Is there a trade-off between group complementary health insurance and wages ?

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A large issue

- Compensation is composed of wages and also of non wages benefits like health insurance
- Group complementary health insurance (GCHI) concerns the complementary health insurance market …
  - Inequalities of access to complementay health insurance
  - A different value of GCHI by employees→ heterogeneity of the health insurance's demand
- … as well as the labor market
  - Equilibrium on labor market: Quantity of labor on the labor market, wages
  - Mobility
  - Retirement
- Our presentation only focus on the effect of Group complementary health insurance on wages.

Outlines

I. Background, theoretical framework
- Group complementary health insurance in France
- Why to propose a group complementary health insurance
- Why to value a group complementary health insurance

II. US literature, Issues
- Empirical results in US.
- Assumptions analyzed in our research

III. Data

IV. Correlation between wages and group health insurance

V. Modeling wages according to the « costs » of complementary health insurance

I. Group complementary health insurance in France

- A large part of public health insurance
  - « only » 25% of health expenditures are left by public health insurance
  - However: complementary health insurance is very important in terms of access to health care
- Group complementary health insurance
  - Complementary health insurance covers about 90% of the French population
  - 49% of employees are covered by their employer (ESPS 2006)
- Institutional rules governing group health insurance
  - Exemption of welfare charges and taxes
  - Evin law 2003 → exemption only when employer offer a mandatory group contract

I. Why to propose a group health insurance?

- To reduce turn-over, to attract some categories of employees, to improve the access to health care ⇒ less absenteeism, better productivity, etc.

- Maximization of the profit: quantity of labor is assumed to be fixed

Y	the overall production of the firm
W_{av}	the wage offered to the employees when group insurance is not offered
C_t	the overall cost of the group health insurance contract
$1+\tau$	the financial charges on wages that employers must pay
π	employers profit

Employer offer a GCHI if $\pi_{cs1}^{subs\ totale} - \pi_{cs0} > 0 \quad \leftrightarrow \quad Y - [(W_{av} - C_t)(1+\tau)]L - C_tL > Y - (1+\tau)W_{av}L$

$$\leftrightarrow \quad 1 + \tau > 1$$

Employers find interest by offering Heath insurance as long as charges on wages are higher than charges on health insurance

I. Employer provided health insurance: the valuation of group health insurance

- Valuation of group health insurance
  - lower cost than individual contracts: exemption of welfare charges and taxes, economies of scale
  - Opportunity to have higher levels of coverage than on the individual market
  - But… compulsory : do not necessary matches with employee complementary health insurance demand (need of insurance, preference for wage, etc)
  - If substitution is confirmed : some employees would prefer to have higher wages, lost of rights for retirement.

α C the monetary value that individuals grant to GCHI
u_0 utility of the employee without GCHI
u_1 utility of the employee with GCHI

The employee stays in the firm if : $u_1 = u(W_{CCE1} + \alpha C) \geq u_0 = u(W_{CCE0})$

Employees do not switch of firm as long as their utility with group health insurance is higher than their utility without group health insurance

II. US researches

- Group health insurance in the USA:
  - Similarities between legislations in the US (GHI) and in France (GCHI)

    exemption from welfare charges and taxes

    portability of group health insurance contract at retirement

    an important place of group health insurance contract in private health insurance
  - Research works on substitution since the early 80's
- A cost that appears to be shared with employees
  - Evidences of a substitution

    Woodbury (1983); Olson (1994) ; Miller (1995) ; Gruber (1994) → Increase of the cost of health insurance due to higher coverage of pregnancy and childbirth fell on the wage of married women
  - Share of health insurance cost that is substituted to wages

    Eberts and Stone (1985) & Gruber & Krueger (1991) → more than 80%

II. Us researches

- Heterogeneity of costs for the employer
  - Single/family
  - Full time/part time
  - Sheiner (1997); Ryan (1997) → a higher substitution for single employees than for employees with family
- Wages
  - Forbidden to reduce wages when GCHI is offered (but GCHI may have an effect on the evolution of wages)
  - Segmentation of the labor market (Zadjela, 1990):
    - Primary sector (wages and expectation of career evolution, good working conditions, stability of employment, capacity of negotiation…)
    - Secondary sector (low wage and few expectation of career evolutions, instability of employment*, low enrolment in unions…)*

II. Assumptions analyzed

- H1: « global » substitution
- H2: higher substitution among part-time than among full-time employees
- H3: differences in level of substitution between high and low wages

III. Data

PSCE: enquête Protection Sociale et Complémentaire d'Entreprise
DADS: Déclaration Automatisée des Données Sociales

941 establishments

Main source : PSCE 2009

→*Random sampling in SIRENE*
→*Data GCHI: employer participation, characteristics of the contracts offered (compulsory/optional, level of coverages)*

DADS 31rd December 2007

→*Selection of establishment surveyed by PSCE 2009*
→*Establishment data: size, activity sector, location*
→*Firms data: size, turn-over*

4403 employees

DADS 31rd December 2007

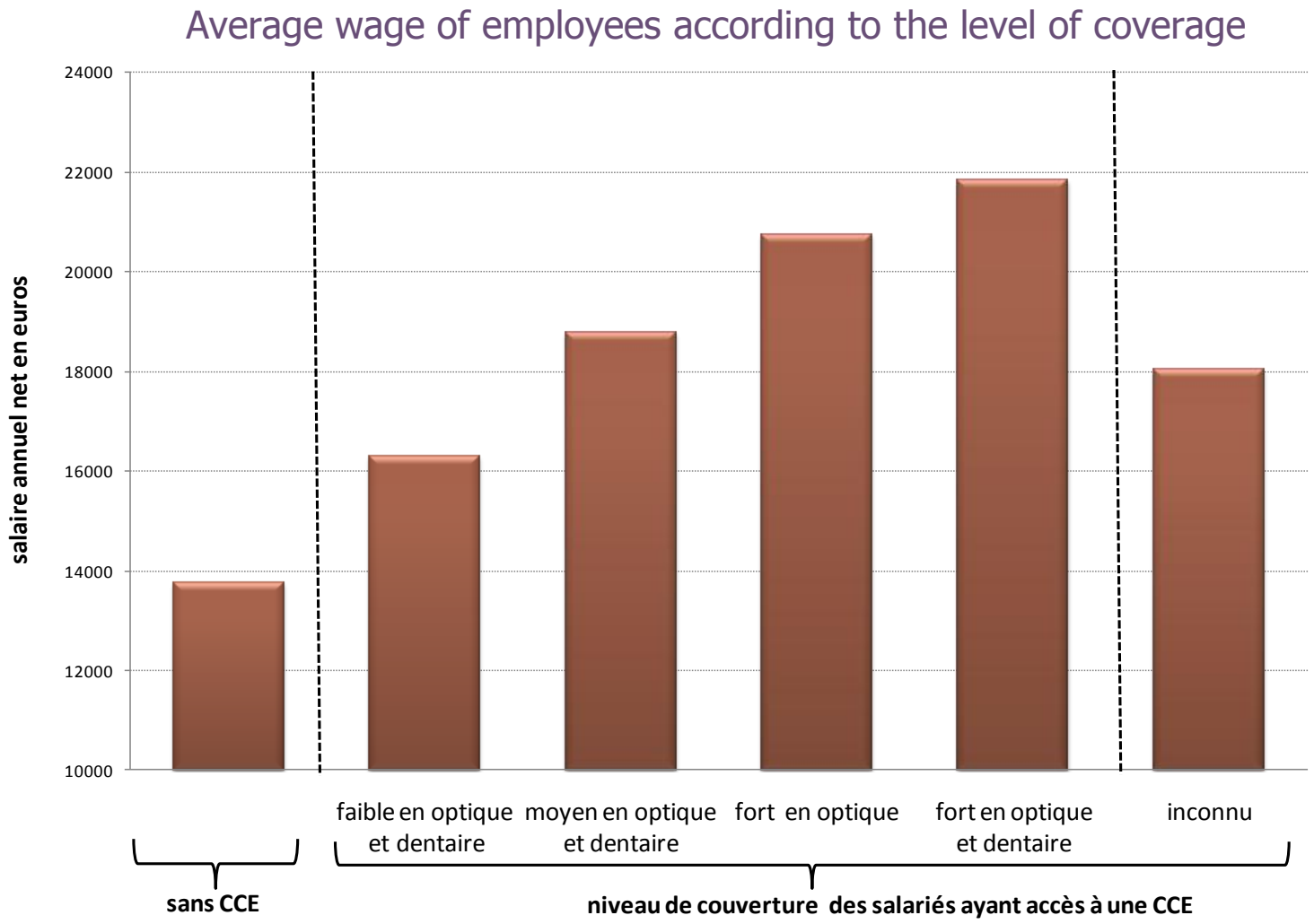
→*Sampling among establishment surveyed by PSCE 2009*
→*All employees selected among establishment with 10 employees or less*
→*Random sampling of 10 employees among establishment with 10 employees or more*

→*Data: net wage, type of work contract (open-ended, fixed term, full-time, part-time), SPC, residential location, age, gender.*

III. Data: Some background elements

- Establishments
  - 57% offer a group contract
  - 80% of establishments with less than 10 employees 1% of establishments with 200 employees or more
  - 13% belongs to construction, 10% to industry and 76% to services
- Employees
  - 51% have access to a complementary health insurance contract by their firm
  - On average, employer participation is 54%
  - Average net wage: 14 344 €. Average annualized net wage: 18 073€
  - 76,6% of full-time, 23,4% part-time
  - 10,5% of executives, 21,7% of « professions intermédiaires », 28,2% of office worker or business employee and 28,8% of workers

IV. Correlation between wages and GCHI



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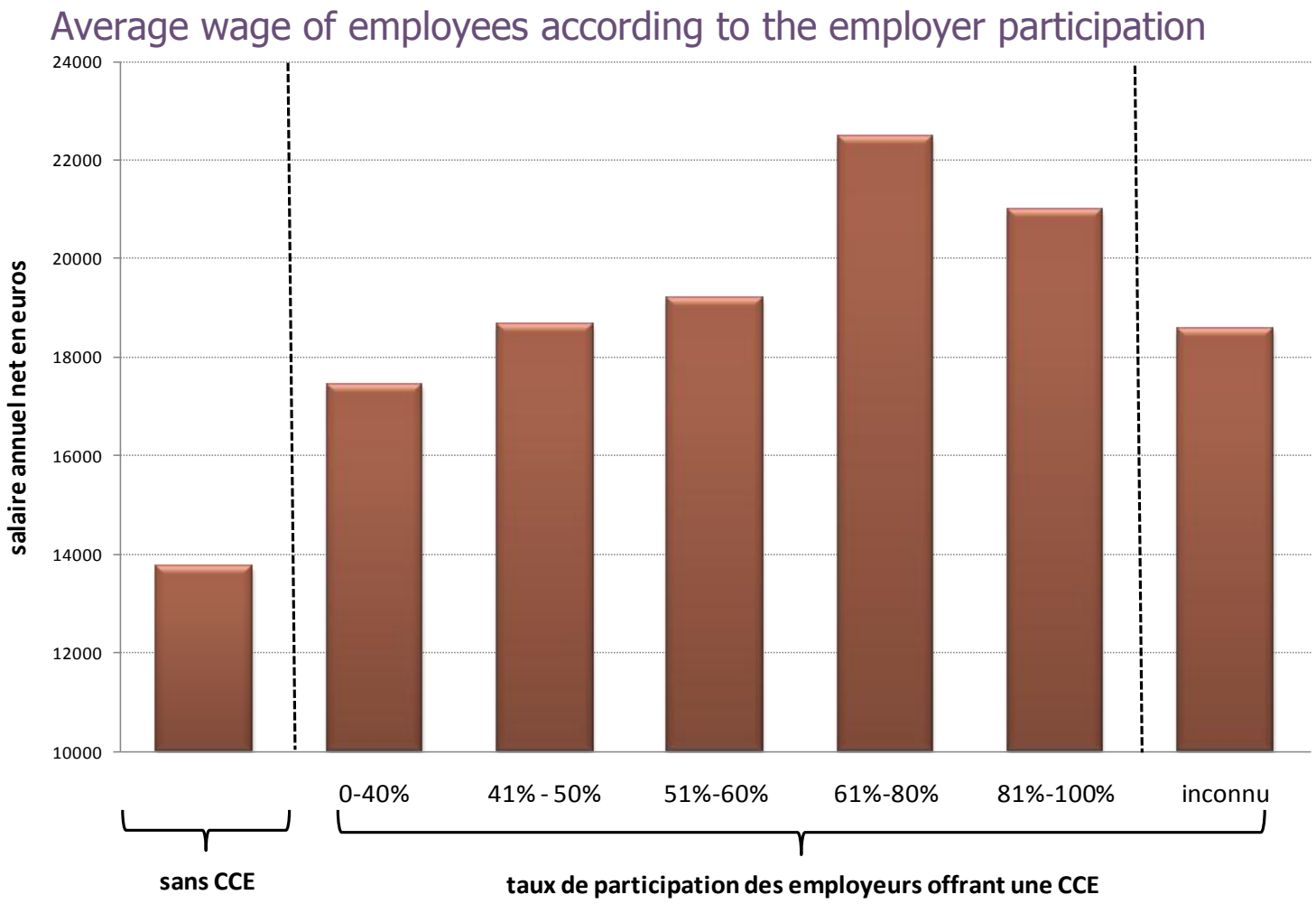

V. Modeling of wage according to GCHI

- Modeling of yearly wage of employee i working in establishment j

$$\ln(I_{ij}) = \alpha.K_{ij} + \beta.X_{ij} + \delta.Z_j + \varepsilon_{ij}$$

ln(Iij) → logarithm of the net wage

Kij → variables of group health insurance
Having acces to GCHI, share of employer participation controled by level of coverage

Xij → variables that enable to control the value of GCHI for employees
age, gender, socio-professional category, part-time/full-time, work contract

Zij → variables that enable to control differences of treatment between firms
geographic location, size of establishment , firm turn-over, age of the firm, offer of « high risk » benefits (maternity, disability, death…)

Zij → résiduals

V. Modeling of wage according to GCHI

- **Economic specification of the effect of the employer participation**

let's I the net wage ie minus the employee contribution for GCHI

W the net wage before soustraction of the employee contribution for GCHI

Cs = (1- Ce) the employee contribution for GCHI

$$I = W - C_s \leftrightarrow W = I + C_s \leftrightarrow W = I + C_t - C_e \leftrightarrow \frac{\partial W}{\partial C_e} = \frac{\partial I}{\partial C_e} + \frac{\partial C_s}{\partial C_e}$$

- **There is substitution as soon as** $\frac{\partial W}{\partial C_e} < 0$

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We know that…	We observe that …	We deduce that …
$\frac{\partial C_s}{\partial C_e} < 0$	$\frac{\partial I}{\partial C_e} < 0 \longrightarrow$	$\frac{\partial W}{\partial C_e} < 0$
$\frac{\partial C_s}{\partial C_e} < 0$	$\frac{\partial I}{\partial C_e} > 0 \longrightarrow$	$\frac{\partial W}{\partial C_e} = ?$
$\frac{\partial C_s}{\partial C_e} < 0$	$\frac{\partial I}{\partial C_e} = 0 \longrightarrow$	$\frac{\partial W}{\partial C_e} < 0$

V. Modeling of wage according to GCHI

- Estimation strategy
  - H1: Linear regression (MCO) of the logarithm of yearly wage

    → *dummy « having access/not access » to GCHI.*
  - H2: Linear regression (MCO) of the logarithm of yearly wage according to working time of employees

    → *dummy « having access/not access » to GCHI.*
  - H3: Quantile regression of the logarithm of yearly wage on full time

    → *share of employer participation (by quartile)*

$$q_\tau\left[\ln\left(I_{ij}\right)|K_{ij},X_{ij},Z_j\right] = \alpha_\tau.K_{ij} + \beta_\tau.X_{ij} + \delta_\tau.Z_j$$

q_τ = quantile of wages 25%, 50% et 75% conditionnaly to explanatory variables

V. Modeling of wage according to GCHI

Results of modeling:

	Variables d'intérêt	Variation de I		Interprétation sur la variation de W
H1	CCE	0,94%	NS	pas de substitution
H2	CCE temps complets	-5,30%	**	substitution
	CCE temps partiels	24,20%	***	pas de substitution
H3	***Bas salaires (Q25)***			
	tx particip. 61%-77% / tx particip 0%	14,20%	***	? lorsque tx particip inf 77%
	tx particip. 78%- 100% / tx particip. 61%-77%	-4,80%	NS	substitution lorsque tx particip sup à 77%
	Salaires médians (Q50)			
	tx particip. 61%-77% / tx particip 0%	11,40%	***	? lorsque tx particip. Inf à 77%
	tx particip. 78%-100% / tx particip. 61%-77%	-5,30%	***	substitution lorsque tx particip sup à 77%
	Hauts salaires (Q25)			
	tx particip. 61%-77% / tx particip 0%	2,80%	NS	substitution
	tx particip. 78%-100% / tx particip. 61%-77%	-4,10%	NS	substitution

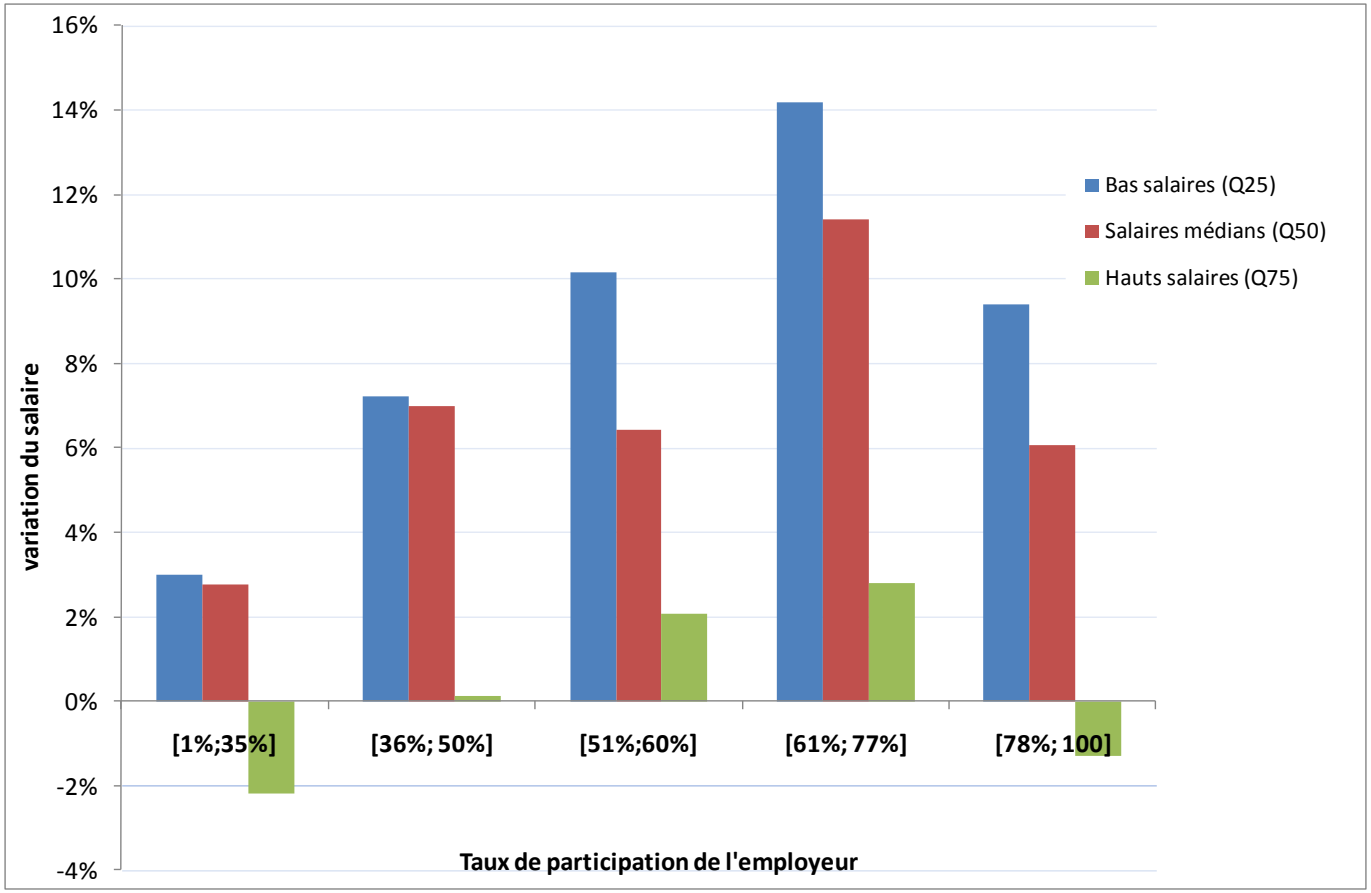
H1: no substitution on the whole sample of employees

H2: substitution among full-time, no substitution among part-time, but high heterogeneity of part-time.

H3: substitution for high wages; indetermination of the substitution effect for low wages (impossibility to compare)

V. Modeling of wage according to GCHI

Effect of the share of employer participation on the level of wage



Conclusion

- A substitution that vary with working-time and level of wage
- Limits
  - A sample with limited size
  - Difference of one year between DADS and PSCE → biais in observed wages for establishments that propose a GCHI
  - We do not control all the selection bias, in particular those related to the value of health insurance for employees (heath status, spouse with a complementary health insurance, etc.)
  - We assume that the sole element of discussion is wages: however, they can also trade-off between health insurance and RTT, providence benefits, etc.
- For the futur
  - To control the heterogeneity of the value of health insurance: PSCE 2009, DADS 2008
  - Does the complementary health insurance offset difficult working conditions? Assumption of compensating differentials