Dependence transfers	3.3 B€	722,000	383€

- An **equity** concern?
  - Anecdotal evidence
  - But hard to assess in a systematic way

## Research question

- ⇒ RQ: **How does the “barrier at age 60” affect individuals with impairments living in the community?**
- Two underlying questions we focus on:
    - 1 Does the coverage of the population by home care benefits differ on both sides of the institutional discontinuity?
    - 2 **Does it make a difference to be aged 60+ rather than 60- in terms of the home care you actually receive?**
  - Provision of care for individuals living **in the community**
    - Care provided by professional workers → **formal care** (FC)
    - Care provided by relatives or friends → **informal care** (IC)

## Empirical approach

- **Objective:** we want to **compare** coverage rates by schemes and home care utilization of **two individuals “similar” in all respects but their age**
  - Individuals below age 60 and individuals beyond age 60 differ in terms of sociodemographic characteristics
    - ⇒ Need to **control for differences in individual characteristics** other than the institutional difference
- **Tool: econometric analysis**
  - Multiple regressions
  - Regression Discontinuity Design (RDD) at age 60
  - Simultaneous equations setting to account for the **joint determination of IC and FC utilization**

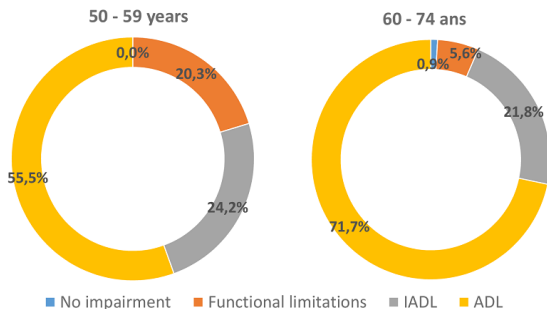
## Data

- French **Disability and Health Survey** on Households (HSM), 2008
  - Individuals living in the community
  - Rich information on disabilities (ADL, IADL and functional limitations), health, socio-demographic characteristics and family composition
  - FC and IC utilization and caregivers' characteristics
- **Selected individuals:**
  - Age around the institutional threshold: 50-74 years-old

## Coverage by home care schemes

- 20% HC beneficiaries aged 60- have no ADL/IADL restrictions, against only 7% of 60+ beneficiaries

Figure 1: Impairments of HC scheme beneficiaries



- Individuals 60+ are more likely to benefit from HC benefits
  - Odd-ratio  $> 1$
  - Controlling for disability level, individual characteristics and family structure

## From HC benefits to informal and formal care utilization

- ⚠ Information on benefits received is poor
  - No information on *amount* received

→ Focus on **FC and IC utilization rates** as indicators of the extent of disability compensation at the individual level

- **Informal care**

- Individual must receive the help of at least one relative or friend
- Must be assistance with ADL/IADL

- **Formal care**

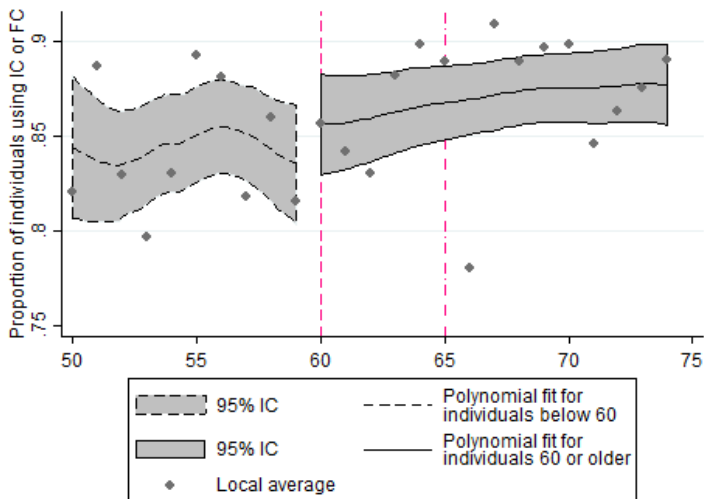
- Individual must receive at home the services of at least one professional caregiver
- Must not be exclusively made of “intensive cure” services

⚠ Only binary measures (receive/does not receive)



## Graphical evidence (1): HC utilization

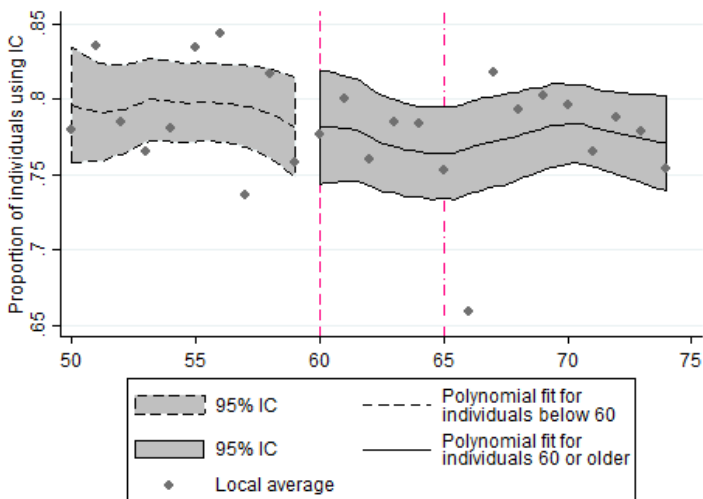
Figure 2: Home care utilization rate around age 60



Sample: Individuals with ADL or IADL restrictions (N=3,185)

## Graphical evidence (2): IC utilization

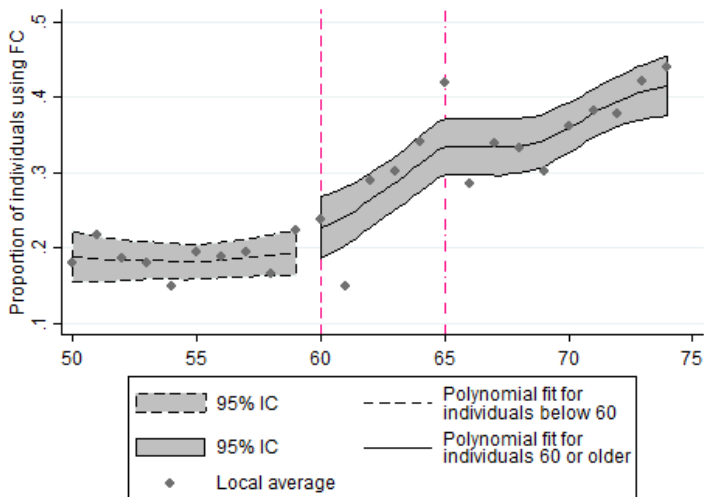
Figure 3: Informal care utilization rate around age 60



Sample: Individuals with ADL or IADL restrictions (N=3,185)

## Graphical evidence (3): FC utilization

Figure 4: Formal home care utilization rate around age 60



Sample: Individuals with ADL or IADL restrictions (N=3,185)

Table 2: Informal care and formal care utilization

	<i>Average partial effect of being 60 or more (Probit estimation)</i>		
<i>Outcome</i>	(1)	(2)	(3)
$P(IC = 1)$	-0.031** (0.013)	-0.038** (0.016)	-0.043** (0.018)
$P(FC = 1)$	0.066*** (0.016)	0.092*** (0.018)	0.103*** (0.019)
$P(IC = 1, FC = 1)$	0.040*** (0.012)	0.058*** (0.013)	0.065*** (0.014)
$\rho$	-0.409***	-0.408***	-0.409***
Age effects	None	None	None
Relatives' residence	Yes	Yes	Yes
Other controls	Yes	Yes	Yes
Ages excluded	None	60-61	60-64
$N$	3185	2926	2645

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

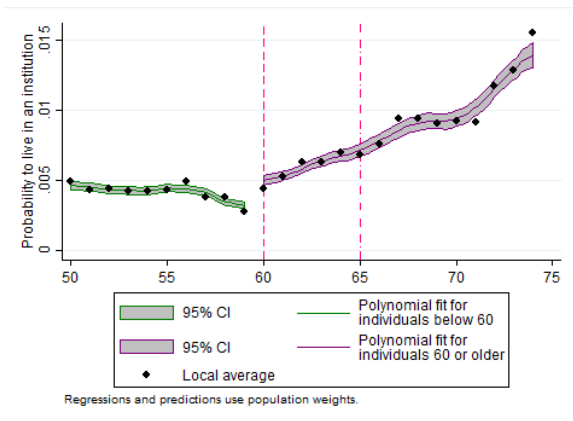
→ Substantial increase in FC utilization / smaller decrease in IC use

## Summary of results

Institutional thresholds of ages 60 and 65 in public schemes induce individuals falling into the perimeter of dependence policies to:

- Be more likely to **receive HC benefits**
- Use more often **formal home care**: 6 to 10 pct pt increase
- Receive less often **informal care**: 2-4 pct pt decrease
  - Effect proportionally lower
- Effect on **joint utilization**: positive, but less robust
  - Consistent with the **small crowding-out effect** of IC by FC found in the literature for individuals living in the community
- Results valid **conditional on living in the community**

Figure 5: Probability to live in an institution around age 60



Source: HSM-HSI matched sample, 2008-2009

- Living in an institution: also affected by the age 60 threshold
  - Institutional differences between disability and dependence schemes also exist in institutional care benefits

## Conclusions

- Overall, **the institutional age barriers affect the way impairments are being compensated on a daily basis**
  - Contribution to the literature on the impact of institutional differences in public schemes
- Also suggesting that **FC consumption is price-sensitive**
  - In line with seminal and more recent studies on the US and Europe
- Two main **implications**
  - 1 An **equity issue**: why would individuals below and above 60 have their impairments compensated differently?
  - 2 An **efficiency issue**: individuals react to the consumer-price of care → are hourly subsidies the best tool for expenditure-compensation policies?

## Policy perspectives

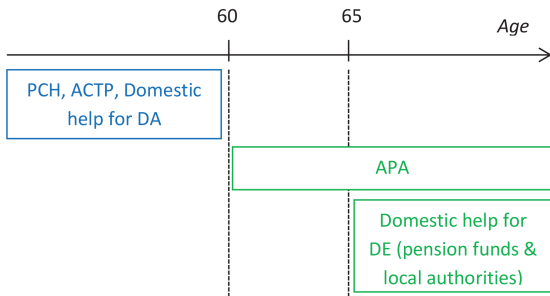
- 2005 law in France: disability-compensating schemes are meant to be *consequentialist*
  - Age is not a legitimate criteria for access to benefits
- 2016: LTC policies are still dual
  - 2011 national debate on LTC: dead-end for project of unification of schemes
  - Argument being rolled over: budgetary constraints



Thanks for your attention!

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Figure 6: Disability and dependence schemes in France



DA = Disabled Adults; DE = Dependent Elderly

- Most benefits work as a **hourly subsidy** on the price of human care
- **Multiple differences** in impairments definition used, in eligibility rules, in amounts allocated, in activities that can be subsidized

## Care utilization: a family decision model

- FC and IC as 2 factors of production of  $W$ , the well-being of an individual with impairments  $D$

$$W = W(IC, FC; D)$$

- Family decision model: 2 decision-makers, the individual and her relative(s)
  - FC and IC utilization as the product of a **non-cooperative game** (Pezzin and Schone, 1999)
- Individual's and relatives' utility maximization:
  - Individual decides upon FC utilization given her time and budget constraints and taking IC provision as given
  - Altruistic relatives decide upon IC utilization given their time and budget constraints, taking FC use as given

## Care utilization as simultaneous decisions

- Home care subsidies,  $DS$ , enter budget constraints
- **Reaction functions:**

$$FC = g^F(IC, X_F, DS; D)$$

$$IC = g^I(FC, X_I, DS; D)$$

- Cournot-Nash equilibrium (structural form):

$$\begin{cases} FC^* = g^F(IC^*, X_F, DS; D) \\ IC^* = g^I(FC^*, X_I, DS; D) \end{cases}$$

- **Reduced-form:**

$$\begin{cases} FC^* = g^F(X_F, X_I, DS; D) \\ IC^* = g^I(X_F, X_I, DS; D) \end{cases}$$

Table 3: Socio-demographic characteristics

	Below 60	60 or more	Difference
Woman	61.1%	66.0%	4.9***
Average age	54.9	67.7	12.8***
<i>Self-declared health status</i>			
Bad	62.1%	62.8%	0.7
Average	27.5%	28.5%	1.0
Good	10.4%	8.6%	-1.8*
<i>Physical and cognitive impairments</i>			
Average nb of ADL	0.9	1.2	0.2***
Average nb of non-cognitive IADL	2.2	2.8	0.6***
Average nb of cognitive ADL	0.6	0.9	0.2***
<i>Education level</i>			
No degree	36.1%	44.2%	8.1***
Primary education degree	24.9%	30.3%	5.4***
Secondary education degree	31.9%	19.5%	-12.3***
College or university degree	7.2%	6.0%	-1.1
<i>Monthly household income (per c.u.)</i>			
1st quartile	28.0%	22.8%	-5.1***
2nd quartile	22.2%	27.3%	5.1***
3rd quartile	24.1%	25.7%	1.6
4th quartile	25.8%	24.2%	-1.5
<i>Work status</i>			
Is employed	18.8%	2.0%	-16.9***
Is retired	5.9%	83.5%	77.7***
<i>Area of residence</i>			
Lives in a rural area	20.5 %	21.3%	0.8
Lives in a small urban area	16.9%	15.4%	-1.4
Lives in a medium urban area	15.3%	16.3%	-1.0
Lives in a large urban area	35.3%	35.1%	-0.2
Lives in Paris	12.0%	11.9%	-0.2
<i>N</i>	1,398	1,787	-

Table 4: Family characteristics

	Below 60	60 or more	Difference
<i>Children</i>			
Having at least a child alive	82.5 %	85.4%	2.8**
Number of children	2.2	2.6	0.4***
Proportion of girls	0.4	0.4	0.0
<i>Residence of closest child</i>			
No child	17.5%	14.6%	-2.8**
Abroad	1.0%	1.0%	0.0
In France but not in the same city	31.8%	37.4%	5.5***
In the same city	13.5%	28.9%	15.4***
Co-residing	36.2%	18.1%	-18.1***
<i>Siblings</i>			
At least one sister or brother alive	90.8%	80.4%	-10.4***
One sister or more alive	75.9%	65.2%	-10.7**
Number of siblings	3.6	2.5	-1.1**
Average age of siblings	54.3	65.9	11.6**
<i>Parents</i>			
Mother or father still alive	52.7%	14.5%	-38.2**
Co-resides with parents	4.9%	1.4%	-3.4**
<i>Partner</i>			
Has a partner alive	61.6%	59.8%	-1.8
Has a partner aged 75 or more	0.4%	10.5%	10.0**
Has a co-residing partner	60.7%	59.1	-1.6
<i>N</i>	1,398	1,787	-

## Robustness checks

- Are **the eldest individuals in the sample driving the results?**
  - Results remain similar when excluding them
- Endogeneity of **geographical distance of relatives**
  - Reasons to worry: theoretical + Hoerger et al. (1996)
  - Bolin et al. (2008), Stern (1995), Charles and Sevak (2005): a limited bias
  - Our results remain similar when excluding these variables
- **Heterogeneity of effects** [ Not done yet ]
  - Do effects vary with income? Impairments severity?
  - Isolate “aging disabled” from “elderly dependent”

## Potential limits

- **Identification assumptions:**

- ① No cohort effects
- ② No other source of discontinuity at age 60

→ **retirement as a confounding factor?**

- Retirement spike at age 60 in France
- Evidence on subsequent change in home production (Stancanelli and Van Soest, 2012): not against our results (?)
- Retirement dummy: never significant in our estimations

- **Differential sample selection** before and after 60?

- HSM: individuals living in the community only
- Difference in home care subsidies  $\Rightarrow$  difference in probability to reside in an institution?
  - Yes in the US: Ettner (1994), Pezzin et al. (1996)
  - Yes in France ▶ Probability to live in an institution