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Corporate Social Responsibility and Firm Performance: An Empirical Analysis of the Quantity-Quality Trade-off on French Data

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- PLAN
- I. INTRODUCTION
- II. THE DATA SETS
- III. THE SCR VARIABLES
- IV. THE EMPIRICAL STRATEGY
- V. THE RESULTS
- VI. COMMENTS
- VII. CONCLUSION

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- INTRODUCTION
- Corporate social responsibility : growing literature.
- Stakeholders (workers, customers, suppliers,, the whole society).
- Externalities → Pareto optimal state.
- Law NRE (Nouvelle Regulation Economique –New Economic Regulation) in France adopted in 2001.

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- INTRODUCTION
- Effect over firms profitability
- Negative effect/Positive effect
- Margolis, J., Elfenbein, H., Walsh, J. (2009). Does it pay to be good ? A meta-analysis and direction of research on the relationship between corporate social and financial performance. *Harvard University Working Paper*.

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- INTRODUCTION
- Why this absence of consensus ?
- Quantity-quality trade-off between the various dimensions of corporate responsibility.
- Multi-dimensional concept.
- A complex and ambiguous impact of various CSR profiles on performance.

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- INTRODUCTION
- *Isolated CSR dimensions may exert a positive, negative or neutral impact on firm performance.*
- *An aggregate measure of CSR may exert a positive, negative or neutral impact on firm performance.*
- *The interaction among different CSR dimensions may generate complementarity (synergy) or substitutability (trade-offs).*
 - *Complementarity means that the impact of interaction among different CSR dimensions on firm performance is greater than the sum of the impacts of each dimension involved in the interaction.*
 - *Substitutability means that the impact of interaction among different CSR dimensions on firm performance is weaker than the sum of the impacts of each dimension involved in the interaction.*

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- INTRODUCTION
- **Complementarity/Supermodularity :**
 - **Theory:** Milgrom (1990), Athey (2002), Amir (2005)
 - **Empirical method:** Athey and Stern (1998)

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- THE DATA SETS
- **The COI:**
- The French Organizational Changes and Computerization's (COI) 2006 survey.
- Matched employer-employee dataset on organizational change and computerization.
- 7,700 firms, with at least 20 employees, belonging to the private sector.
- Representative population of French firms from all business sectors except agriculture, forestry and fishing.
- **The EAE:**
- Annual Enterprise Survey (2003, 2006).
- Information on export volumes and profitability.
- **The Merged data set:** 4,386 firms.

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• THE SCR VARIABLES

Dimension			
Green (0/1)	Social (0/1)	Client & Supplier (0/1)	Regulation (0/1)
<ul style="list-style-type: none"> Environmental standard or ethics label 	<ul style="list-style-type: none"> the firm has undergone financial restructuring in the form of, for instance, merger, acquisition, transfer or buyback since 2003; the firm has relocated an office or plant abroad since 2003; the firm had central databases for human resource, training in 2003; the firm has had internal and external departments focused on human resource, training since 2003; the firm used internet for employees learning or training in 2003. 	<ul style="list-style-type: none"> the firm used labeling tools for goods and services in 2003; the firm was engaged in the deliver or supply of goods or services to a fixed deadline in 2003; the firm was engaged in responding to claims or supplying after-sales service to a fixed deadline in 2003; the firm had a contact or call centre for clients in 2003; the firm adopted integrated IT-CRM in 2003; the main client demanded firm to comply with a quality standard or quality control procedure in 2003; the firm signed contract or was engaged with some suppliers on a long term relationship in 2003; on firm's demand, the main supplier complied with a quality standard or quality control procedure in 2003; the main supplier had an IT system (for orders, invoices, etc.) linked to the firm's one in 2003; the firm used tools to study client expectations, behaviour or satisfaction in 2003; the firm had internal and external departments focused on improving customer relations management since 2003. 	<ul style="list-style-type: none"> the firm has been affected by change in regulations, standards (health, environment, worker rights, etc.) since 2003; the firm was registered according to ISO 9000 standard; the firm has had internal and external departments focused on improving environmental and security issues since 2003.

- THE SCR VARIABLES
- **CSR = Green + Social + Client & Supplier + Regulation.**
- The CSR variable counts the number of CSR dimensions.
- It varies from 0 to 4, where $CSR_j = k$ means that firm j uses k dimension(s) of social corporate responsibility.
- **Interaction.**
- We consider all the possible interactions between the 4 dimensions: 16 possible cases ($2 \times 2 \times 2 \times 2$).

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- THE SCR VARIABLES

- **Interaction.**

- *Interaction* = 0 if the firm did not invest in any dimension
- *Interaction* = 1 if the firm invested only in green practices,
- *Interaction* = 2 if the firm invested only in social practices,
- *Interaction* = 3 if the firm invested only in client-supplier practices,
- *Interaction* = 4 if the firm invested only in regulation practices,
- *Interaction* = 5 if the firm invested only in green and social practices,
- *Interaction* = 6 if the firm invested only in green and client-supplier practices,
- *Interaction* = 7 if the firm invested only in green and regulation practices;
- *Interaction* = 8 if the firm invested only in social and client-supplier practices,
- *Interaction* = 9 if the firm invested only in social and regulation practices,
- *Interaction* = 10 if the firm invested only in client-supplier and regulation practices,
- *Interaction* = 11 if the firm invested in green, social and client-supplier practices,
- *Interaction* = 12 if the firm invested in green, social and regulation practices,
- *Interaction* = 13 if the firm invested in green, client-supplier and regulation practices,
- *Interaction* = 14 if the firm invested in social, client-supplier and regulation practices,
- *Interaction* = 15 if the firm invested in all practices: green, social, client-supplier and regulation.

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- THE EMPIRICAL STRATEGY
- **a. The first type of estimates: Quantity estimates**
- **Remind:** CSR variable counts the number of CSR dimensions.
- It varies from 0 to 4.
- From this variable CSR, we create four binary variables:
 - **CSR_1_0 which is equal to 1 if CSR = 1 and equal to 0 if CSR = 0;**
 - **CSR_2_0 which is equal to 1 if CSR = 2 and equal to 0 if CSR = 0;**
 - **CSR_3_0 which is equal to 1 if CSR = 3 and equal to 0 if CSR = 0;**
 - **CSR_4_0 which is equal to 1 if CSR = 4 and equal to 0 if CSR = 0.**
- We run four regressions with respectively CSR_1_0, CSR_2_0, CSR_3_0 and CSR_4_0 as independent variable.
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- **CSR_1_0, CSR_2_0, CSR_3_0 and CSR_4_0 have the same reference : CSR = 0.**

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- THE EMPIRICAL STRATEGY
- **b. The second type of estimates: Quality estimates**
- **Remind:** the variable called “**Interaction**” includes the 16 possible interactions between the 4 dimensions of corporate social responsibility.
- **From “Interaction”, we create 15 dummy variables having the same reference: the case where no dimension is implemented.**

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- THE EMPIRICAL STRATEGY
- Simultaneous Equations Model:

$$\begin{cases} (a) Y_1 = \alpha_1 + \beta_1 X_1 + \delta_1 Z_1 + \mu_1 \\ (b) Y_2^* = \alpha_2 + \beta_2 X_2 + \gamma_2 Y_1 + \mu_2 \end{cases}$$

- where Y^*2 represents business performance (the profit per head); $Y1$ is the corporate and social responsibility practice;
- $X1$ and $X2$ are the vectors of exogenous variables;
- $Z1$ represents the vector of instrumental variables: (1) firm used workgroup tools in 2003; (2) firm's distance from clients and suppliers in 2003.

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- **THE RESULTS: Quantitative estimates**

Number of dimensions	Sign	Coefficient
1 dimension	ns	1.187
2 dimensions	ns	0.098
3 dimensions	ns	0.391
4 dimensions	+	0.516***

The reference is the case where no dimension is implemented.

(*), (**), (***) indicate parameter significance at the 10, 5 and 1 per cent level, respectively.

ns means non-significant.

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- THE RESULTS: Qualitative estimates

Type of interaction	Sign	Coefficient
One dimension		
Green alone	+	1.083***
Social practices alone	ns	0.331
Client supplier alone	-	-1.457***
Regulation alone	-	-2.155***
Two dimensions		
Green & Social	ns	1.017
Green & Client supplier	+	0.681***
Green & Regulation	ns	0.479
Social & Client supplier	ns	0.0198
Social & Regulation	ns	0.566
Client supplier & Regulation	ns	0.352
Three dimensions		
Green, Social & Client supplier	+	0.570*
Green, Social & Regulation	ns	-0.0541
Green, Client supplier & Regulation	ns	0.270
Social, Client supplier & Regulation	ns	0.394
Four dimensions		
Green, Social, Client supplier & Regulation	+	0.516**

- COMMENTS: **Isolated Effect CSR Dimensions**
- **Comparing to the case where no dimension is implemented:**
- **1.** Having (only) a **green dimension** has a positive effect on profit per head.
- **2.** The **social dimension** (alone) has no effect.
- **3.** The **client & supplier dimension** (alone) has a negative effect.
- **4.** The **regulation dimension** (alone) has a negative effect.

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- COMMENTS: **Aggregated Effect of CSR Dimensions**
- **Comparing to the case where no dimension is implemented:**
- **1.** A pure quantitative strategy does not work. It works only for CSR=4.

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- COMMENTS: **Complementarity (synergy) or Substitutability (trade-off)**
- **1.** Only three kinds of interactions are associated with a (positive) significant coefficient:
 - Green & Client-supplier;
 - Green Social & Client-supplier;
 - Green, Social, Client-supplier & Regulation.
- **2.** Except for Green & Social, the interactions between some or all of the four dimensions generate a synergy (i.e. a complementarity).

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- **COMMENTS: The marginal effect for moving from one configuration to another**
- The question we ask is whether the firm is better off by moving from a started configuration.
- **1.** When a firm starts with a green dimension then it is better for her not to move by adding some other dimensions to the green dimension.
- **2.** Same conclusion when a firm starts either with green & client-supplier dimensions or with green, client-supplier & social.
- **3.** From any other configuration, it is better for her to move directly to the configuration where all dimensions are implemented.

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- CONCLUSION
- The profitability of corporate social responsibility investments in French firms seems :
- **1.** to rely on synergies rather than trade-offs,
- **2.** to rely on qualitative mix of the corporate social responsibility dimensions rather than quantitative.

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