Behavioral Regulatory Agencies
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Outline

- Intoductory overview and motivation
- Literature on experts and Cooper and Kovacic Model
- Reinterpreting independent regulators
- Empirical and policy issues
- Concluding thoughts and future resarch

Overview

General De Gaulle (Septembre 1963, quoted in Landier and Thesmar, 2010):

"L'essentiel (...), ce n'est pas ce que peuvent penser le comité Gustave, le comité Théodule ou le comité Hyppolyte. L'essentiel pour le général De Gaulle, président de la République française, c'est ce qui est utile au peuple français, ce que sent, ce que veut le peuple français. J'ai conscience de l'avoir discerné depuis bientôt un quart de siècle. Et je suis résolu, puisque j'en ai encore la force, à continuer de le faire"

Overview and Motivation

- Behavioural economics takes into account bounded rationality in judgment, consumption, production, finance and decision making in general.
- Key insight: $\succeq_{if}$ are the preferences of individual i under frame f. In traditional consumption theory, preferences are independent of f. Examples of frames: loss aversion, status quo, endowment effect, availability bias...
- But policy prescriptions usually assume irrational public and rational policy makers who regulate, perform cost-benefit analysis, or design "nudges" to make free individual decisions compatible with designing appropriate choice architecture.

Overview and Motivation

- The proponents of nudges, very successful in influencing policy in the US (Cass Sunstein as "regulatory czar" in the first Obama administration) and the UK (Behavioral Insights Team in 10 Downing Street with Cameron).
- But there is some anecdotal evidence of the difficulties and paradoxes of expert decision making when there is no immediate feedback:
  1. Chile: the cases of Transantiago and recent expert report on corruption.
  2. Central bankers and financial regulators in the bubble that preceded the last global financial crisis.
  3. Literature on referees in soccer: the determinants of home field bias show that the bias exists, can be reduced, but to some extent persists.

Overview and Motivation

- Difficulties of reconciling populist tendencies of democracy with sound long run policies (commitment problems are aggravated by some biases such as availability).
- But technocratic solutions have weak democratic support ans are not free of mistakes and specific and common biases.
- Slovic et al. versus Sunstein (experts should "nudge" citizens). Rodrik vs Sachs..
- Shiller in finance, Easterly in development and Flyjbjerg in Infrastructure Project Evaluation stress the limits of expert knowledge.
- Sunstein/Thaler, Engel et al. stress that insulated independent expert agencies should be an important part of an institutional strategy to improve cost-benefit analysis to avoid white elephants. amplifying risk cascades and other policy mistakes.

Behavioural Regulation

- Behavioural "anomalies" affect the role of the state in the economy: framing, endowment effect, endogenous preferences, non-optimizing behavior
- A problem for public policies under a behavioral lens is that individuals may have several selves, eg a short term affective self and a long term deliberative self: preferences may be changing, endogenous, unstable. But Pareto efficiency and welfare economics are based on individual preferences.

Behavioural Regulation

- Behavioural Public economics takes into account the possibility of individual "failure" (in addition to market and government failure): consumers' bounded rationality (as in Spiegler, 2011), firms' bounded rationality (as in Armstrong and Huck, 2010 and the tradition of Simon, Cyert and March) and regulators' bounded rationality.
- In the field of microeconomic regulation, after Joskow's PhD thesis ("A Behavioral Theory of Public Utility Regulation") in the early 1970s there hasn´t been much academic formal work in the economics literature (as opposed to the social psychology or legal literatures) on behavioral microeconomic regulation until Cooper and Kovacic.
- Joskow (1972): "Commissions appear to have the most rudimentary understanding of the relationship between the return is ermitted to earn and the operational objectives the Commission wishes to achieve. The ability of the Commission to scientifically evaluate the rate of return requests made by the firms is therefore probably quite limited."

Behavioural regulation

- Joskow (1974): the objectives of regulatory commissions are more complex than those of firms (as in general in the public sector) and their status are quite vague. In practice, regulatory agencies seek to minimize conflict and criticism.
- The regulatory agency has evolved a structure which satisfactorily balances the conflicting pressures from the external environment. When an equilibrium with the environment breaks down, agencies enter into innovation mode. In the US since WWII, the primary concern of regulatory commissions had been to keep nominal prices from increasing.
- Since Joskow's thesis, regulatory agencies have been studied as commitment devices in the presence of sunk investments or the ratchet effect, or as mechanisms to alleviate information asymmetries. They were assumed to behave rationally, according to some objective function or monetary reward.

The literature on experts

- The role of regulators as correcting information asymmetries is consistent with the view that regulatory agencies should be staffed by experts.
- Experts may provide technical knowledge in complex matters (risk, technologies, finance).
- But they are not free from empirically documented biases (Landier and Thesmar, Slovic, literature on judges, sports' referees and physicians): fear of ostracism (conformity), oveconfidence (confirmation bias, cultural views), availability, narrow frames, tunnel vision.

The literature on experts

- "System II" reasonig (slow, deliberative, see Kahneman's "Thinking Fast and Slow") is also vulnerable to biases: experts tend to deploy "defense motivation", ie deliberate, calculating and methodical analysis to support beliefs taken a priori.
- Narrow frames yield inconsistencies derived from uncoordinated regulation. Kahneman: in the US, the fine for a "serious violation" of the regulations concerning worker safety is capped at $7000, while a violation of the Wild Bird Conservation Act can result in a fine of up to $25000.

The literature on experts

- Experts often disagree. It could be because of inconclusive or scant evidence.
- But they disagree in "suspicious" clusters: gender, professsions (eg Central Bankers), food (parole judges in Israel tend to deny parole when they are hungry, Danziger et al., 2011)...
- Some personal characteristics of experts determine the extent to which they make mistakes (Tetlock: "foxes" better than "hedgehogs"; role of experience and tenure).
- Some characteristics of the tasks of experts are also more or less conducive to mistakes (help of technology makes meteorology more predictable than clinical psychology).

Cooper and Kovacic Model

- Regulator's Objective Function:
  $U = S - \frac{\theta}{2}\left(\pi_i^R - \pi^*\right)^2 - \frac{(1-\theta)}{2}\phi\left(\pi^{os} - \pi_i^R\right)^2$
- where π_i^R is the regulator's decision, π^* is the optimal long run decision as perceived by the regulator and π^{os} is the politically expedient (populist) policy desired by political principals that cater to public opinion.
- $\phi(\cdot)$ translates distance from the politically expedient policy into some sort of punishment.
- S is the level of utility that would be realized if $\pi_i^R = \pi^* = \pi^{os}$.
- Solving the First Order Condition: $\pi_i^R = \lambda\left(\theta\pi^* + (1-\theta)\phi\pi^{os}\right)$ where $\lambda = \frac{1}{\theta+(1-\theta)\phi}$. The regulator will adopt the optimal policy if either she places no weight on political rewards ($\theta = 1$) or if the politician is unable to translate public opinion discontent into punishment for the regulator.

Flawed Heuristics and Myopia

- If regulators suffer from the biases that plague consumers, they are likely to use flawed heuristics -or mental shortcuts- to estimate the optimal long-run policy choice.
- Examples of flawed heuristics: availability (being overinfluenced by recent salient events), representativeness (ignore baseline probabilities and sample sizes and be carried away by stereotypes).
- Flawed heuristics and myopia likely to be in favor of more politically expedient policies $\widehat{\pi}^* = \alpha \pi^*$ with $\alpha \geq 1$.
- Consequently, the regulator chooses $\widetilde{\pi}_i^R = \lambda \left(\theta \widehat{\pi}^* + (1 - \theta) \phi \pi^{os} \right)$

Flawed Heuristics and Myopia

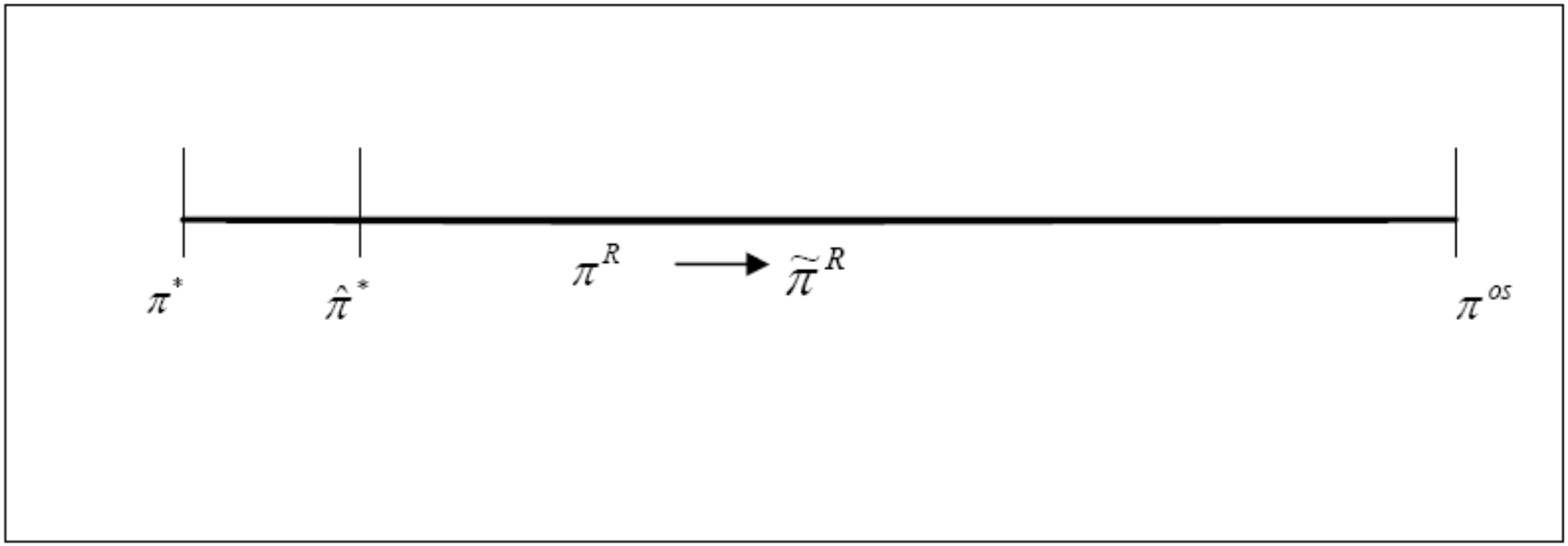


Figure 1

Confirmation Bias

- Individuals tend to become irrationally wedded to early impressions leading to overconfidence.
- A regulator may misread the extent to which his preferred policy deviates from the optimal long-run policy.
- The regulator knows π^{os} with certainty.
- The regulator updates his beliefs about π^* as he collects more information, and chooses between π_A^* and π_B^* given a stream of information $\varepsilon_t \in \{\alpha, \beta\}$, which provides evidence that the optimal long-run policy choice is either A or B, respectively.
- A rational unbiased regulator who perceives a signal of α calculates the odds of A being the optimal policy as:

$$\Lambda = \frac{P(\pi^* = \pi_A^* \mid \alpha)}{P(\pi^* = \pi_B^* \mid \alpha)} = \frac{\sigma}{1-\sigma}$$

- where $\sigma = P(\varepsilon = \alpha \mid \pi_A^*)$, or the strength of signal α. If $\Lambda > 1$, the regulator adopts π_A^*, and adopts π_B^* otherwise.

Confirmation Bias

- A regulator who suffers from confirmation bias, however, will anchor his belief about which policy is optimal based on the first observed piece of evidence. For instance, if the first piece of evidence is α, with some probability $q > 0$, the regulator erroneously will perceive a subsequent β as evidence in favour of π_A^*.
- Suppose the regulator who has collected two pieces of evidence perceives two α's. In this case, the biased regulator will calculate the following likelihood function:

$$\widehat{\Lambda} = \frac{\sigma^2}{(1-\sigma)^2}$$

Confirmation Bias

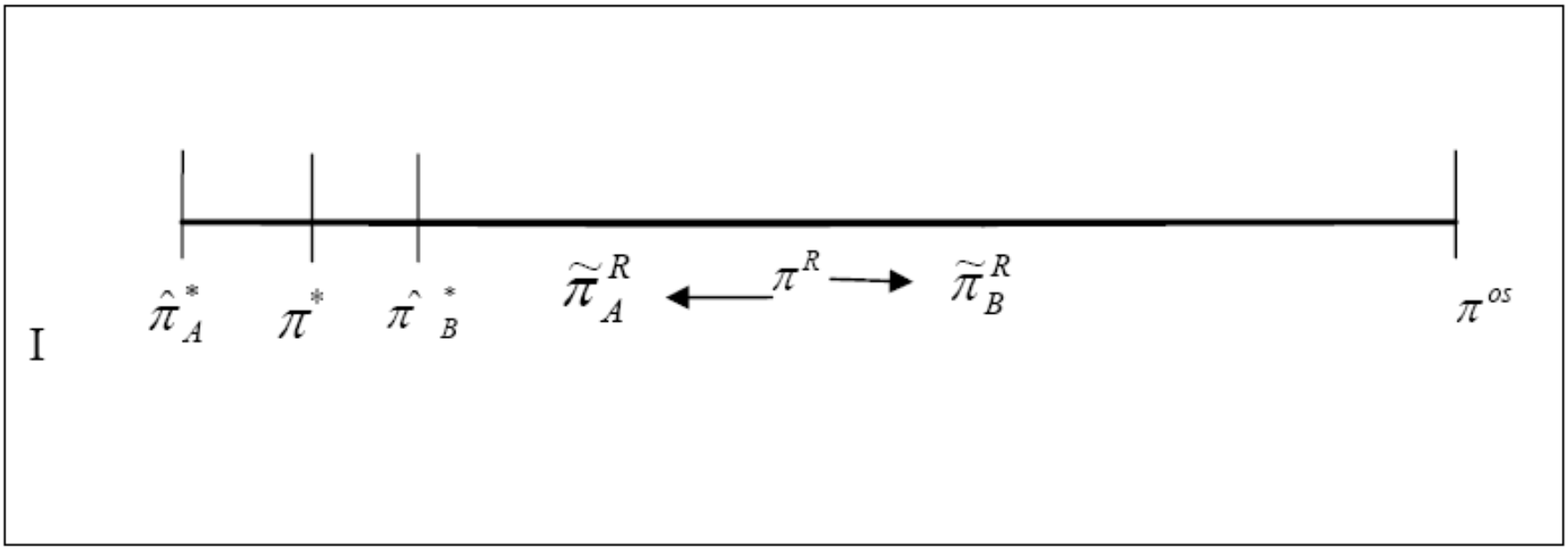
- But a regulator (or objective observer) aware of this bias would calculate the true likelihood ratio as

$$\Lambda = \frac{q(1-\sigma)^2 + (1-q)\sigma^2}{(1-\sigma)^2} < \frac{\sigma^2}{(1-\sigma)^2}$$

- The inequality holds as long as $\sigma > \frac{1}{2}$, ie as long as signals are more likely to be indicators of the true state of the world than not.
- Thus a biased regulator will be overconfident in his beief that π_A^* is the correct policy.

Confirmation Bias

Figure 2



Confirmation Bias

- Theoretically, there is no way to identify the direction of the bias.
- In practice it is likely that the first piece of information is a call to action in the direction of politically expedient policies.
- Confirmation bias also can reinforce preferences for short-sighted decisions that derive from flawed heuristics and myopia.

Will Regulators Suffer from Biases in the Long Run?

- Experience of professional bureaucracies make expert regulators theoretically better than lay citizens at learning from mistakes.
- However, overconfidence has been found to be positively correlated with perceived expertise.
- Do expert regulators develop the type of expert intuition that is better at avoiding biases?
- Effective learning (of the type fire-fighters or tenis players use in developing their expert intuition) takes place only under certain conditions: it requires accurate and immediate feedback.

Will Regulators Suffer from Biases in the Long Run?

- Kahneman and Tversky: the necessary feedback is often lacking for the decisions made by managers, entrepreneurs and politicians because:
  1. Outcomes are commonly delayed and not easily attributable to a particular outcome.
  2. Variability in the environment degrades the reliability of the feedback, especially where outcomes of low probability are involved.
  3. There is often no information about what the outcome would have been if another decision had been taken.
  4. Most important decisions are unique and therefore provide little opportuniy for learning.
- Incidentally, this list fits better with utility regulators (foxes) rather than with central bankers (hedgehogs, at least until recently) according to the comparison made by John Vickers (competition regulator, central banker and academic).

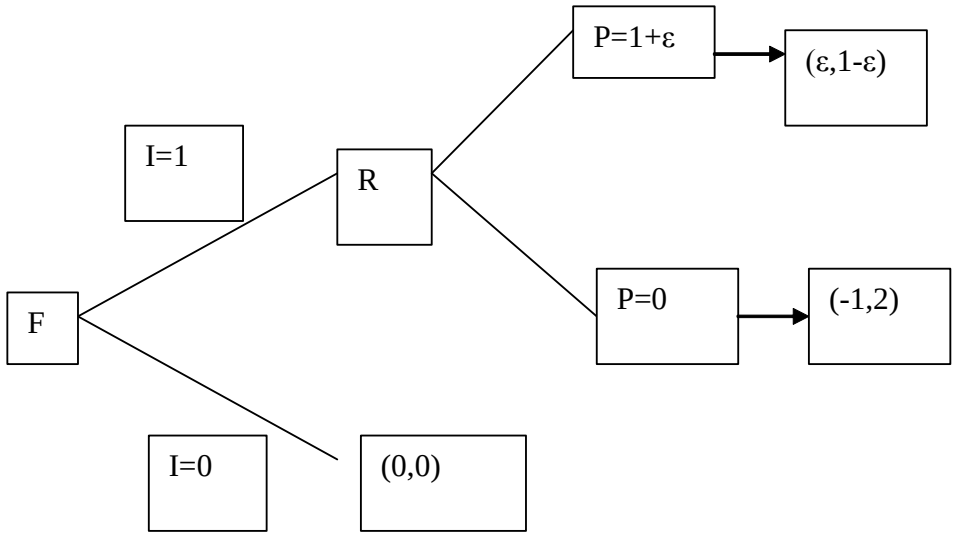
Will Regulators Suffer from Biases in the Long Run?

- Similarly, Cooper and Kovacic: the feedback mechanism that facilitates learning is an important distinguishing feature between firms and regulators:
  1. Unlike the marketplace, which produces feedback for firms quickly in the form of prices, profits and output, the link between policy decisions and outputs is attenuated, measurement is difficult and lags are long.
  2. The costs for the regulator with being wrong are quite low compared to that of the firm. A regulator who systematically produces welfare reducing outcomes may still enjoy his position or even better ones if he produces outputs (cases, rules) that are politically expedient.
  3. Regulatory competition, to the extent that it occurs, is on outputs (cases on high profile companies) rather than outcomes.
- As a result, regulators with a short term bias are likely to be over-represented in the population of regulators.

Possible De-Biasing Mechanisms

- Experience and better selection mechanisms, perhaps from a pool of certified professional regulators.
- Adversarial internal review.
- Greater Accountability: Focus on outcomes rather than outputs (eg number of high profile mergers stopped).
- Ex post analysis of decisions.

Commitment and under-investment in regulation



Commitment and under-investment in regulation

- p is transformed into $\beta(p)$ as in Congdon et al. (2011), where $\beta(\bullet)$ is a function that transforms policies into perceptions of policies.
- For example, in the application to regulation of the lobbying model by Grossman and Hepman (see Evans et al. 2008), the degree of information of the electorate relative to regulated policies can be re-interpreted as saliency.
- New policy instruments open up (framing, persuasion, influencing perception) that may influence $\beta(\bullet)$.
- Key aspect now: find the regulator with the optimal preferences, review her decisions.

Reinterpreting independent regulators

- Independent regulators have multiple tasks (compared to pre-crisis central bankers) and principals.
- Their preferences depend on the information available to the electorate (which can be interpreted as a frame).
- If the electorate is less informed about the regulatory policy, the regulator cares more about the preferences of lobbying firms.
- If the electorate is more informed, there is the risk of opportunist short term policies that do not remunerate investment. See Grossman and Helpman application to regulation by Evans et al. (2008).

Related empirical evidence

- The occupational and educational background of central bankers: internal vs external matters more than academic background.
- Determinants of dissenting votes in US and UK Central Banks. Significant determinants: external vs internal, individual fixed effects.
- The "experience effect" in the verdicts of the UK Competition Commission.
- CMT and CNE in Spain: a tale of two agencies
  1. influence of availability bias in the market for corporate control: takeovers project light into an industry, changing the objective function of regulators (the CNE was given broader responsibilities on takeovers in the middle of the Endesa takeover battle)
  2. technological change (speed of capital depreciation) and demand increase influence both the difficulties of commitment and the objective of containing nominal prices: the political and economic environment has put more pressure on the energy regulator.

Empirical literature: vulnerable independent regulators

#	*Country*	IR1	*Country*	LPI1	*Country*	LPI2
1	Argentina	0.647	Peru	0.581	Peru	0.947
2	Bolivia	0.487	Bolivia	0.577	Jamaica	0.793
3	Panama	0.459	Argentina	0.490	Colombia	0.774
4	El Salvador	0.441	Brazil	0.478	Bolivia	0.710
5	Peru	0.428	Venezuela	0.468	Argentina	0.590
6	Brazil	0.422	Jamaica	0.460	Panama	0.563
7	Paraguay	0.416	Honduras	0.443	Venezuela	0.557
8	Chile	0.400	Mexico	0.415	Belice	0.550
9	Ecuador	0.387	Paraguay	0.408	Paraguay	0.508
10	Nicaragua	0.371	Colombia	0.385	Costa Rica	0.485
11	Costa Rica	0.370	Panama	0.380	Mexico	0.448
12	Venezuela	0.314	Belice	0.350	Brazil	0.411
13	Belice	0.300	Barbados	0.265	Nicaragua	0.385
14	Honduras	0.286	Ecuador	0.260	El Salvador	0.354
15	Colombia	0.281	Trinidad and T	0.240	Trinidad and T	0.340
16	Trinidad and T	0.279	Uruguay	0.227	Chile	0.333
17	Barbados	0.264	El Salvador	0.221	Barbados	0.299
18	Jamaica	0.253	Chile	0.200	Dominican R.	0.258
19	Dominican R.	0.249	Costa Rica	0.185	Uruguay	0.227
20	Mexico	0.229	Nicaragua	0.181	Guatemala	0.225
21	Uruguay	0.187	Dominican R.	0.125	Ecuador	0.193
22	Guatemala	0.183	Guatemala	0.091	Honduras	0.143
23	Surinam	0.047	Surinam	0.023	Surinam	0.023

Evolution of regulatory systems

- The horizontal and vertical structure of regulatory agencies is far from stable.
- Local regulators are better at internalizing policy expternalities (which may be a good commitment device) although central regulators are better at internalizing territorial externalities
- But regulated prices may be more salient at local level than at federal level.
- Merger of regulatory and antitrust agencies in Spain in 2013: and illustration of regulatory fragility and risk of regulatory monopolization increasing behavioral biases.
- One agency may be better than two to internalize externalities between tasks.
- But the saliency of static concerns may dominate one agency, whereas keeping a high profile agency in charge of dynamic efficiency may restore some balance.

Failed reforms

- Transantiago (Chile, 2007): the reform was overoptimistic and failed to take into account the perception of voters/users about the generic cost of travelling.
- California electricity crisis (2000-2001): the reform was also overoptimistic and the federal regulatory agency (FERC) failed to take into account the input from other agents.

Conclusions and future research

- Experts are needed but are not free from biases: may be victims of the "pretence of knowledge" (this was an expresson of Hayek referred to planners as opposed to markets)
- A combined analysis of incentives and behavioral biases in the public sector may provide useful insights: well monitored regulators with few tasks and few discretion seem to have less biases (referees in soccer).
- Insulated expert agencies run the risk of being unaccountable and sometimes amount to a shortcut to better politics.

Conclusions and future research

- Slovic's claim: the solution lies in a better deliberative democracy where the experts help communities (and viceversa) to reach decisions thorugh dialogue and consensus (in a vision of democracy reminiscent of Wicksell and Lindahl: but how to apply this to mass democracies with mass and social media?).
- Tasic and some papers in financial regulation in in behavioral political economy have an anti-interventionist flavour similar to public choice.
- Public choice evolved into the more eclectic political economy; behavioral public choice may evolve into a more agnostic behavioral political economy, where all agents share different forms of bounded rationality and institutions should be designed to adapt to these in each case.

Conclusions and future research

- Behavioural problems with regulatory agencies add to the early problems that were mentioned by Bernstein in the 1950 and Armstrong et al.in the 1990s: risk of capture, commitment problems, asymmetric information, lack of coordination, lack of political leadeship and skills to shape public opinion.
- Instability of regulatory agencies after political changes (Latin America, Spain, Denmark) shows that independent regulatory agencies suffer from lack of political support.
- Independent agencies are more stable when they enjoy public support and a high reputation (Ackerman: Federal Electoral Commission in Mexico in the early 2000s).
- Combine better democracy and expertise, preserving and improving both.