*"Gli effetti del buon governo" A.Lorenzetti*

# Expressive Law: Experimental Evidence

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ESNIE 2008, Cargese May 21st 2008

# PREVIEW

- Introducing the idea
- How to test it?
- Experimental results
- Field results
- Conclusion

**LEGGE 16 GENNAIO 2003, N. 3 - ART. 51**
e successive modificazioni e integrazioni

# VIETATO FUMARE

**I TRASGRESSORI AL DIVIETO SONO SOGGETTI ALLA SANZIONE AMMINISTRATIVA PECUNIARIA DA EURO 27,50 AD EURO 275,00.**
**LA MISURA DELLA SANZIONE E' RADDOPPIATA QUALORA LA VIOLAZIONE SIA COMMESSA IN PRESENZA DI UNA DONNA IN EVIDENTE STATO DI GRAVIDANZA O IN PRESENZA DI LATTANTI O BAMBINI FINO A 12 ANNI.**

Soggetti ai quali spetta vigilare per l'osservanza del divieto.

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Soggetti competenti all'accertamento delle infrazioni.
UFFICIALI ED AGENTI DI POLIZIA GIUDIZIARIA, POLIZIA AMMINISTRATIVA LOCALE,
GUARDIE GIURATE ADIBITE ALLO SPECIFICO SERVIZIO

This regulation has been introduced in many EU countries and has been very successful…

*Why?*

Answering this question is useful to introduce the main concept of today's talk …

## Expressive law

Economists interested in law usually focus on the payoff consequences of suggesting/prohibiting behaviours. Laws solve conflicts because they alter the payoffs of certain undesired action…

A flourishing literature nonetheless maintains that:

*law influences behavior independent of the sanctions it threatens to impose.* ***Law works by what it says in addition to what it does****.*

*Two main views:*

*"By expressing social values, law can tip a system of social norms into a new equilibrium. This process can create or destroy a social norm without changing individual values. In addition,* ***law can change the individual values of rational people.*** *Internalizing a social norm is a moral commitment that attaches a psychological penalty to a forbidden act".* Cooter, Journal of legal studies 1998

*"I claim that law provides a focal point around which individuals can coordinate their behavior. When individuals have a common interest in coordinating, as frequently occurs, a legal rule may guide behaviour merely by influencing expectations about how others will behave."* McAdams, Virginia Law Review 2000

Law express value and by doing this can "**change individual values**"…

… And even if it does not shape values, **law can create focal points**… Law highlight some equilibria and thereby creates expectations that others will play the strategy associated with those equilibria.

**The theory is fascinating but how can we test it?**

EXAMPLE:

Introduction of no smoking rules into a University or public areas.

Poor enforcement (low fines and probability of being caught)

We observe high compliance => smoking drop

*Can we say that the law just "asking not to smoke" caused a change in the behaviour?*

No, many things could have change during the while… (e.g. the regulation just anticipated some collective preference that in any case would have implied a drop in smoking…

Furthermore we cannot say if the change is due to a change in people values, tastes or beliefs…

*We need a tool to isolate the effect of the formal rule/law and to inspect individual motives of behaviour…*

## Experiments help us to test the "expressive power" of law…

*Why are they useful?*

Experiments are useful to assess causal relations in the presence of confounding factors (effects of institutions on behaviours and economic outcomes, effects of behaviours on health…) .

*How to conduct them?*

To compare two situations "control group" and "treated group" you need to fulfil the requirements of "independence" and "uniformity"

*Independence:* A stochastic variable X is independent of a stochastic variable Y, if the conditional distribution of X does not vary with the value of Y.

It is obtained when the experimental procedure is such that subjects in different treatments cannot interact.

*Uniformity:* Comparison of observations is only feasible, if the *ceteris paribus* assumption holds, i.e. if all the parameters not explicitly controlled for are held constant, either in deterministic or in stochastic terms.

This is obtained via RANDOMIZED assignment to treatments.

What have we learned up to now from experiments?

*There is evidence in favour of a focal point effect but there is not strong evidence supporting the preference shaping effect*

In particular

- ⇨ McAdams and Nadler (Jou. Emp. Leg. Stud. 2005) investigated how various forms of third-party "cheap talk" influence the behavior of subjects in a Hawk/Dove game.

  - THEY FIND: that messages highlighting an equilibrium tend to produce that outcome. Most striking, this result emerged even when the message was selected by an overtly random, mechanical process.

⇨ Bohnet and Cooter (Mimeo 2005) investigate framing (*the idea that a law may change behaviour by eliciting intrinsic motivation when it frame an act as wrong*) and coordination effects experimentally in prisoner's dilemma and coordination games. They simulate a law by imposing a probabilistic penalty on one of the choices.

THEY FIND: In the prisoner's dilemma announcing the penalty had no effect. In the coordination game, announcing the penalty caused behaviour to jump to the Pareto-superior equilibrium.

NOTE: Prisoner's dilemma have a uniquely best strategy for a selfish player, regardless of the strategies played by others.

=> In such a game, the Nash equilibrium does not change when a player changes his beliefs about what others will do. HENCE: introducing a probabilistic penalty (and an offsetting increase in the certain payoff) can only affect behavior by changing preferences.

⇨ Tyran and Feld (Scandinavian Journal of Economics, 2006): experimentally investigate the effects of mild law in the provision of public goods by comparing it to severe law (deterrent sanctions) and no law. They introduce mild and binding sanctions to those who do not contribute the all endowment to a PG. They have both an exogenous sanction and an endogenous (voted) treatment.

THEY FIND: that exogenously imposing mild law does not achieve compliance, but compliance is much improved if mild law is endogenously chosen, i.e., self-imposed. We show that voting for mild law induces expectations of cooperation, and that people tend to comply with the law if they expect many others to do so.

Endogenous mild sanction "activate" compliance (because coordinate expectations of *conditional cooperators*…)

These are some of the most relevant contributions in the last years…

And here comes my recent research….

OBSERVATION:

Formal rules in general and more in particular laws, can be defined as "***obligations backed by incentives***" (e.g. Imperative theory of law, Raz 1980 – very established in anglo saxon jurisprudence)

In general a formal rule is a statement such as: "***you ought to*…** ***or else you will pay…***" (or "you ought to … and you will get…"). **Incentives** are captured by "**or else (and)**…", while **obligations** by the "**you ought to**…".

**Aim of the research:** *understanding whether or not obligations exert any (independent from marginal incentives) effect on the main* ***motives of people behaviour***. In other words "Does what law say have an independent effect?"

**Why is this kind of analysis important?**

Focusing on **incentives effects**' economic theory provides powerful tools to predict the **effects of formal rules;**

Understanding the behavioural effects of incentives is a **necessary condition** but may be **not sufficient** to understand the effect of formal rules on (economic and social) behaviour

Incentives are only one side of the coin of a formal rule. The other side of the coin: the **obligations** set up by the rule itself.

*The obligations are the core of the values expressed by the law… They should embody the expressive power… Incentives frame and change payoffs but obligations express the content of the law*

We explore the effects of obligations on the reasons of behaviour: **beliefs** and **preferences**.

Beliefs about what others will do.

Preferences defined as a complex set of motives accounting for individual actions (Bowles, 1998): tastes, values, the way in which a situation is framed, self-perception, emotions, psychological dispositions.

**What can we gain from the analysis?**

- A test of expressive power of law

And in general:

- Better understanding of the effects of the rules of the game (i.e. institutions or formal rules);
- Evidence about the motivational channels by which institutions entail their (unexpected) effects.

## Methodology

### Experimental Strategy

1) Modified **public good game** (common workhorse to study social dilemmas). Formal rules and in particular **laws** are often designed to overcome social dilemmas. In the PG game we introduce and **obligation of minimum contribution**: "***you should contribute at least X tokens to the public good***"

2) We elicit **conditional contributions** (obligations could affect either preferences or beliefs) (Fischbacher, Fehr and Gaechter,2001). Contributions given others' behaviour…

## The experiment

### Description

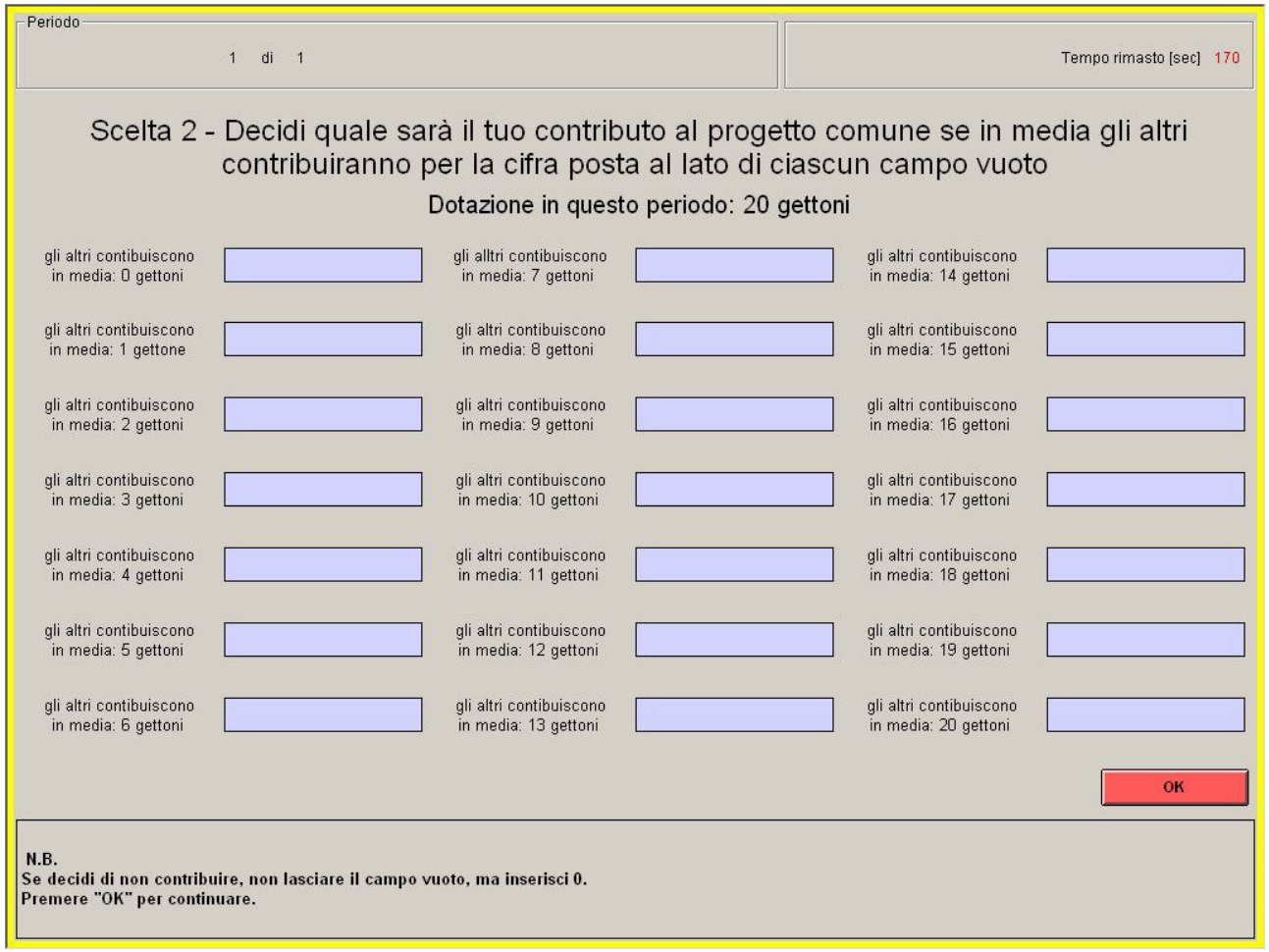
*First Stage*: one shot PG game. Subjects have to decide their **unconditional contribution** to the PG.

Payoff structure:

$$X_i = y - a_i + m\sum_{j=1}^{n} a_j - pg(\hat{a} - a_i)$$

*Second Stage*: After having asked the unconditional contributions, we elicit the **conditional contribution** schedule

# Conditional contribution Table:



**Furthermore:**

Elicit **beliefs** about others' average unconditional contribution

Control Stage: random control of contributions and symmetric penalty (reward) for those contributing less (more) than the minimum contribution required by obligation.

**Treatements, Procedures and Parameters**

- Treatments: $\hat{a}_{NO} = 0 \quad \hat{a}_{L} = 4 \quad \hat{a}_{H} = 16$;
- Sessions held in the Experimental lab (University of Siena);
- Subjects: 108;
- 6 groups of 6 subjects per each treatment (3 sessions);
- Students from different faculties (never participate to a PG experiment);
- Average earning 14 euros (about 1h).

## Conjectures

1) Unconditional contributions:

**Marginal payoff from contributions:**

$$\frac{\partial X_i}{\partial a_i} = -1 + m + pg < 0 \qquad y = 20 \qquad m = 0.3 \qquad pg = \frac{1}{12} \times 1.2$$

**Prediction (prudential)**: since the obligation does not affect the payoff structure=> ***no obligation effect***

*IN THE PRESENCE OF OBLIGATION EFFECT MOTIVES OTHER THAN MATERIAL PAYOFF MAXIMIZATION COME INTO PLAY:*

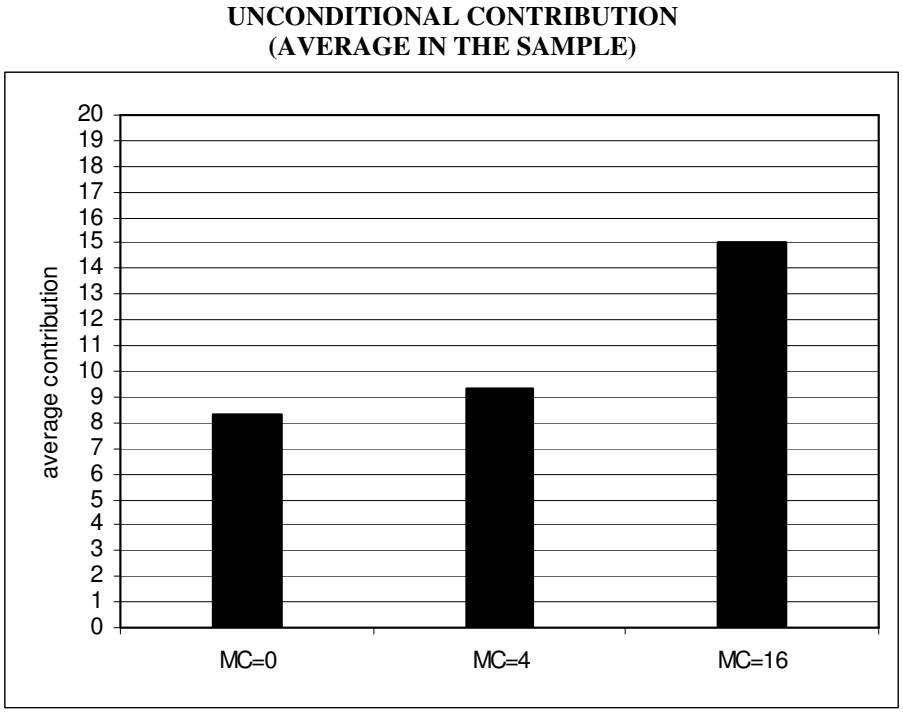
Here come beliefs about others' behaviour (conditional cooperation) and preferences…

2) Conditional contributions:

**Prediction:** ***no difference in the conditional contribution schedules in different treatments*** if only beliefs matter (only differences in beliefs distributions).

# Results (Unconditional Contributions)

## AVERAGE CONTRIBUTIONS



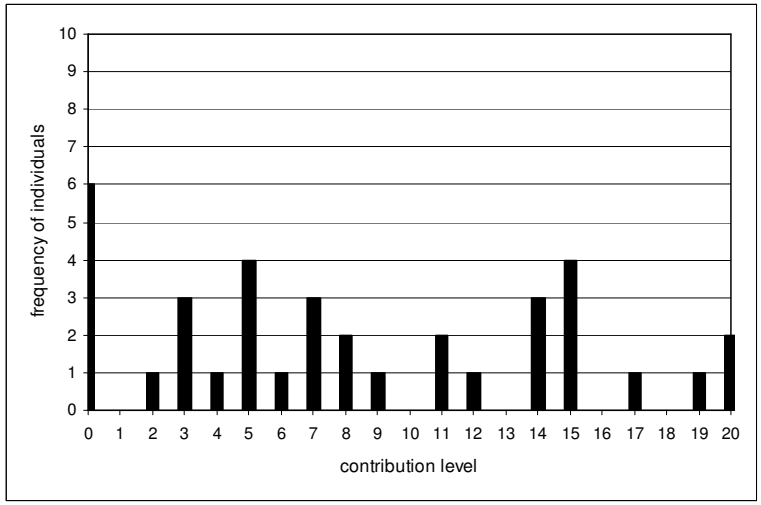

**MANN-WHITNEY TEST ON UNCONDITIONAL CONTRIBUTIONS**

| **Treatment Conditions** | MC=4 | MC=16 |
|---|---|---|
| MC=0 | z=-0.321; p=0.7483 | z=-2.887; p=0.004 |
| MC=4 | | z=-2.402; p=0.016 |

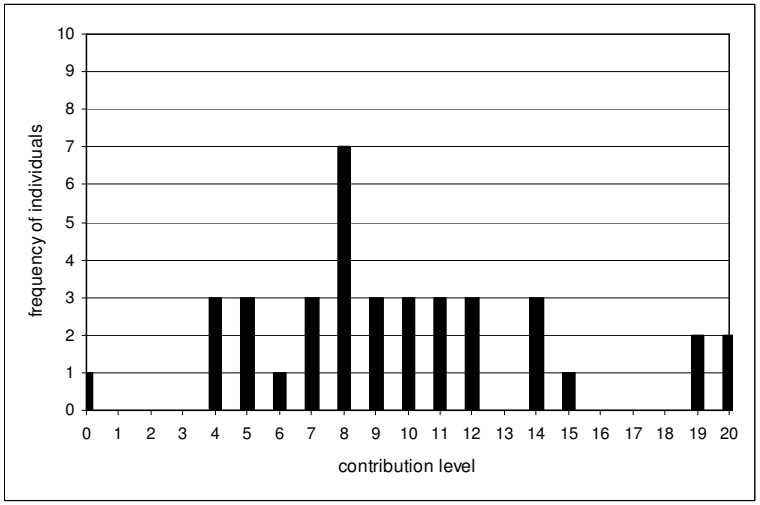
# FREQUENCY OF CONTRIBUTIONS

## UNCONDITIONAL CONTRIBUTIONS

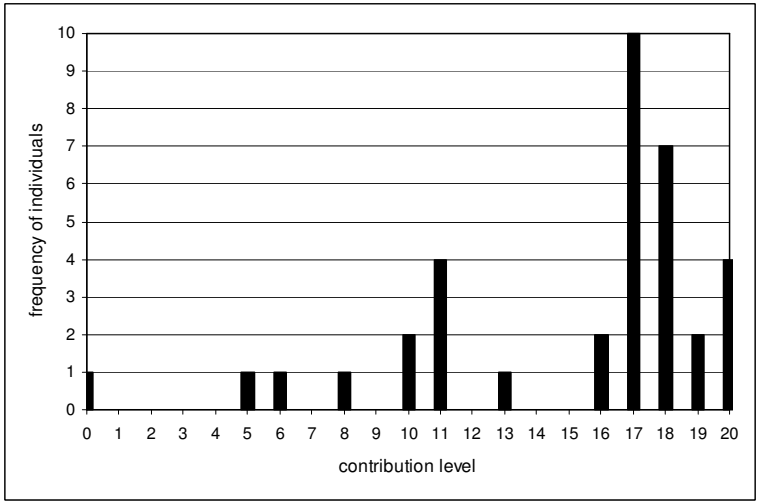
**MC=0**



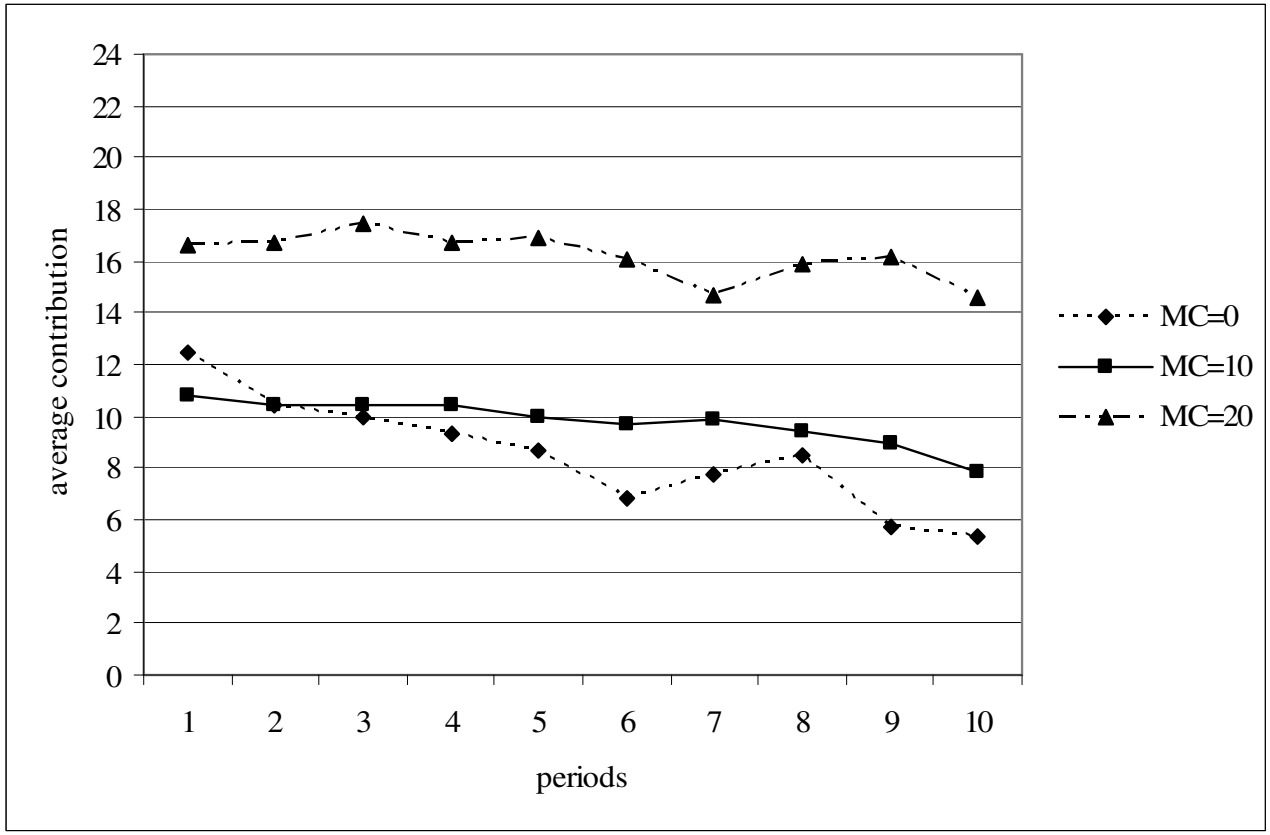

**MC=4**




**MC=16**



In a previous experiment (Galbiati and Vertova, Games and Economic Behavior, Forthcoming) we have found in a finitely repeated environment (anonymous partner treatment 10 rounds):



Hence:

**Result 1**. *Obligations affect the levels of average contributions to a one-shot public good. In particular average contributions are significantly higher when the minimum contribution required by obligation is sufficiently higher than average contributions as emerging in the 'no obligation' case.*

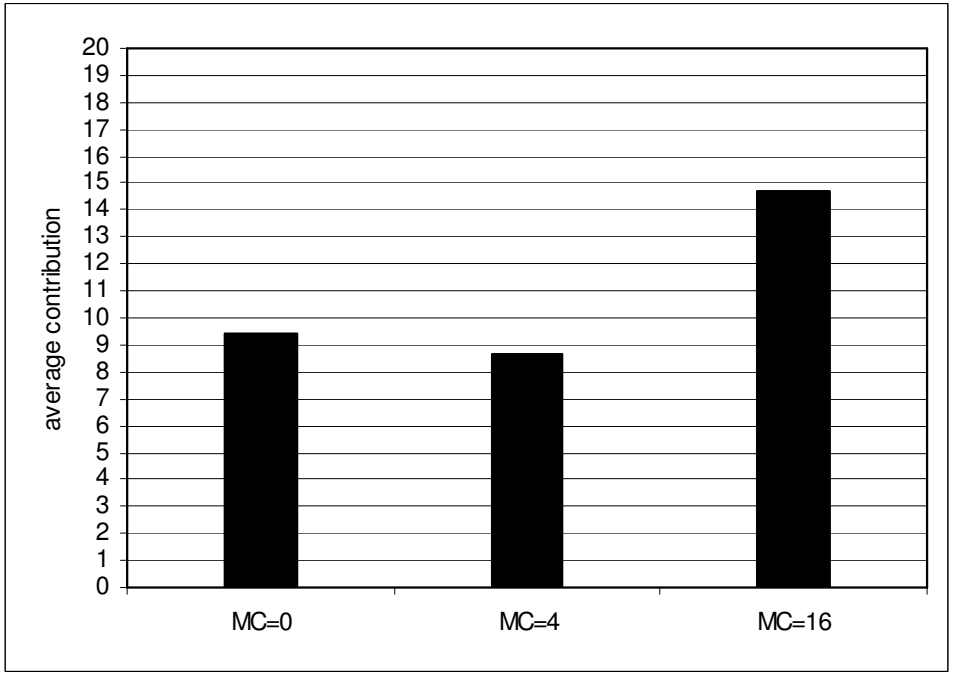
**Why?**

Possible reasons: **a**) an effect on beliefs about others' contributions (conditional cooperation); **b**) a possibly direct effect on preferences (values).

The analysis of beliefs and of conditional contributions helps to understand these reasons.

# Results (Beliefs)

**BELIEFS ABOUT THE GROUP'S AVERAGE CONTRIBUTION (AVERAGE IN THE SAMPLE)**



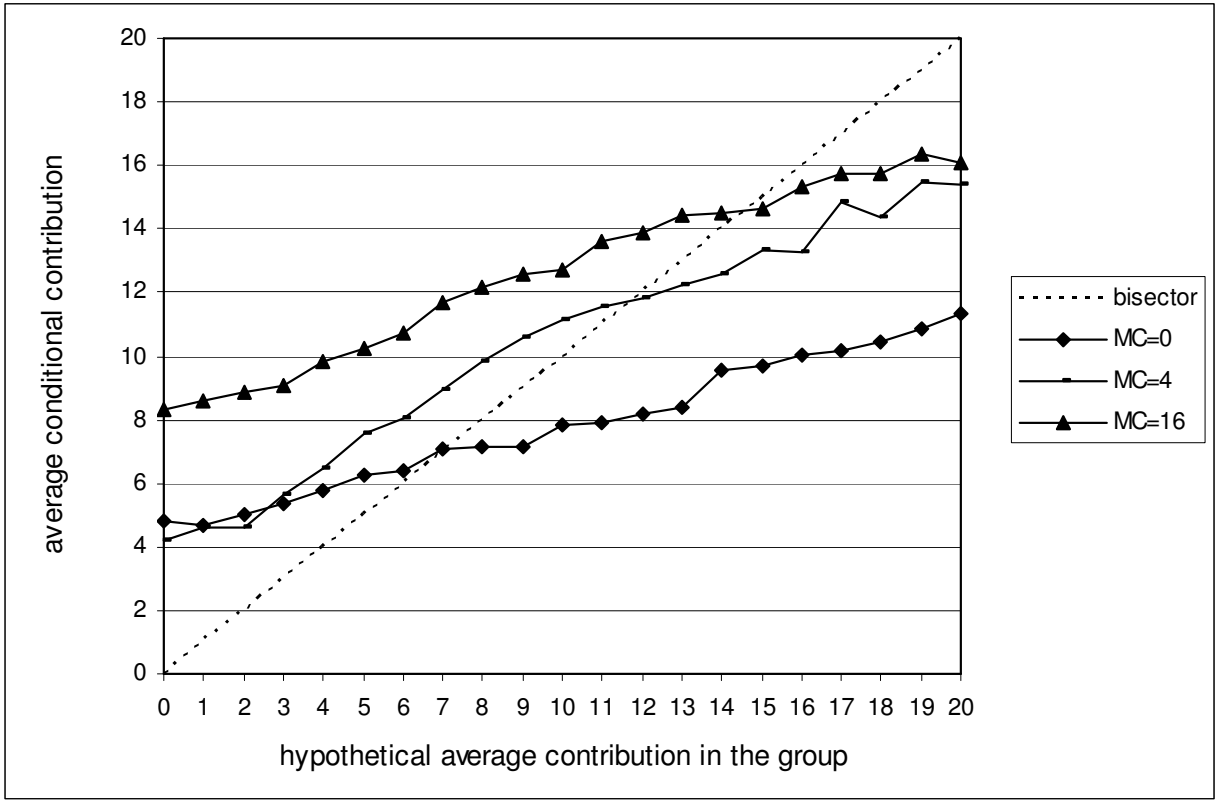

**MANN-WHITNEY TEST ON BELIEFS**

| **Treatment Conditions** | MC=4 | MC=16 |
|---|---|---|
| MC=0 | z=0.485; p=0.679 | z=-2.882; p=0.004 |
| MC=4 | | z=-2.732; p=0.016 |

**Result 2**. *Obligations affect the average beliefs about others' unconditional contributions. In particular average beliefs are significantly higher under the condition where the minimum contribution required by obligation is sufficiently high.*

# Results (Conditional Contributions)

**CONDITIONAL CONTRIBUTIONS SCHEDULES**



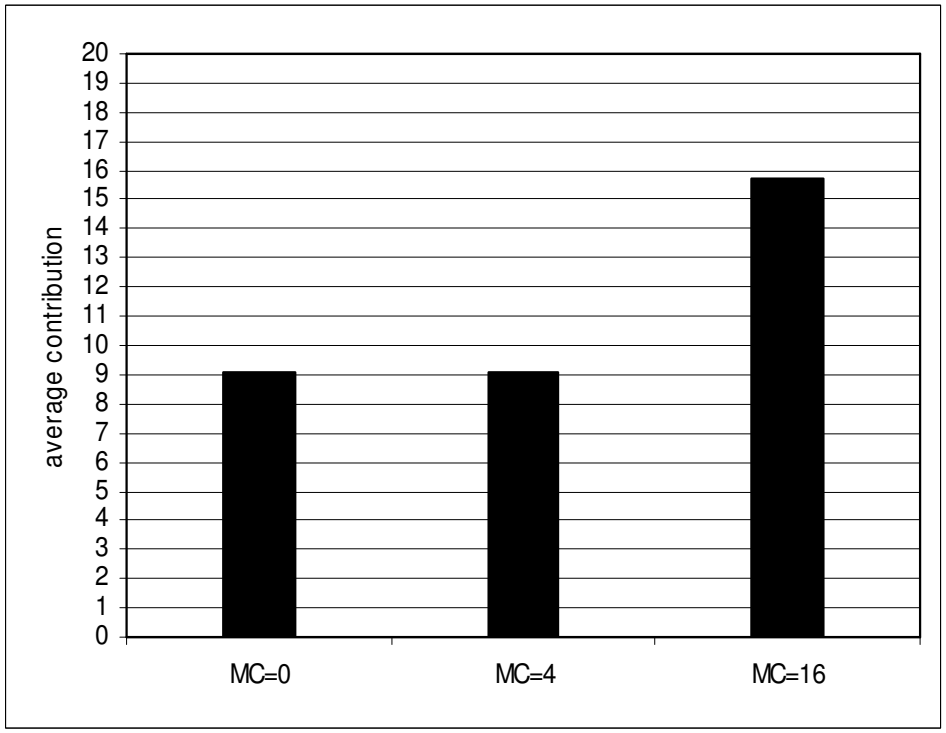

**MANN-WHITNEY CONDITIONAL CONTRIBUTIONS**

| **Treatment Conditions** | MC=4 | MC=16 |
|---|---|---|
| MC=0 | z=-2.242; p=0.025 | z=-2.882; p=0.004 |
| MC=4 | | z=-2.242; p=0.025 |

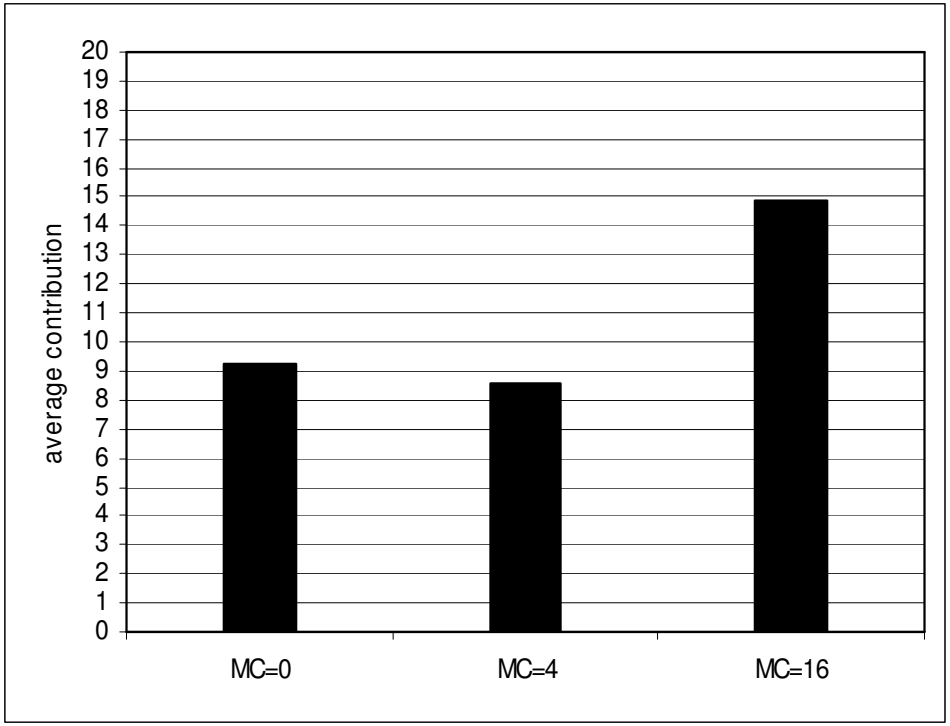
**Result 3.** *Conditional contribution schedules are significantly different in the different minimum obligations treatments. People's conditional contributions to the public good are in average anchored by the obligations. This suggests that people's obligations also affect preferences (values, emotions…)*

# Conditional Cooperators

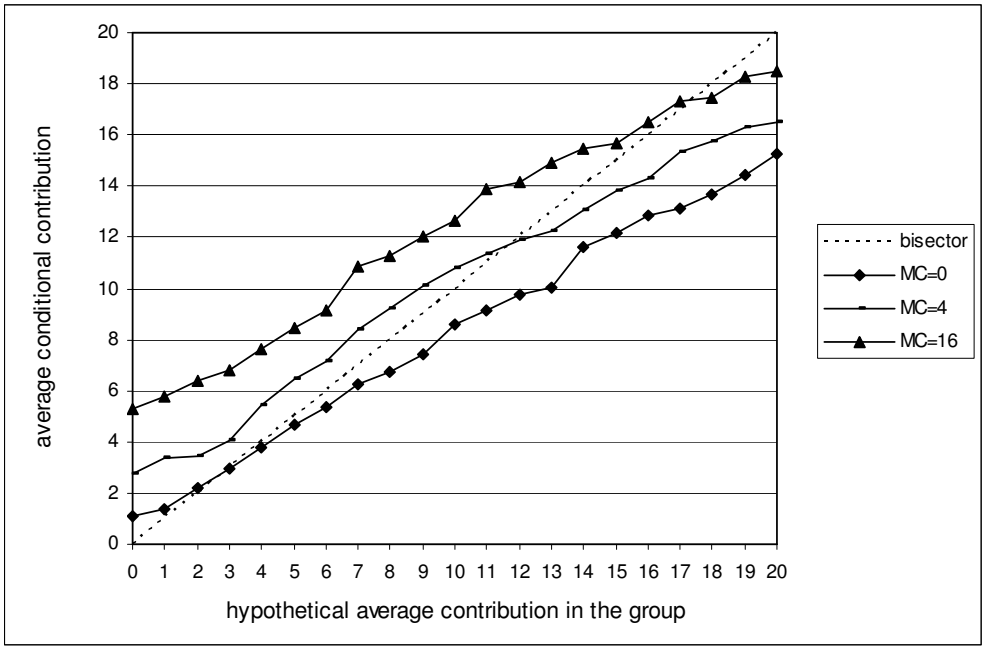
**UNCONDITIONAL CONTRIBUTION**




**BELIEFS ABOUT OTHERS' UNCONDITIONAL CONTRIBUTION**

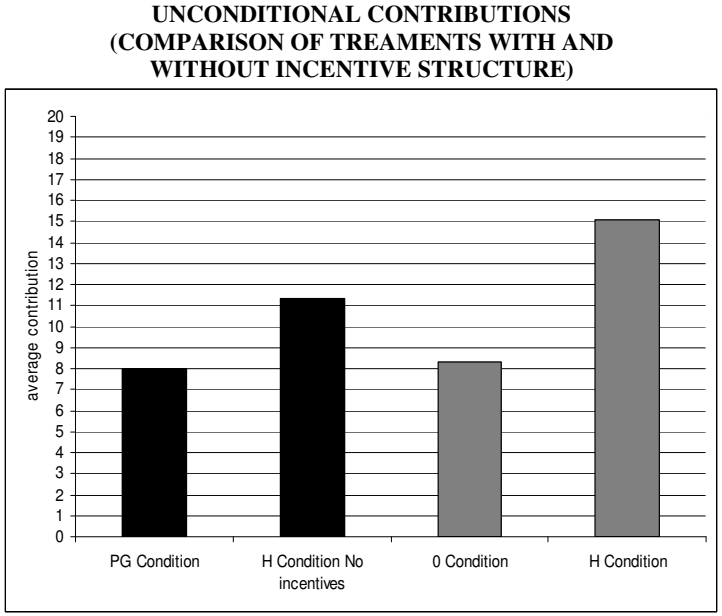


**CONDITIONAL CONTRIBUTIONS SCHEDULES (CONDITIONAL COOPERATORS ONLY)**

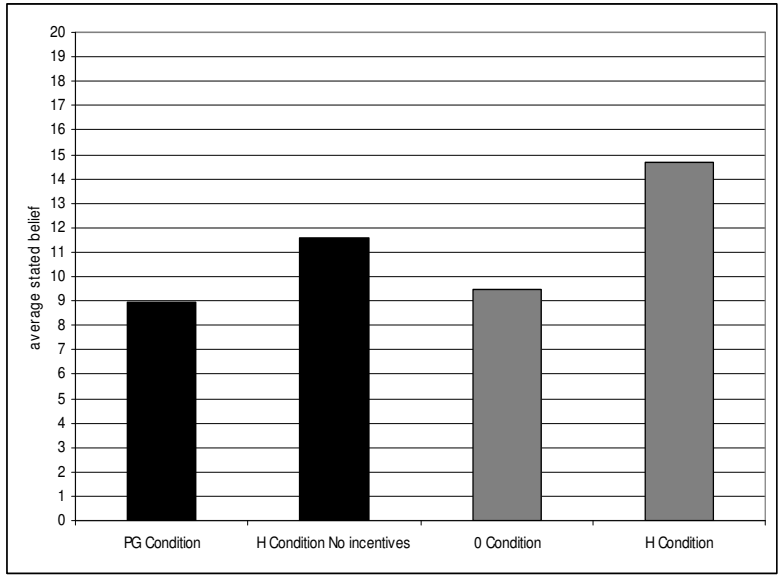


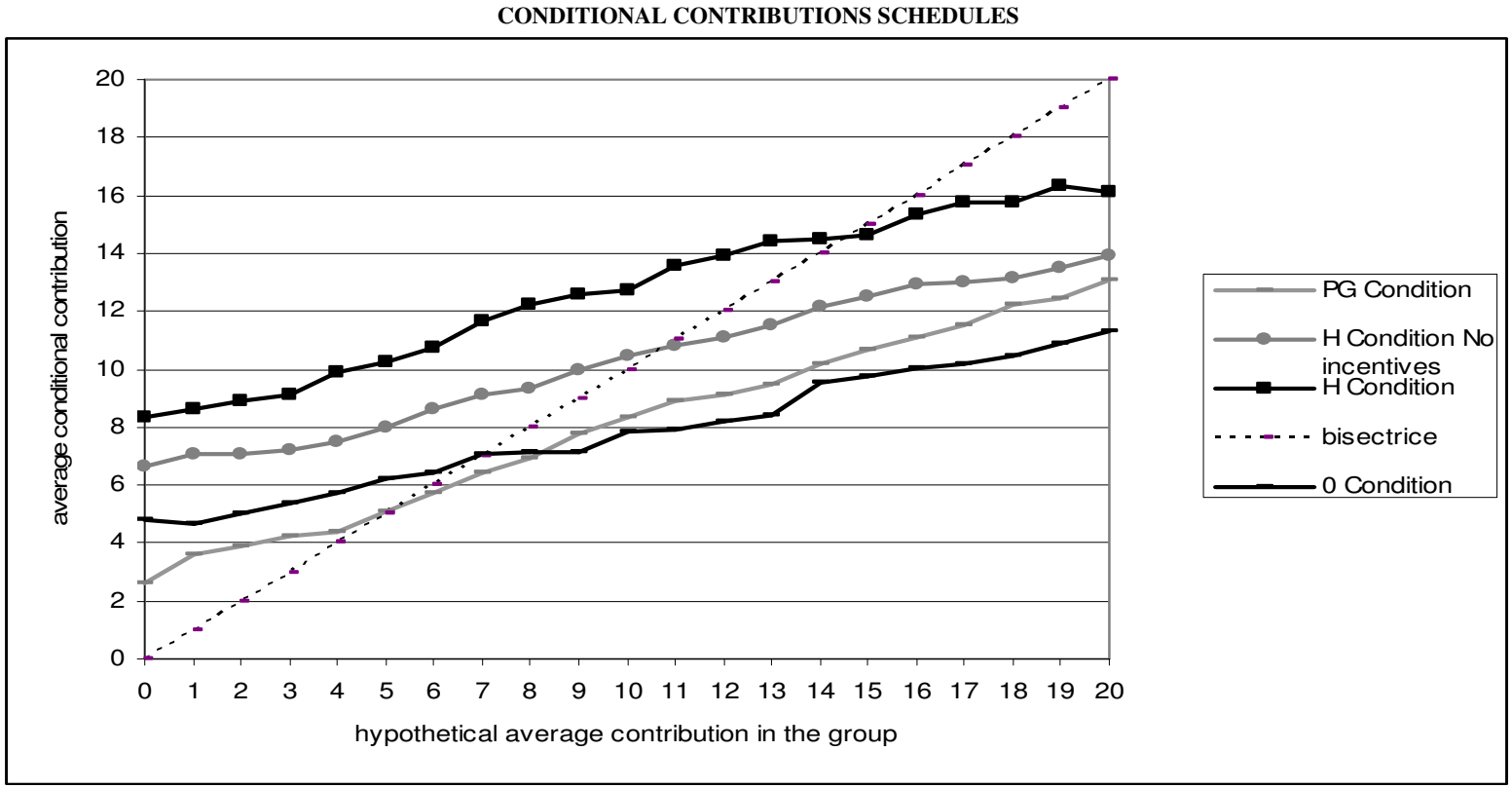
***At this point… It is worth asking what is the relation between incentives and obligations? Are incentives necessary?***

*Preview of some result…*



**BELIEFS ABOUT OTHERS' UNCONDITIONAL CONTRIBUTION**






Suggested contributions only weekly affect the levels of average contributions to a one-shot public good. Suggested contributions are perceived as obligations if they are backed by a non-binding incentive structure.

***INCENTIVES MAKE OBLIGATIONS SALIENT***

*We have reviewed results in the lab… Is there evidence in the field?*

*Two recent studies:*

⇨ Patricia Funk *(*American Law and Economics Review*, 2007)* investigates whether passing a law affects behavior even if it is not or hardly enforced. With Swiss panel data, she finds that the legal abolishment of the voting duty significantly decreased average turnout, even though the fines for not voting have only been minimal. In contrast to the voting duty, the introduction of postal voting did not affect voter turnout in spite of the substantial decrease in transaction costs.

*THEREFORE:* in public good areas such as voting, a law targeting at the civic duty (even if hardly enforced) might have a bigger impact on behavior than actions which affect the costs of provision for the public good.

⇨ Gneezy and Rustichini (Journal of Legal Studies, 2000): present the result of a field study in a group of day-care centers that contradicts the deterrence prediction… (i.e. introducing a fine reduces an undesired behaviour).

THE STUDY: Parents used to arrive late to collect their children, forcing a teacher to stay after closing time. They introduced a monetary fine for late-coming parents.

RESULTS: the number of late-coming parents increased significantly. After the fine was removed no reduction occurred.

ARGUMENT: penalties are usually introduced into an incomplete contract, social or private. They may change the information that agents have, and therefore the effect on behavior may be opposite of that expected. If this is true, the deterrence hypothesis loses its predictive strength…

This relates to expressive law…

Here we have a kind of "crowding out" effect on beliefs about other behaviour (e.g. the fine provides information about the presence of may "non cooperative" parents)…

Hence

- ⇨ the expressive power may affect behaviour in both directions:
  - o It can increase compliance if positively affects beliefs but also
  - o It can crowd out compliance if it signals the presence of non-compliant individuals… (In a work in progress we test this hypothesis (Galbiati, Schlag and Van Der Weele, 2008)

## Concluding Remarks

Experimental and field results suggest that ***there is a broader (almost unexplored) scope for the analysis of the behavioural and economic consequences of formal rules such laws and public policies***… (See also results on minimum wages- Falk, Fehr and Zehnder, Quarterly Journal of Economics 2006).

This wide field has still many unexplored aspects…

A particularly promising fact is that the expressive power of formal rules come into play in social dilemma games because individual motivations are more complex than mere material payoff maximization (e.g. conditional cooperation, reciprocity) … ***This opens a new door to study mechanism design in the presence of complex motives of behaviour*** (see Bowles and Hwang Journal of Public Economics, Forthcoming and the review by Sam Bowles in Science, 2008)

THANKS!

A Hawk/Dove or Chicken game.

| | | Player 2: Dove | Player 2: Hawk |
|---|---|---|---|
| Player 1 | Dove | 1, 1 | 2, 0 |
| | Hawk | 0, 2 | −1, −1 |

NOTE!!!

Both B&C and T&F do not find that a mild sanction introduced exogenously has an effect…

This is in line with our result when we compare 0 condition and PG condition: incentives if mild do not change the results… note that instead when you have a clearly stated obligation things change… and both T&F and B&C lack the obligation…