Is there an “informative” function of law? An on-line experimental test

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The expressive function of law

- Law has effects on behaviour beyond deterrence and legitimacy.

- There are different complementary theories about the different ways in which law can have expressive effects.

The informative effect of law

- A sub-case of expressive effect is an informative effect:

  Law can provide information about intrinsic characteristics of the world. This information causes citizens to update their prior beliefs and thereby changes individual behavior.

Condorcet's jury theorem and the expressive function of law

- D. Dharmapala and R. McAdams:
  Law can have expressive effects
  - Even when politicians do not have greater expertise on the subject than citizens.
  - Through the process of information aggregation inherent in legislative decision-making.

Condorcet's jury theorem

- Majority rule leads to decisions that have higher quality to those of any individual alone if:
  - There is a group of individuals, with identical preferences, who must each vote for one of two alternatives.
  - Each individual gets a private signal indicating which of the alternatives is better for the group.
  - Each signal is more likely to be correct than not.
  - Each individual's vote is sincere.

Dharmapala and McAdams's hypothesis

- A body of rational legislators **will ban** a behaviour if and only if they think that it **is** harmful for common good.
- A body of rational legislators **will not ban** a behaviour if and only if they think that **it is not** harmful for common good.
- Rational citizens who observe the vote will update their prior beliefs and thereby change their behaviour.
- Notice that this happens because citizens know that legislators are a group and they know that, in these conditions, group decisions are more probably to be correct than those of any isolated individual

The problem (and our prediction)

- Unrealistic assumptions: real individuals do not reason according to Condorcet's Jury Theorem.
- Law will not cause expressive effects in the described way.
- If law causes any expressive effect, since the mechanism provided by Dharmapala & McAdams is plainly unrealistic, we still would lack the real mechanism that explains the effect.

The informative effect of Law: Revealing expert knowledge

- Law can have an expressive effect, not through the process of information aggregation, but as a consequence of the fact that during the process expert information on the topic is revealed.

The informative effect of Law: Asymmetry effects

- Different estimation of the risks of a behavior when it is prohibited and when it continues to be permitted.

- Dharmapala and McAdams assume strictly rational agents: the informative effect of legislators voting for or against a law is assumed to be symmetrical.

Experimental design

- On-line experiment
  - Stratified Random sample (505 subjects)
- 1 control (C) and 4 treatments (T)

Experimental design: the “signal”

- LED devices (energy-efficient lights and bulbs) are becoming increasingly widespread, and over the coming years they will have completely replaced conventional lights and bulbs. Recently, some studies have been carried out to make sure they do not have harmful effects on health.

- The results of the first four studies published have been inconclusive. Three studies say that prolonged, repeated and close exposure to LED can cause eye damage. In contrast, a fourth study says there is no real evidence that the use of LED lights can produce visual pathologies.

Experimental design: the treatments

- We have a report which makes clear if LED lights have harmful effects and, in particular, if they cause cataracts.
- Some participants have been chosen at random to form a “legislative body”.
- They must decide if they vote for or against a law to ban LED lights.

TREATMENT 1
•They vote **without** seeing the report.
•We will pay them according to how well their decisions predict the results of the report.
•The legislative body **has passed** a law to ban LED lights.

TREATMENT 2
•They vote **without** seeing the report.
•We will pay them according to how well their decisions predict the results of the report.
•The legislative body **has not passed** a law to ban LED lights.

TREATMENT 3
•This participants **have already seen** the results of the report.
•We will pay them some extra money if they vote according to the results of the report.
•The legislative body **has passed** a law to ban LED lights.

TREATMENT 4
•This participants **have already seen** the results of the report.
•We will pay them some extra money if they vote according to the results of the report.
•The legislative body **has not passed** a law to ban LED lights.

Experimental design: the question

- Do you think that if a person is usually exposed to LED lights her chances of suffering cataracts increase?
  - They do not increase, she has the same chances than she would have without exposure.
  - They increase a little.
  - They increase quite a lot.
  - They increase a lot.
  - Absolutely, she will suffer cataracts for sure.

Experimental design: some comments

Treatment 1 and 2 (Dharmapala and McAdams)

- We satisfy all the assumptions of Condorcet's Jury Theorem
- In particular, we made sure that participants knew that "legislators" were taking the decision:
  - **without** expert information,
  - and having an incentive to vote sincerely

Treatment 3 and 4 (expert knowledge)

- We made sure that participants knew that "legislators" were taking the decision:
  - **with** expert information,
  - and having an incentive to vote sincerely

Treatments 1 and 3 vs. treatments 2 and 4 (asymmetry)

Experimental design: predictions

- If Dharmapala and McAdams' hypothesis is correct, risk perception will be significantly **higher** in T1 than in C, and **lower** in T2 than in C.

- If expert knowledge hypothesis is correct, risk perception will be significantly **higher** in T3 than in C, and **lower** in T4 than in C.

- If there are asymmetry effects, risk perception will be significantly **higher** in T1 and T3 than in C, T2 and T4.
  - And there will not be differences between C and T2 and T4

ANOVA

Homogeneity of variance test: Levene: .790 (p=.532)

GROUP	Mean	N	Std. Deviation
Control	1,73	101	,989
T1	1,97	101	,984
T2	1,79	101	,952
T3	1,98	101	1,157
T4	1,69	101	1,046
Total	1,83	505	1,031

ANOVA	Sum of squares	gl	Mean square	F	Sig.
Between groups	7.255	4	1.814	1.715	.145
Within Groups	528.772	500	1.058		
Total	536.028	504			

Post-hoc tests

T Dunnett (<control)		Mean dif.	Error	Sig.
T2	Control	.059	.145	.907
T4	Control	-.040	.145	.699

T Dunnett (>control)		Mean dif.	Error	Sig.
T1	Control	.238	.145	.145
T3	Control	.248	.145	.129

Asymmetry effect

Homogeneity of variance test: Levene: .251 (p=.778)

GROUP	Mean	N	Std. Deviation
Control	1.73	101	.989
T1 and T3	1.98	202	1.072
T2 and T4	1.74	202	.999
Total	1.83	505	1.031

ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.755	2	3.378	3.204	.041
Within Groups	529.272	502	1.054		
Total	536.028	504			

	(I)	(J)	Mean dif.	Std. Error	Sig.
Dunnett t (<control)	T2-T4	Control	.010	.125	.665
Dunnett t (>control)	T1-T3	Control	.243*	.125	.045
Dunnett t (>control)	T1-T3	T2-T4	.233*	.102	.022

Conclusions

- We found a slight asymmetry effect
- Puzzling
  - The results challenge the typical rational-choice conception of agency, including more ‘relaxed’ versions, that still assume agents deciding on the base of calculations and logical inferences
- Prospect theory (loss aversion)
- Fast and frugal heuristics

Many thanks for your attention

GEMASS

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