



SCIENTIFIC COMMITTEE

ANNUAL INTERNATIONAL MEETING

Torino | Thursday, 12th of September 2013

PROCEEDINGS

Finalized in December 2013

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MEETING AGENDA

- 14.30 Opening
Welcoming by **Giuseppe Genon**, President of the Foundation for the Environment and **Tiziana Ciampolini**, member of the Board of Directors of Opera Pia Barolo

Presentation of the Agenda of the objectives of the meeting, by Elisa Vanin
Short presentation of the 2012-2013 activities of the TSLR, by Elisa Vanin
- 15.10 **Scheduled interventions**

Céline Kauffmann, **OECD work with Water and Sanitation regulatory agencies and connections with FIELD**
Carlo Cambini, **Reluctant Regulation and links with FIELD methodology**
Catarina Roseta Palma, **Perception of prices by households in the water and sanitation sector: links with FIELD issues**
Jihad Elnaboulsi, **Service delegation in France and the problem of information asymmetry**
Alessandra Pani, **Portable Biogas Project and links with FIELD methodology**
Meltem Bagis Akkaya, **Potential application of FIELD to the local transport sector**
Atanas Georgiev, **Potential application of FIELD to the energy and gas regulation sector**
André Niedostadek, **Alternative dispute resolution and risk management: interactions with FIELD methodology**
Angela Ambrosino, **Imposed policies and shared policies: how to design bottom-up interventions**
Andrea Gallice, **FIELD and mechanism design: some foundations**
- 16.30 **Presentation of FIELD methodology**, by Franco Becchis
- 17.00 **Some case studies of preliminary application of FIELD methodology to different contexts**

Daniele Russolillo, **Multiple actors and the problem of aligning incentives in the context of biomass plant projects**
Franco Molteni, **Short vs. medium-long term incentives involving different management models for forestry projects**
Andrea Sbandati, **The system of relations and information flows in the water regulation sector in Florence area**
- 17.30 **Open debate**
Intervention by **Alberto Asquer**, Coordinator of the Scientific Committee, via Skype confcall. Following, members are invited to contribute to the **discussion on FIELD methodology**.
- 18.45 **TSLR's schedule for the next months: meetings, courses, participation to conferences, calls for panels and calls for papers to be evaluated jointly with Scientific Committee members**, by Elisa Vanin
- 19.00 **Concluding remarks**, by Franco Becchis

LIST OF PARTICIPANTS

MEMBERS OF THE SCIENTIFIC COMMITTEE

Name	Job position / main affiliation	Country
Angela AMBROSINO	University of East Piedmont	Italy
Lars ANWANDTER	European Investment Bank	Italy
Franco BECCHIS	Turin School of Local Regulation	Italy
Carlo CAMBINI	Politecnico di Torino and European University Institute	Italy
Jihad ELNABOULSI	Université Franche-Comté	France
Andrea GALLICE	University of Torino and Collegio Carlo Alberto	Italy
Giuseppe GENON	Politecnico di Torino and Foundation for the Environment	Italy
Atanas GEORGIEV	Sofia University and publics.bg	Bulgaria
Céline KAUFFMANN	Organization for Economic Cooperation and Development (OECD)	France
Franco MOLteni	Foundation for the Environment	Italy
André NIEDOSTADEK	Hochschule Harz, University of Applied Sciences	Germany
Stefano PIPERNO	Institute for Economic and Social Research (IRES Piemonte)	Italy
Giovanni PISCHEDDA	Chamber of commerce of Torino	Italy
Catarina ROSETA PALMA	ISCTE Lisbon	Portugal
Andrea SBANDATI	CISPEL Toscana and Foundation for the Environment	Italy

INVITED MEMBERS OF THE SCIENTIFIC COMMITTEE

Name	Job position / main affiliation	Country
Meltem BAGIS AKKAYA	Turkish Competition Authority	Turkey
Yane SVETIEV	European University Institute and Bocconi University	Italy

GUESTS

Name	Job position / main affiliation	Country
Giuseppe ACCONCIA	Journalist and Researcher	Italy / Egypt
Tiziana CIAMPOLINI	Opera Pia Barolo	Italy
Luca FANELLI	ActionAid	Italy
Alessandra PANI	International Fund for Agricultural Development (IFAD)	Italy
Antonella RICCI	Compagnia di San Paolo	Italy
Roberto RONCO	Province of Torino and HydroAid	Italy

STAFF TSLR

Alice Montalto
Patrizia Persico
Daniele Russolillo
Elisa Vanin

The full list of members of the Scientific Committee is on-line at www.turinschool.eu/scientific-committee.
The list is constantly updated.

FOREWORD (English)

The Turin School of Local Regulation (TSLR) is an initiative of Foundation for the Environment officially launched in 2012. TSLR builds on 15-year experience in research, capacity building and training in topics connected to regulation of local public services and intends to capitalize the network of experts and partner institutions that share with Foundation for the Environment an interest on specific local aspects of regulation and governance.

In September 2012 the **Scientific Committee of the TSLR** was officially established during a meeting in Torino. The first meeting of the Scientific Committee was a unique opportunity for participants to meet and share ideas. Cross-fertilization amongst different disciplines was one of the main relevant results. That is why the TSLR proposed to turn it into an annual meeting .

The first meeting, being the “kick-off” of the Scientific Committee, was focused on discussing some evolution patterns in local regulation, presenting experiences from different countries and exploring some multidisciplinary approaches to local regulation. The proposal for 2013 was to focus on a specific stream of research launched within the TSLR network and regarding the **design of a multidisciplinary methodology for the analysis of local actors, incentives and information endowment** that surround and lie behind the success or the failure of local services, infrastructures and projects, defining the playing field where their realization takes place. This methodology was named **“FIELD”: Framework of Incentives to Empower Local Decision-makers**.

The design of institutional mechanisms and individual incentive schemes is a crucial task to implement effective policies at local level, where relations are so much intertwined that the enforcement of regulation (investments planning, tariff and price setting, rent control, sanctions) is extremely challenging. Indeed, when either designing policies or investing in public services and infrastructures, an important issue to consider is the tangled web of complex and asymmetric relationships among actors. The nature of these actors (players), their information endowment and the information flow amongst them, the incentives that lead their choices, the type of relationships established, are all features that influence the outcome of policies and projects. This is why a preliminary analysis built on FIELD methodology appears to be necessary before setting up any mechanism design. *“Understand first, then take action”* is FIELD’s motto.

In the first semester of 2013 the TSLR developed a **pilot matrix** that was tested in 3 pilot cities: Belgrade, Cairo and Sofia. This matrix as well as the rationale of the methodology were proposed for a brainstorming session during the meeting to collect ideas for improvements, criticisms, and specific suggestions from participants to the meeting.

The meeting was articulated as follows:

- A first part of presentation of the activities and results achieved in the previous 12 months
- A presentation of the FIELD methodology
- A panel of scheduled interventions on possible applications of the FIELD methodology and on possible synergies with other methodologies
- An open debate to highlight strengths and weaknesses of the methodology and to identify possible improvements and next steps
- A presentation of the TSLR’s schedule for the next months.

The proceedings contain all the speeches and the interventions in the open debate, as well as an Annex with some written contributions received from members of the Scientific Committee who could not attend the meeting.

Overall speaking, the meeting was particularly fruitful in terms of suggestions and hints on possible improvements to the methodology, different fields of application, potential developments. Critics about the complexity of the matrix developed were raised by many participants and this calls for future efforts in simplification and rationalization. Some participants suggested also to continue the reflection on the ultimate goal of the methodology (support to decision-making processes? comparison between different solutions in provision of services or implementation of policies? consultancy? scientific research? ...) in order to select next case studies accordingly.

Despite the need for improvements in the structure and deeper focusing in the scope, all the participants agreed on the high potential and on the added value of the methodology and on the importance of continuing in this direction, developing as much case studies as possible to test it in different geographical contexts and sectors.

PREFAZIONE (Italiano)

La Turin School of Local Regulation (TSLR) è un’iniziativa della Fondazione per l’Ambiente lanciata ufficialmente nel 2012. La TSLR è fondata su un’esperienza quindicinale nella ricerca, il *capacity building* e la formazione su tematiche connesse alla regolazione dei servizi pubblici locali e intende valorizzare la rete di esperti e istituzioni partner che condividono con la Fondazione per l’Ambiente un interesse sugli aspetti specificatamente locali della regolazione e della *governance*.

In settembre 2012 si è ufficialmente insediato il **Comitato Scientifico della TSLR** durante un incontro tenutosi a Torino. Il primo incontro del Comitato Scientifico è stato un’occasione unica per i partecipanti per incontrarsi e scambiarsi idee. La contaminazione tra diverse discipline è stato uno dei maggiori risultati. Ecco perché la TSLR ha proposto di farlo diventare un incontro annuale.

Il primo incontro, essendo il momento di avvio del Comitato Scientifico, si era focalizzato sulla discussione di alcune linee evolutive nella regolazione locale, sulla presentazione di esperienze da diversi Paesi e sull’analisi di approcci multidisciplinari alla regolazione locale. Per il 2013 è stato proposto di focalizzarsi su uno specifico filone di ricerca lanciato all’interno della rete della TSLR e riguardante la creazione di una metodologia multidisciplinare per l’analisi degli attori locali, dei loro incentivi e del loro bagaglio di informazioni che sono alla base del successo o del fallimento di servizi locali, infrastrutture e progetti, definendone il terreno di gioco dove la loro realizzazione ha luogo. Questa metodologia è stata battezzata **“FIELD”: Framework of Incentives to Empower Local Decision-makers**.

L’ideazione di meccanismi istituzionali e di schemi di incentivo individuali è un compito cruciale per mettere in atto politiche efficaci a livello locale, dove le relazioni sono così interconnesse che l’applicazione della regolazione (pianificazione degli investimenti, definizione di tariffe e prezzi, controllo delle rendite, sanzioni) è una sfida ardua. Infatti, sia che si delineino nuove politiche o si investa in servizi e infrastrutture pubbliche, una questione importante da considerare è la fitta rete di relazioni complesse e asimmetriche che esistono tra gli attori. La natura di questi attori, il loro bagaglio di informazioni e il flusso informativo tra di loro, gli incentivi che guidano le loro scelte, il tipo di relazioni che si stabiliscono, sono tutti aspetti che influenzano il risultato delle politiche e dei progetti. Questa è la ragione per cui un’analisi preliminare basata sulla metodologia FIELD sembra necessaria prima di mettere in atto qualsiasi disegno di meccanismi. “Prima comprendere e poi agire” è il motto di FIELD.

Nel primo semestre del 2013 la TSLR ha sviluppato una **matrice pilota** che è stata testata in 3 città: Belgrado, Cairo e Sofia. Questa matrice così come i principi alla base della metodologia sono stati proposti per una sessione di brainstorming durante l’incontro per raccogliere idee per miglioramenti, critiche, e suggerimenti specifici da parte dei partecipanti al meeting.

L’incontro è stato articolato come segue:

- Una prima parte di presentazione delle attività e dei risultati raggiunti nei 12 mesi precedenti
- Una presentazione della metodologia FIELD
- Una sessione di interventi programmati su possibili applicazioni della metodologia FIELD e su possibili sinergie con altre metodologie
- Un dibattito aperto per sottolineare punti di forza e di debolezza della metodologia e identificare possibili miglioramenti e i prossimi passi da compiere
- Una presentazione del programma di attività della TSLR per i mesi a seguire.

Gli atti dell'incontro contengono tutte le presentazioni e gli interventi durante il dibattito, così come un allegato con alcuni contributi scritti pervenuti da alcuni membri del Comitato Scientifico che non hanno potuto partecipare al meeting.

Per sintetizzare, l'incontro è stato particolarmente fruttuoso in termini di suggerimenti e spunti su possibili miglioramenti della metodologia, diversi campi di applicazione, potenziali sviluppi. Sono state raccolte alcune critiche sulla complessità della matrice sviluppata e ciò richiede sforzi futuri per una sua semplificazione e razionalizzazione. Alcuni partecipanti hanno suggerito anche di continuare la riflessione sul fine ultimo della metodologia (supporto ai processi decisionali? Confronto tra diverse soluzioni nella fornitura dei servizi o nell'applicazione delle politiche? Risvolti consulenziali? Ricerca scientifica? ...) al fine di tarare la selezione dei prossimi casi studio.

Nonostante la necessità di apportare miglioramenti nella struttura e di meglio focalizzarne il proposito, tutti i partecipanti sono stati concordi sull'alto potenziale e sul valore aggiunto della metodologia e sull'importanza di continuare in questa direzione, sviluppando il maggior numero possibile di casi studio per testarla in diversi contesti geografici e in diversi settori.

FULL PROCEEDINGS

Short presentation of the 2012-2013 activities of the TSLR

by Elisa VANIN, Project Manager of the TSLR

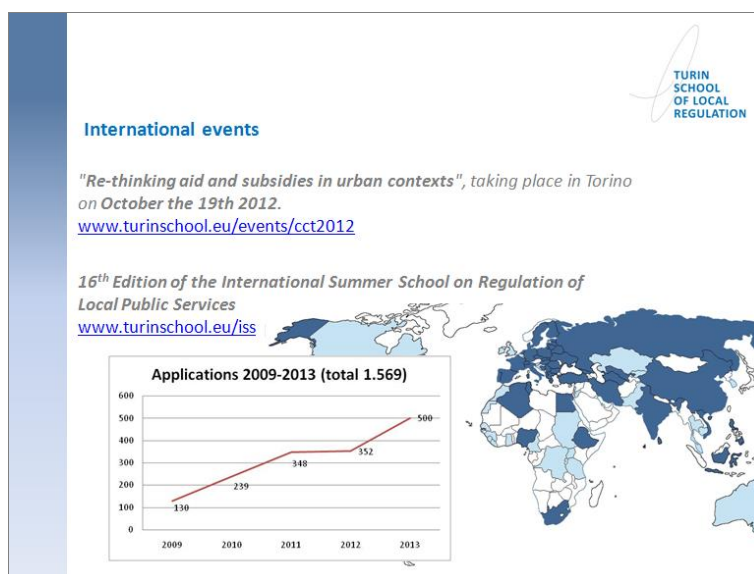
I will try to briefly summarize some of the results achieved and the activities organized since last meeting in September 2012. First of all I wish to focus on **new partnerships**, either already established or under preparation. As you can see in **Slide 1**, we established new contacts to enrich our network, some of them are leading to some forms of cooperation, see for example NISPA, the Network of Institutes and Schools of Public Administration in Central and Eastern Europe, who invited us to coordinate a new Working Group focused on local regulation, as well as POL-LOC, Policy Making and Policies at the Local Level, who organize a yearly Summer School on local governance issues and asked us to establish a partnership with our International Summer School. Other contacts are undergoing and we hope they will also lead to new partnerships, like for example with the OECD Programme for Local Economic and Employment Development (LEED) and the African Institute for Economic Development and Planning (IDEP).



Slide 1

Moreover, the TSLR has become member of two new networks launched by the OECD, namely the OECD Initiative on Water Governance and the OECD Network of Economic Regulators.

In the last 12 months we organized **two major international events**: an international conference in Torino on “Re-thinking aid and subsidies in urban contexts”, that attracted about 300 delegates from the public administration, NGOs, no profit organizations, foundations, etc.. and the yearly Summer School on regulation of local public services, which this year raised 500 applications from 70 different Countries (**Slide 2**), confirming its relevance in the international framework.



Slide 2

Concerning **new projects** launched in the last year, I would like to briefly mention some of them:

- **Turin-Index on final users arrears status:** in 2010 Foundation for the Environment / Turin School of Local Regulation launched a research project on affordability of tariffs of main local public services, in particular energy-environment related services, identifying the factors of change and the impacts on vulnerable groups. This in order to provide local policy makers and stakeholders with the necessary knowledge and instruments to face a topic that, considering the macroeconomic context, is likely to attract more and more attention. The further research question pertains to the possibility of using billing data to derive a signal of vulnerability (or presence of a fuel poverty state). We decided to refer to the economic and sociological literature that studies the poverty states, i.e. periods of life in which the disposable income of the family is below a certain threshold, as a reference point to analyze the dynamics of arrears and we created an index, the Turin-Index, capable to define different levels of arrearage intensity. The index can be easily aggregated to construct city or regional measures.
- **BIOTEAM:** we are partners in a European project¹ that studies the Optimizing Pathways and Market Systems for Enhanced Competitiveness of Sustainable Bio-Energy. The consortium is composed of partners from six Countries, the Netherlands, Italy, Finland, Lithuania, Germany, Poland.
- We worked on some **socio-economic analysis of behaviour and decision-making processes** of some groups (e.g. refugees in Torino area), as well as on the **microeconomic analysis of local services** (e.g. the Early-childhood care sector)
- We have been invited to prepare **two case studies discussing the impact of regulation on innovation in the water area** (Italy and France) for a study launched by European Commission (DG Research in cooperation with DG Environment), aiming to develop a methodology for screening regulatory frameworks, which enables an assessment of their impact on innovation.

Finally, it is worth mentioning the participation of the TSLR to some **international conferences and events** to disseminate the results of some researchers and studies:

- The conference "Management of urban waste in European Metropolitan areas: comparison of different models", organized by CISPEL Toscana, ISWA Italia in Florence on 18th December 2012, where the results of the LORENET comparative table in the urban waste sector were presented

¹ Website: <http://www.sustainable-biomass.eu/>

- The 14th Mediterranean Research Meeting, organized by the European University Institute in Mersin (Turkey) on 20-23 March 2013, where the preliminary results on the FIELD analysis in Sofia, Belgrade and Cairo were presented
- The 21st Annual Conference of NISPACEE, taking place in Belgrade on 16-18 May 2013, where a paper on the experience of the Turin School of Local Regulation in international capacity building and training was discussed
- The workshop “New Directions in the Economic Analysis of Water”, organized by ISCTE – University Institute of Lisbon on 18-19 July 2013, where the preliminary results of the FIELD analysis in the water sector were presented.

Scheduled interventions

OECD work with Water and Sanitation regulatory agencies and connections with FIELD
by Céline KAUFFMANN, OECD

I will give you a bit of background of where we are standing with the OECD work with **Network of Economic Regulators (NER)**² that you mentioned in your slides, also in connection with the work that you are developing and the FIELD methodology. I come from the Regulatory Policy Division of the OECD and the Regulatory Policy Division is mainly servicing what is called the Regulatory Policy Committee of the OECD. Members of the Committee are mainly representatives from the central governments and oversight bodies within governments that are tasked with ensuring good regulation across sectors and across government, so it is not sector specific. They are developing the high level principles that any Ministry, any public body should follow to ensure that regulation that they produce or they enforce is good: typically, principles about consultation, principles about how you implement regulation and so on. We have been working with this Committee for long time and we realized obviously that it was not necessarily enough and here is the connection with the work that you are doing, to understand how concretely regulation is implemented on the ground. We recognized that there was a gap between these oversight bodies, high level principles established by governments to ensure good regulation and the way regulation may be or is implemented on the ground by regulators.

Consequently, we suggested to establish - and it is becoming just now a formal body of the OECD - a Network of Economic Regulators. The idea is to gather economic regulators from **infrastructure sectors** (transport, telecom, water and energy) mainly from OECD countries, but also from some non-OECD countries. The objective with both constituencies is to discuss most specifically the **governance arrangements, institutional setting, legislative framework, operational modalities, mandate** and everything that can provide incentive and help both the policy makers and the regulators to discharge their functions. So we strongly believe in institutional settings, governance arrangements, *acquis* to be established, incentives for the actors and the key players of what we call regulatory governance. But this is important because we are not working, for instance, very specifically on tariff setting methodology. We work more on how you do develop tariff methodologies, tariff structure so that you can achieve your policy objectives. It has to do with the way you will consult on the tariff structure and methodology and it has to do as well with the way that the roles and responsibilities are allocated across government to ensure that people who set, update and approve tariffs, have the mandate to do so and can discharge this function rightly and it has to do with the implementation mechanisms to ensure that the incentives are established

² Webpage: <http://www.oecd.org/gov/regulatory-policy/ner.htm>

on the ground and things happen on the ground. So we are very interested into this issue of interface between, typically, ministries and the centers of government and regulators. This has both to do with how the regulator is embedded into the broader institutional setting of regulatory framework for water, and also with something that comes out clearly from your paper, which is obviously the autonomy, the independence of the regulator in that framework. It has to do as well with the accountability mechanisms that frame this regulator which is the face of, if we want, independence for us. It has to do also as well with how the regulator feeds back into the policy making cycle. We are working with regulators on these different issues and what we do is to provide the platform for them to meet and to discuss these issues of the mandate, the founding legislation, the operating modalities so just staff, financing, degree of independence and so on. More recently we started more precisely to work with the water regulators of this network of economic and we are working with thirty of them, both at national level and at state level - in countries like the US for instance - to sample them in a way and understand their practices across these different dimensions that I mentioned and to see how they do discharge their function today, looking at their institutional framework, governance arrangement, operational modalities. I think this line of work will complement very nicely what you are doing. We are both interested into this mapping of institutions, who plays which role in the regulatory frameworks for water but also to the incentives and that each of these actors have to discharge their function.

Reluctant Regulation and links with FIELD methodology

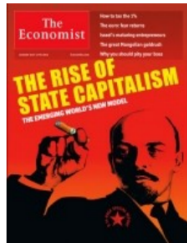
By **Carlo Cambini**, Politecnico di Torino and European University Institute

I am going to present a sort of academic paper but without any technicalities. In reality this is a sort of empirical investigation on how regulation may work in Europe. The idea was to try to make a link between a regulatory intervention, which is very very close to what Céline said before. How regulation works when have a “strange” interplay between regulation, ownership and the kind of political institutions that characterize a single country. The paper is a joint paper with some colleagues of University of Torino and Bocconi University with an evocative title “**Reluctant regulator**”³. Why reluctant? Because we found basically that, in specific circumstances **ownership** is something that may highly affect the way on which regulators take their own decisions and this is basically a sort of recommendation that I want to give to the FIELD methodology, which is in somehow **to take into account the ownership**, the way in which it may affect regulation. Basically just to give you an idea, The Economist, well-known newspaper, in 2012 had this evocative and strange special issue on the rise of state capitalism (**Slide 3**). Basically they describe how this is probably due to the financial crisis we observe, there is a huge government intervention in the economy. Here we quote some sentences on this special issue. I want to focus on the second one which is, so when we have ownership “**How can the state regulate the firms it also runs?**”.

³ Available at: http://mpra.ub.uni-muenchen.de/48073/1/MPRA_paper_48073.pdf

Motivation

The Economist – January 2012



- “Governments are becoming more sophisticated owners. Only a handful of SOEs are still reporting directly to government ministries. Most governments prefer to exercise control through their ownership shares: they have become the most powerful shareholders across much of the developing (but not only) world”
- “How can the state regulate the firms it also runs?”

Our paper investigates the effect of government's **reluctance to release control** on firm value and how institutional environment (Stigler, 1971; Levy and Spiller, 1994) is fundamental to assess the real impact/credibility of regulatory intervention

2

Slide 3

Obviously I'm not interested at all in discussing if state ownership is good or bad. This is not the topic. What we want to understand is if the presence of ownership may somehow affect the way in which regulation is defined, so how regulators affect the analysis. Obviously there is some special and very famous analysis, starting from Stigler and many others, on the way on which regulators are independent, may be *de facto* independent or independent *de iure* and so forth. The idea is to try to understand it with some data. So this is the kind of analysis we did, and we started with such very general observations on the main variable we use in this analysis, which is not a performance variable of the company.

What defines a weak (or strong) institutional environment?

- ⇒ State ownership and regulatory independence are **endogenous**
⇒ **Political Institutions** → GovUCR*IRA → MTB
- We use Political Institutions as instruments:
 - Checks & Balances**: number of decision-makers whose agreement is necessary before policies can be changed or revoked (WB-DBPI)
 - Electoral Proportionality**: Proportional electoral systems lead to party proliferation and fragmented governments, making policy changes less likely, and regulatory commitments more credible (Gallagher, 1991) (Alesina and Rosenthal, 1996)
 - We also account for social capital and culture – **distrust** generates more demand for regulation (Aghion et al., 2012)
- Our goal**: Identify the channel through which weak political institutions allow governments to affect firms and investors (and consumers)

4

Slide 4

We don't want to understand if, when the state controls a company, the company is more or less efficient. Here we took a different perspective, the **perspective of the financial market**, and we analyzed what is

called the **market value of the company**, so basically how financial markets consider state-controlled and privately-controlled companies. So here there are some values, market-to-book ratio, some of these indexes, before and after the inception of independent authority. What we observed is a strange phenomenon: **the value of private companies decreased over time after the introduction of independent authority while we observed the opposite if the state controls the company**. Again, there might be several reasons for this, may be reasons of efficiency, the state controlled companies are more efficient, may be a lot of other explanations. Obviously we tested all these kinds of explanations but we don't have too much time to enter in the details. Basically we collected a lot of data at the European level (Slide 5).

Data and Variables

- **57 publicly traded energy and telecom operators**
 - 14 EU member states, 1994 - 2005 :
 - 12 of the top 30 for Mkt. capitalization in EU
- **IRAs** in place in all countries, mostly set up in 1997-2000
- **Market-to-book:** $(TA - BE + ME) / TA$ (Worldscope)
- **Formal Regulatory Independence:** dummy equal to 1 when the IRA is in place (Gilardi, 2002)
- **State ownership: Government Ultimate Control Rights** continuous variable, measured using the "weakest link concept"
- **Firm, industry and country controls:** Size, Profitability, Leverage, OECD Liberalization Index, Invest_Protection, GDPgrowth, Debt/GDP
- **Instruments for Ownership & IRA:** Checks & Balances, Electoral Dis-proportionality, Political Orientation, Election date, Government Stability, Social Capital (Distrust Index, World Value Survey)

Slide 5

We have data on energy, telecoms but then we complemented the analysis with transports and water industries in fourteen European member states. The companies are worked at a national level, mainly, but there are also some that work at local level, so local authorities, and then we collected a lot of information in terms of kind of regulation, financial values, state ownership of the company, so we tried to understand how ownership evolved over time. We also used the OECD index of liberalization to check if opening the market may justify these differences in values and so on. What we observed, I might say this is basically the second link with the FIELD project, is the fact that **political institutions matter a lot**. The idea is that there might be some institutional environments that favor a sort of **political interference** in the way in which regulation is defined.

These political institutions in general are the one that constraint more or less the government in its intervention. Obviously it is extremely difficult to assess if one regulator is independent. The OECD is trying to make an analysis on this, there is a lot of researches around Europe that are going to assess the degree of independence of regulators. Here we take a different approach - close to the FIELD document - that is a **political economy approach**, looking at the constraints on the government at the institutional level, mainly working with the international data from OECD or some other data related to the kind of veto power present in a country, or the kind of electoral system that characterize a country or the kind of social capital and culture accumulation, if people trust in the society or not. So, something related to the social and political characteristics and so basically our conclusion in the paper is the following: we find the good news that is, **ownership does not matter when institutions are strong** so when institutions are able somehow to constraint a government in affecting the behavior. Where, again, there is a lot of veto power, the

government has less latitude to interfere with regulators decisions. On the contrary, when the institutions are somehow weak the government has more latitude to interfere with the regulator, or revert the decision of the regulator quite easily, ownership matters a lot and this affects the results. The reason why we observe from the beginning high value of state-controlled companies vis-à-vis private one is due to the fact that in some countries institutions are weak and institutions affect positively and mostly state-controlled companies. Because again remember, we used financial values so the financial market reacts considering state-controlled companies in special environment more valuable than private one.

Firm Value and Political Institutions: Main Findings and Conclusions

- The larger the Gov't ownership stake, the higher the market value of regulated firms, *when* the Gov't can discretionally interfere with formally but not really independent regulators
- Political interference with IRAs is likely to intensify:
 - ⇒ In presence of residual state ownership, as a soft regulatory stance will raise profits and dividends: the “*motive*”
 - ⇒ When the country's institutional endowment (e.g. weak checks and balances) allows them to do so: the “*opportunity*”
- Our results raise concerns about the effectiveness of privatization and regulatory policies in EU network industries when the institutional constraints to political interference in regulatory matters are weak

Slide 6

Perception of prices by households in the water and sanitation sector: links with FIELD issues

By Catarina Roseta Palma, ISCTE Lisbon

In the meeting of last year I told you a little about a project that we are running in Lisbon⁴ about prices and behavioral responses of consumers and so this year I thought that the most interesting thing, for those of you who remember what I said last year, would be to show some first results of our project. Very briefly I will show some results in a specific topic. This is not a paper yet, we have written data that I will show you, just qualitative comments on the data we received from the survey that we performed. This was a phone survey, we did it last year. We gathered a lot of information as you can see in **slide 7**, I will show you what's there in red which is the tariff bill and awareness of consumers.

⁴ Pricing and behavioural responses in the water sector, PTDC/EGE-ECO/114477/2009

Introduction

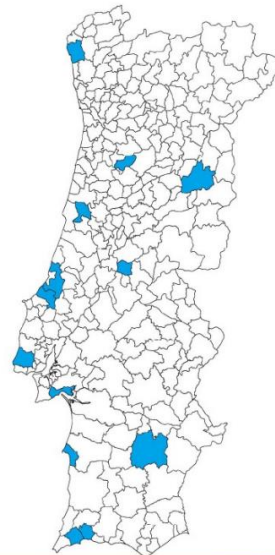
- Phone survey conducted in the summer of 2012 of residential water consumers.
- Information was gathered for:
 - Respondent characteristics;
 - Household characteristics;
 - Dwelling characteristics;
 - Consumer habits
 - **Tariff, bill and consumption awareness**
 - Attitudes towards environmental and financial sustainability
- Survey data was later merged with actual consumption and billing figures, for the period July 2011-June 2012 and meteorological data will also be appended.

Slide 7

These are residential consumers, so we didn't have other types of consumers involved in the survey. After gathering the data from the families by phone, we compared what they told us with the actual consumptions data that we got from the utilities to try to understand how the consumers' perceptions are or are not based - actually they are – in reality. In **slide 8** you can see the municipalities that we got collaboration from, pretty spread around the country, which was nice, we were happy with that.

Water utilities

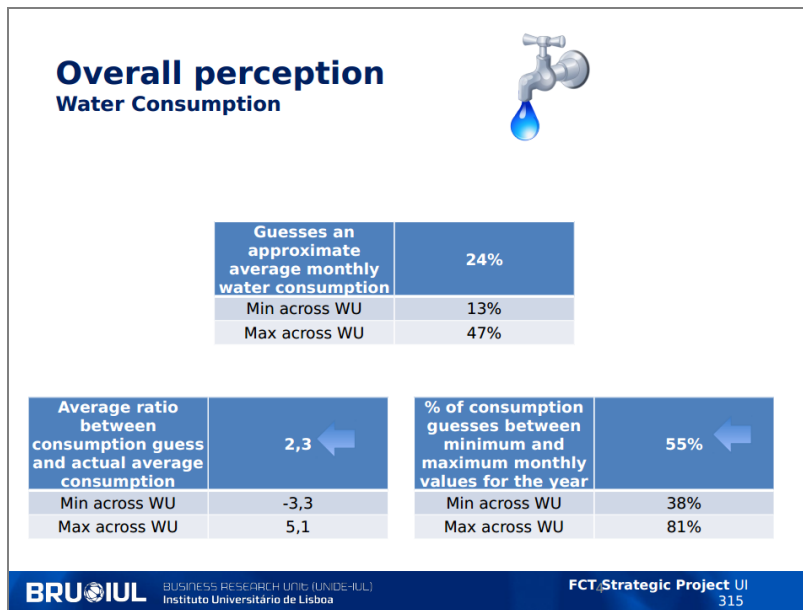
- With the help of ERSAR (economic regulator for the water and waste industry), 13 water utilities joined the project. Their selection was based on willingness to cooperate.
- Number of consumers with data: 2386



Slide 8

We have 2,386 valid interviews, so interviews which have enough data to be analyzed. This is our sample and now let me show some interesting results on the perception of the consumers.

How many consumers can guess an approximate average monthly water consumption? (slide 9)

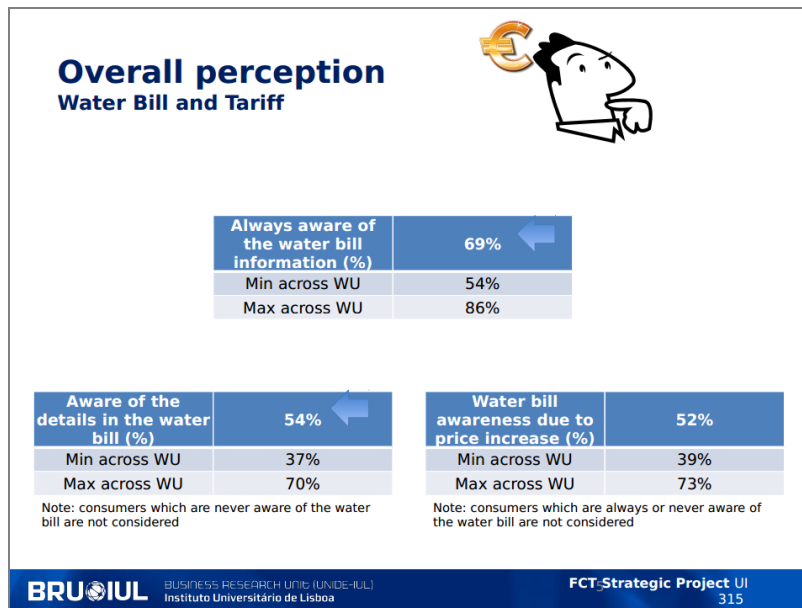


Slide 9

Only 24% of consumers are willing to guess how much water they consume. This tells you essentially that people have no idea on how much water they are using. Generally speaking the minimum across water utilities was 13% and the maximum 47%. Now, when you compare what the people who said they were willing to guess their consumption and then gave some numbers, and then we compare that numbers with their actual consumption and the average ratio, they guess twice as much as they actually consume. This is just to give you some ideas. The percentage of guesses which were between the minimum and maximum values, because we know that water consumption can vary a lot, especially when you have the garden or things like that it varies a lot in the summer, so only 55% of the guesses were within the minimum and maximum consumption of the household for the entire year. So this already gives you an idea people really don't know how much water they are using.

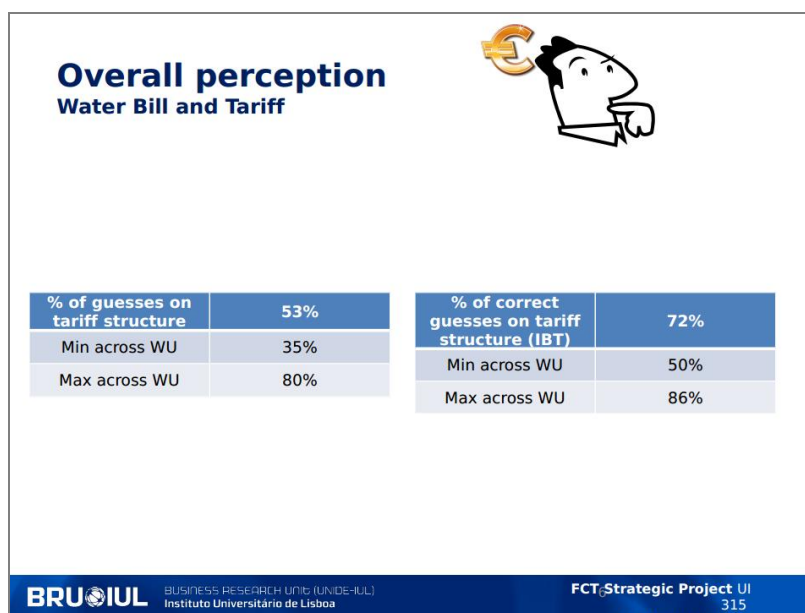
Do they know a lot about their bill, about the payment information? (Slide 10)

So we asked them "Are you aware of your water bill information?" and 69% of the consumers said "Yes, I am aware of my water bill". "Are you aware of the details in your water bill?" Of that 69%, 54% said "Yes, I'm aware of the details". And some of them said they were aware of the details because there was a price increase otherwise they wouldn't have been aware of the details. 53% of those consumers are willing to take a guess on the tariff structure. In Portugal most utilities have increasing blocks.



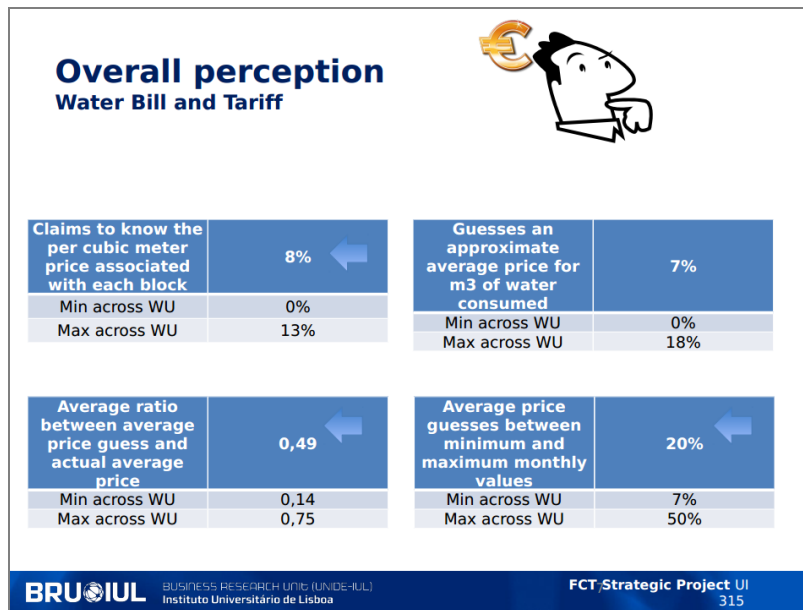
Slide 10

So we ask the consumers if they knew the type of tariff they had (**Slide 11**). 72% of them did say that they had an idea that there were an increasing block structure.



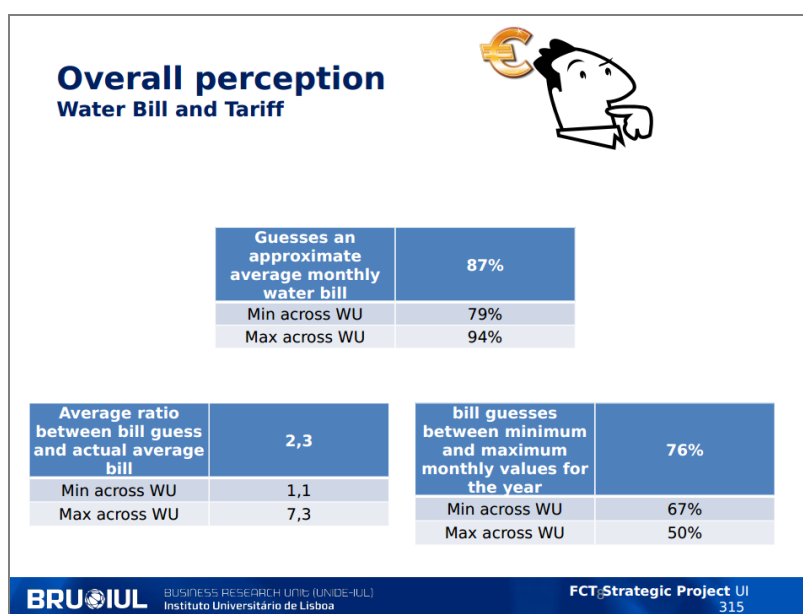
Slide 11

So consumers are aware of the fact that their block structure is increasing. However only 8% of consumers claim to know the price that they are paying for each block (**Slide 12**). And then only 7% of consumers can guess the average price per cubic meter of water. This is not a surprise because if they don't know how much water they're consuming it is not a surprise that they also don't know how much they're paying for their water but it's just to give you an idea of the situation.



Slide 12

For those very very small number of consumers who do guess the average price for cubic meter of water, the number that they give is half the actual price they're paying. So you see that consumers mostly don't know what they're doing but when they do guess, they overshoot consumption and they undershoot price. Only 20% of the time was the average price guess actually within the minimum and maximum values. So if consumers don't know how much water they're consuming and also don't know the price they're paying, what do they know? What turns out, and probably most of you will be surprised, they do know how much they pay per month and this strengthens the model that we had last year, that I talked a little bit about, that consumers have a reference expense but they have really no idea how the expense is divided between price and quantity. So 87% do think that they know how much they're paying (Slide 13).



Slide 13

Well in fact they don't actually know how much they're paying, indeed actually they think they're paying twice as much as they are paying when you look at the bills that they pay. So people's perceptions of their own awareness of payment is very high unlike was the case with consumption and even less the case with the price but they really overestimate how much they're actually paying and these are payment they've already done. We asked them at one point of the year and then we compared their answer with their actual payments for the previous 12 months. These are people who have paid the bills for 12 months. We have more data I want to show you about, some more details about these families as we asked them "Are you the person who pays the bills?" because sometimes the person who is on the phone is not paying the bill and so obviously they have no idea of what they're doing. In many case it was true that people said "I'm paying the bill" and still they think they're paying twice as much they're actually paying. So some conclusions (Slide 14).

Conclusions and further research

- Consumers erroneously believe they are aware of their water tariff.
- Consumers are not aware of the average price and significantly underestimate it.
- The amount of water consumed is also uncertain for consumers.
- They seem to be more aware of the total amount of the water bill.
- Next step:
 - Check for determinants of perceptions
 - Check impacts of erroneous perceptions on consumer behavior
 - Use data for water demand estimation using a discrete/continuous choice model.
 - Use data for a quantile regression of residential water demand.

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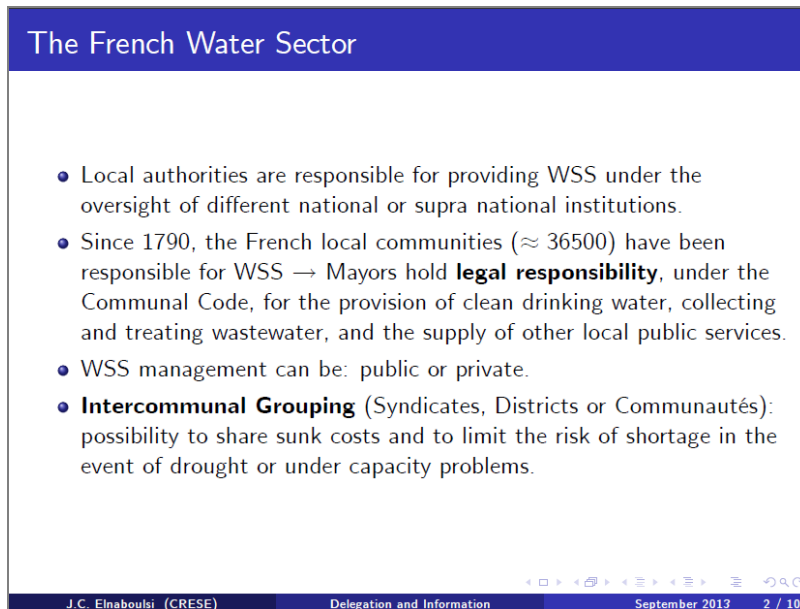
Slide 14

Consumers erroneously believe that they know their water tariff, they're not actually aware of the average water price and when you ask them how much it is, they significantly underestimated. The amount of water consumed it's also uncertain but here they tend to overestimate how much water they're consuming. They seem to be slightly more aware of the total amount of the water bill however we also saw that still even there is a difference between what consumers think they are paying and what they're paying. Now the next step in the project, we are going to check for some of the determinants of these perceptions like if the person on the phone is the one who pays the bills or not, like if the bill is paid by direct debit in the bank or if it's paid each month by someone who has to make a decision on how much money they're paying. We know that if your bill is paid by direct debit you're probably paying less attention than if you're having to go somewhere to pay the bill each month. We also would like to, and this is the main point, check the impacts of these perceptions on consumers behavior. So if you have a model of a rational consumer and you're basing all your demand estimation on the fact that consumers know what they're doing, I don't know if this is the case in any country but it definitely isn't the case in Portugal. So we can estimate demand based on data assuming that consumers have the full information rational behavior because this is not supported by data at all. So we want to do some exercises in water demand estimation. Maybe if I come here next year I will have results for.

Service delegation in France and the problem of information asymmetry

By **Jihad Elnaboulsi**, Université Franche-Comté

I'm working on water services delegation in the French case and how to deal with the information asymmetry. You know that is easier to misinform than to tell the truth and on the other hand you know well that it's not easy to design mechanism in such a way the best lie is the truth. The idea is: today we have a huge bunch of public information. When I say public information I mean that information NGOs publish a lot of documents, the OECD is publishing a lot, the World Bank, public agencies and what we call also the watchdog groups. How can local authorities use this available public information today to improve the delegation process? So this is the idea and I will present you two methods. It's a really theoretical work. In France (**Slide 15**) local authorities are responsible of delegating or managing water services and other services, public services, and these services can be publicly or privately managed and we have the possibility to what we call the Intercommunal Grouping.



The French Water Sector

- Local authorities are responsible for providing WSS under the oversight of different national or supra national institutions.
- Since 1790, the French local communities (≈ 36500) have been responsible for WSS \rightarrow Mayors hold **legal responsibility**, under the Communal Code, for the provision of clean drinking water, collecting and treating wastewater, and the supply of other local public services.
- WSS management can be: public or private.
- **Intercommunal Grouping** (Syndicates, Districts or Communautés): possibility to share sunk costs and to limit the risk of shortage in the event of drought or under capacity problems.

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Slide 15

In the other hand delegation in France goes through what we call contracts, we don't have a national regulator in France. It's a contract-based-regulation. Mainly we have four contracts (**Slide 16**): concession, lease contract or *affermage* and management contract or *gérance*.

Delegation of Water and Sanitation Services in France

- Delegation contracts differ according to:
 - the degree of the firm's involvement in the service;
 - the proportion of the risk that the external operator bears.
- Four types of contracts are used in the delegation of industrial and commercial public services in France:
 - Concession.
 - Lease Contract (*Affermage*).
 - Management Contract or *Gérance*.
 - "Commissioner management contracts" known as *Régie Interessée*.
- Contracts specify the nature of expected services and the pricing issues (including price revision and indexation formula).

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Slide 16

The most important is *affermage*, where we have the private operator who will run the service in terms of operation and daily practical issues, and on the other hand you have the local authority still responsible of investments and so on. Sometimes we have some mix of these operation costs that are born by the operator or the public authority. Today we have some problems dealing with this asymmetric information because we don't know if the operator will do the best of him to manage the services. We have also in finance, unfortunately, a lack of real competition and the contracts are incomplete. So what can we do in this situations knowing that we have a lot of public information available today? Can we improve the efficiency in designing these contracts and their cost uncertainties? (Slide 17)

Dealing with Asymmetric Information

- Let's consider the case of lease contract or *affermage*.
- Can we improve the efficiency in designing the delegation contract under costs uncertainties?
- New methods which differ from the previous works in the information structure of the game and its distributional properties.
- This game is relevant in industries where the regulator accumulates some accurate information about costs such as administrative or operating costs.
- We introduce incomplete information by assuming that agents observe noisy private and public signal about marginal costs

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Slide 17

So I'm dealing in this part with cost uncertainties, I'm not talking about demand uncertainties. Yes, part of, because we have new method used especially in the financial market and this method is different from the previous works because the structure of the game and the structure of the information is quite different. Why this information structure? Because in the water industry and in transportation and so on the regulator accumulates some accurate information about costs, such as administrative or operating costs. Dealing today, tomorrow and in the past, let us accumulate some information so we can probably use it. Two methods by considering that agents observe all agents, including the regulator, observe noisy private and public signals about this specific parameter which is the marginal cost. So the first one (**Slide 18**).

Dealing with Asymmetric Information

- We consider that the firm's cost function exhibits constant returns to scale and is additively separable:

$$\tilde{x} = \tilde{u} + \tilde{c}$$
 where \tilde{u} , is the public or common information observed by all players, and \tilde{c} , is a private component, which is a private information known only to the operator:

$$\tilde{c} = \tilde{s} + \tilde{\varepsilon}$$
- $\tilde{\varepsilon}$ is a noise term with $\mathbb{E}(\varepsilon) = 0$ and $\mathbb{E}(\varepsilon^2) = \sigma_\varepsilon^2$. \tilde{s} is a positive random variable and is distributed according to some prior density with mean μ_c and finite variance σ_c^2 , i.e. $\tilde{s} \sim (\mu_c, \sigma_c^2)$.
- The local authority has to design the delegation contract in order to:

$$\max \mathbb{E}_{\tilde{c}} \left[\tilde{W}(\cdot) \mid \tilde{c}, \tilde{u} \right] \equiv CS + (1 + \lambda)\pi$$

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Slide 18

If you have the assumption that a linear demand, a linear cost function and a linear expectation so we can use the public information and we get some solid result at this stage. This is the first method or the first model if we have these triple linearities so we can get some improve the delegation process. The other method (**Slide 19 and 20**), I didn't get any result at now, this is the work of Angeletos and Pavan, published in 2007 in *Econometrica*⁵.

Dealing with Asymmetric Information

- Following Angeletos and Pavan' works on the social value of information, we can introduce incomplete information by assuming that nature draws c from a Normal distribution, i.e. $c \sim N(\mu, \sigma_c^2)$.
- The realization of c is not observed by the players. They observe:
 - private signal:

$$g = c + \xi$$
 - public signal:

$$y = c + \epsilon$$
 where ξ and ϵ are independent of one another as well as of c , with variances σ_ξ^2 and σ_ϵ^2 .
- The common posterior for c given public information is Normal with mean

$$z \equiv \mathbb{E}[c | y] = \alpha y + (1 - \alpha)\mu$$
 where $\alpha \equiv \frac{\sigma_y^{-2}}{\sigma_y^{-2} + \sigma_c^{-2}}$ and $\sigma_z \equiv (\sigma_y^{-2} + \sigma_c^{-2})^{-\frac{1}{2}}$.

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Slide 19

⁵ Angeletos, G. and Pavan, A. *Efficient use of information and social value of information*, *Econometrica*, Vol. 75, No. 4 (July, 2007), 1103–1142. <http://economics.mit.edu/files/2115>

Dealing with Asymmetric Information

- The common posterior for c given public information is Normal with mean

$$z \equiv \mathbb{E}[c|y] = \alpha y + (1 - \alpha) \mu$$

where $\alpha \equiv \frac{\sigma_y^{-2}}{\sigma_z^{-2}}$ and $\sigma_z \equiv (\sigma_y^{-2} + \sigma_c^{-2})^{-\frac{1}{2}}$.

- Private posteriors are Normal with mean

$$\mathbb{E}[c|g, y] = \delta z + (1 - \delta) g$$

and variance $\text{Var}[c|g, y] = \sigma^2$, where $\sigma^{-2} \equiv \sigma_g^{-2} + \sigma_y^{-2} + \sigma_c^{-2}$ and

$$\delta \equiv \frac{\sigma_y^{-2} + \sigma_c^{-2}}{\sigma_g^{-2} + \sigma_y^{-2} + \sigma_c^{-2}} \in (0, 1)$$

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Slide 20

So we have a private signal and the public signal with some specific characteristics and of course I think we are going to get some solid results too which is a more general method comparing with the first one. In both cases the public information can be a value to decision makers and serves as an input device in designing the optimal contract in the case of water services or transportation. As I said, in the first case we have this assumption, linearity is needed, and in the other one we don't need it and we can get some solid results (**Slide 21**).

Dealing with Asymmetric Information

- In both cases, the public information will be of value to decision makers and serves as an input device in designing the optimal delegation contracts.
- In the first case, the triple linearity is needed to design the optimal contract.
- In the second case, the quadratic specification for the payoffs structure is not needed, i.e. the linearity assumption does not appear to be essential for the main insights.

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Slide 21

Anyway this is the second part of the work and maybe next year we are going to get some published work on it.

Portable Biogas Project and links with FIELD methodology

By **Alessandra Pani**, International Fund for Agricultural Development

This is our project “**Making biogas portable**”. In December 2011 we went through a bidding process launched by the UK Department for International Development (DFID) to get some funding in order to implement “Making biogas portable”. What is the rationale behind this project? (**Slide 22**). Firewood accounts for 95% of energy use in Kenya and this brings consequently that woods supply are actually decreasing by 40% every year and firewood is also responsible for 25% of global CO2 emissions.

Rational

1. Firewood accounts for 95% of energy use in Kenya;
2. It is estimated that each person uses 1 ton of wood/year;
3. Wood supplies are diminishing by 40% per year;
4. The annual deforestation rate of 12,000 ha / year (total remaining forest: 3.5 million ha);
5. Firewood is responsible for 25% of global CO2 emissions;

Slide 22

So basically this has a great impact both on climate change, on the environment, but also it presents some issues for our beneficiaries both at the health level and gender level. As you can see in **slide 23** we listed a number of problems that potential beneficiaries may be affected with.

Impact of firewood burning

- ▶ Effects on climate change with consequent impact on unpredictable rainfalls, crop yields and habitat/biodiversity losses;
- ▶ Harmful to women and children due to insufficient ventilation in cooking areas resulting in breathing problems, immune problems, eye problems and cancer;
- ▶ Collecting Wood causes health problems: tiredness, headache, back and joint pain and injuries;

Slide 23

So with this in mind we actually thought about biogas. Biogas is a better form, a better source of energy (Slide 24).

Why biogas is a better option

- ▶ Less impactful on environment (CO₂ reduction)
- ▶ Less heavy physical workload
- ▶ Renewable energy
- ▶ Power to run generator: battery charging, cell phone, lights
- ▶ Residue is a valuable fertilizer

Slide 24

It comes biodegradable material, actually it is kitchen and animal waste, and basically we made it portable because we don't need to have a dome, something fix, but actually it is brought via a plastic bag made of PVC Tarpaulin and it's quite small. You don't need to agitate it and you don't need to do anything compared to the normal biogas and for this reason we basically found out that it has a better impact both on the environment and on the health of our beneficiaries. We started implementing it (Slide 25 and 26 are just two very simple slides on how it works) in January 2012 and it's based in Kenya and needless to say it actually presented a number of constraints although quite successful so far.

How does biogas work?

1 : 1

1 day:
1/2 of dung from 1 cow + 20 L of water

Slide 25

Flexi Biogas system

- ▶ Generator life: 10 years
- ▶ Easy installation and maintenance
- ▶ Portable (no need to own land)
 - Cheaper than other bio-digestors (Chinese and Indian fixed dome models)

Slide 26

It's an innovation project so that means that also in IFAD it actually presented some innovations both at the level of procurement because we needed to purchase a number of devices and instruments both in Kenya and China and actually for this reasons IFAD was not equipped at all, in order to face this kind of purchase. Also we launched a communication campaign because we wanted to educate our beneficiaries and unfortunately so far we found out that biogas has been associated with flies, something dirty, sometimes

even smelly so we wanted to launch a campaign targeting of course our beneficiaries but also educating them. For this purpose we actually work with a communication agency based in Kenya, we produce some communication materials in the own local language and we also use radios and comic strips and this also tends to be quite successful. We also manage to actually tackle the procurement issues and for the time being we are looking forward new challenges. What are our new challenges? (Slide 27)

Way Forward

- ▶ Compression of biogas in bottles and marketing
- ▶ Standards and regulation marketing for compressed biogas
- ▶ Carbon trade (payment for environment services)
- ▶ Biogas use awareness/visibility raising
- ▶ Policy advocacy for biogas promotion
- ▶ Partnership
- ▶ Additional funding

Slide 27

Basically we would like to compress biogas in bottles, so we are looking at the marketing side. There are no regulations at all regarding this issue, there is no policy advocacy for example, no regulation. I'd want to say it's a grey area but it's a quite brand new area. And also we are looking at some partnership because as Elisa has said at the beginning of her intervention it's also instrumental to partner and to basically enrich yourself with new experiences potentially bringing to new funding in order to go ahead.

Potential application of FIELD to the local transport sector

By **Meltem Bagis Akkaya**, Turkish Competition Authority

I talk about a potential application of FIELD to local transport sector. Local transport sector could be very interesting to analyze in terms of regulation, making a comparison between emerging and developing countries. I was able to find three very easy reasons for that. First, and as you very well know and Catarina's research has already proved it, the reactions to local services usually are received by like at least a month. You receive your payment, you do it monthly or sometimes quarterly so the reactions are done by a delay. But in local transport you receive the reaction immediately. What happened in Istanbul a couple of month ago was very interesting. The price of students travel pass was increased by 10% and there was an immediate reaction to it, people, students, the young people got organized through social media, they twitted - the power of Twitter and Facebook. They got organized in less than an hour and there was a huge reaction that started the setback, that is so strange, it is a kind of cancellation of the regulation. Transport has a very different quality, plus, as you suggested, as your research suggested, people are not aware of the quality is in, the ingredients of the services but in transport you know it very well. I mean if your bus doesn't show up, you're going to catch the 8 o'clock bus and it doesn't show up, it is 10-15 minutes late or if it's cancelled and you don't know it, what do you do? You immediately react to it, and you know very well

where it should be, what it should be, what you are buying. You know what you are buying when it comes to transport. So it's quite important. Second there are many many stakeholders, there are many players and many incentives in local transport. The benefits of transport are much higher when compared to electricity or gas. In gas or electricity you have the households but in transport you have even the tourists. I'm a tourist here in Torino now, I have already used the tram and buses, the receivers are much higher so the reaction to the quality is also important. What is more important in this comparison is that we have different kind of local transport in different countries, and in different cities even, like in Ankara we don't have trams. We have subway that is very efficient, we have buses and we have a very special thing that is called *dolmuş* - a smaller version of the bus hop-on-and-off - you can just pay, you can just stop it, it's a sort of a shared taxi, between a taxi and a bus, it's very efficient, it's very Turkish. I've never seen it anywhere else in the world, so it could be interesting to see all these different patterns, and all these people do it differently. So I would suggest making such a similar application of FIELD to this sector but as I leave my suggestions to the open debate, I would suggest also making a sort of enhanced econometrical model. And then following your path that you have done in FIELD to waste when comparing all these three series. I can also say that there are many different players and incentives again in local transport. First it's a civil right, you have a right to transport at least in Turkey, so it's a statute obligation placed on the central state. When central state does it, it shares its obligations with the municipality. Now being a metropolitan municipality, you have the metropolitan municipality. So it's a political decision. When there is a political decision then there can be a little of corruption, so it's an incentive. Then you have other borough councils which makes it a little bit more difficult, to share these streets, which passes through where, who cares or who decides. There is the planning, there is the budgeting, there is the environmental decision and then, again peculiarity of Turkey, we have free passes distributed to army, to war-struck people or terror-struck people. Then you have the army, the Ministry of Defence who decide to whom these passes will be distributed to. So you have a very large number of beneficiaries and stakeholders, involved players when compared to other services. I think it would be very interesting considering the power of social media nowadays when looking at this kind of regulation and competition stuff. When analyzing regulative decision I think we now have to pay attention to social media reactions.

The speech was accompanied by the following slides (**slides 27-33**):

Potential Application of FIELD to the Local Transport Sector

- Possible to make a similar analysis for the regulation of local transportation system. Regulating the local transport plays a crucial role for the residents of the city-in-question and can also give the platform to make a comparison between different cities and countries.
- Regulating other local public (classical) services like electricity, waste, water have a different impact on stakeholders. Whereas the effects of pricing of these services are felt on a longer duration (at least a week/month), the pricing, quality, accessibility and other qualities of the local transportation and the reactions to it are felt on a daily even on an hourly basis.
- Moreover, the stakeholders and benefitters (or within the boundaries of game-theory, players) of local transport are much larger in numbers when compared to other services.
- Depending on various methods of transport (subway, bus, tram, *dolmuş* – a small hop on-and-off bus -), incentives & players may show a different pattern between different cities.

Slide 27

Methodology

- The decisions related to the types of transport, pricing, the routes, the time tables, the distribution of free-travel passes and the types of daily/monthly/yearly travel passes involve different players and various incentives.
- A model based on these different variables can be more complicated but it could help understand the basics of local regulation and may give rise to a sound comparison between different cities.

Slide 28

Players & Incentives

- Local transportation involves many dimensions ranging from the basic right to transport (statutory obligation placed on the state) to traffic rules which each of them have very different incentives behind them.
- Based on Ankara (Turkey) example, : to start with providing and regulating of such service is a constitutional right. On one hand the regulation of local transport involves a statutory obligation placed on the central government (represented by the governor). Second, it involves a political decision: metropolitan municipality, the municipal council and the municipal committee, the mayor and then the borough councils which act independently from the metropolitan municipality.
- Then there is the environmental dimension. Next comes the planning. Like in many cities, the pricing is versatile and it is very sensitive towards minor increases. The distribution of free travel passes to elderly people (aged over 65), to financially-needy people, to martyr-families and terror-struck people all include different interest groups and different public institutions and NGOs. Furthermore, the infrastructural design occupies a large stake in the budgets of municipalities and in many cases requires the financial contribution of the central state, even foreign investment. Plus the diversity of transportation from subways to buses, trams also adds new incentives and players to the model.

Slide 29

Players & Incentives

- the right to transportation (both civil and human right) – central government
- Municipality (metropolitan and boroughs)
- Traffic
- Planning
- Budgeting & financing
- Distribution free-travel-passes (army, ministry of social aids, ministry of education etc.)
- Universities
- ...

Slide 30

Alternative Methods

- As a complementary or replacement of FIELD, two other methods can be used to reach concrete results:
- When analyzing large scale stochastic systems - systems that are made up of many independent players - classical approaches such as game theory (Bayesian game in particular), or a suitable mathematical model like "continuous time Markov chain".
- With respect to game theoretic approach, one should consider John F. Nash, Reinhard Selten and John C. Harsanyi for their pioneering analysis of equilibria in the theory of non-cooperative games. The theory of non-cooperative games is a branch of the analysis of strategic interaction commonly known as "game theory." Non-cooperative games are those in which participants make non-binding agreements. Each participant bases his or her decisions on how he or she expects other participants to behave, without knowing how they will actually behave.

Slide 31

Alternative Methods

- One of Nash's major contributions was the well-known Nash Equilibrium, a method for predicting the outcome of non-cooperative games based on equilibrium. The Nash Equilibrium expanded upon earlier research on two-player, zero-sum games. Selten applied Nash's findings to dynamic strategic interactions, and **Harsanyi** applied them to scenarios with incomplete information to help develop the field of information economics - highly innovative analysis of games of incomplete information, so-called Bayesian games.
- Bayesian games (also known as *Games with Incomplete Information*), simply, are models of interactive decision situations in which the decision makers (players) have only partial information about the data of the game and about the other players. Thus, a **Bayesian game** would be suitable to apply to the research in question.

Slide 32

Alternative Methods

- The other method, as of mathematical model, "continuous time Markov chain" (CTMC) as regard to analysing large scale stochastic systems composed by interacting objects - in which the basic entities' infinitesimal generator depends on current state occupied by all the other entities.
- Modelling and analysing very large stochastic systems composed of interacting entities is a very challenging and complex task. As regard to the *mean field* theory, the main idea is to focus on one particular tagged entity and to replace all interactions with the other entities with an average or effective interaction. The reduction of a multi-body problem into an effective one-body problem makes the solution easier while at the same time taking into account the contribution of an averaged interdependence of the whole system on the specific entity. In other words, complex systems can usually be disaggregated into interacting parts or components where each part can have a local autonomous behaviour that depends on the ensemble of the behaviours of the other parts. The analysis of large-scale stochastic systems composed by interacting objects has been mainly faced in the literature by resorting to the superposition of interacting continuous time Markov chain chains.

Slide 33

Potential application of FIELD to the energy and gas regulation sector

By **Atanas Georgiev**, University of Sofia and publics.bg

I'm very glad of what I have heard up to now because I think that especially the presentations of Céline Kauffmann, Carlo Cambini and the last one can be complementary to what I'm trying to say.

I think that FIELD methodology (**slide 34**) can be used as a very good additional tool for evaluating the governance environment when speaking about services of general interest. From what I've heard now, I just want to add that I think that maybe we need a type of standards or some set-up methodology to assess what is the capacity of regulatory bodies in terms even of salaries, budget, number of employees, etc. Maybe it could be a good addition to the OECD work, maybe to set up something like this.

FIELD methodology

- FIELD is a multidisciplinary methodology for the analysis of local actors, incentives and information endowment that surround and lie behind the success or the failure of local services, infrastructures and projects, defining the playing field where their realization takes place.
- As suggested by FIELD's creators, the methodology is potentially applicable to all contexts where the design or the reform of local service, infrastructures and projects is in place.
- Such context can be observed now in the Bulgarian electricity supply and distribution sector.

Slide 34

In this context, I would like to spend a few words about the Bulgarian electricity and gas sector. The sector is highly dominated by state-owned companies, and this affects, I think, the work of the regulatory body just as Carlo had proved a little bit earlier. At the same time we are pressed by the European Commission decisions and the will to fully liberalize the market by 2014 (**slide 35**). This means that the number of private participants, generators and traders will rise. The grid companies will have new responsibilities, the industrial consumers will have to be more active in selecting their providers. The SMEs will also have to enter in the market by selecting their own supplier and eventually households will also have to be educated and prepared to select from the competing traders. At the same time in the market we have other factors that affect regulation, the so-called "neighbour markets", services and markets affecting the work of regulated companies. Also in addition to this we have to consider other relations related to renewable energy targets, the new investors that come online. We have large number of producers now, smaller and smaller. They have their pressure on the regulatory system, we have the carbon market pressing the energy sector as well and the unpredictability of their prices is something that is very difficult to assess in the model and we also have the energy efficiency targets. If we consider all these markets, together with the electricity or gas market we see that there are many relations that are not described enough. So I think FIELD methodology can be applied to neighbour sectors to the water sector that it was applied to and also to the markets around electricity and gas markets.

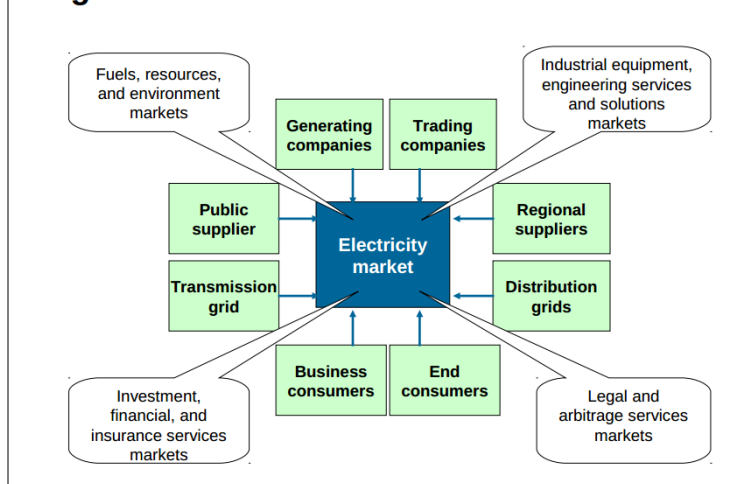
Why Bulgaria's energy sector is suitable (1/2)

- Transition from "single buyer" model with vertically-integrated state-owned power company to a fully liberalized market
- Larger number of market participants
 - generators and traders
 - grid companies
 - industrial consumers
 - SMEs
 - households
- Other stakeholders (e.g. "neighbor markets" of outsourcing services, suppliers of materials/services, financial markets, environment markets, etc.)
- New challenges, related to renewable energy, carbon prices, and energy efficiency

Slide 35

For instance the regulatory framework can or cannot promote smart metering and this affect the industrial equipment market (slide 36), so it has pressure from technology providers for specific decisions or if we have dependence from one importer of gas, like the case in Bulgaria, we have the pressure of the fuels and resources market on the regulatory framework. And also the financial market as well. If there are many new investments in renewables and they have to repay their loans in the next ten or fifteen years, then the financial market will press a lot the regulatory body not to make the environment worst for renewable energy investors. And also the legal, the arbitrage services market, if you wish even the lobbyist services market, all affect the regulatory work.

Bulgarian electricity sector – stakeholders and neighbor markets



Slide 36

And one last accent, I like very much the motto of the Turin School of Local Regulation, "*All policies are local*" (slide 37), because everything that is taken as a decision in Brussels, everything that is adopted in the national laws actually affects the people on site, the people who use the local public services. I think that there are some imbalances starting from the European energy policy, in particular that sometimes even

aggravated by the national legislator and the national regulator and finally the consumers. They have to pay higher prices without being prepared for instance or they receive a service that is not good enough because of all these system failures.

From local to national and international (EU) level and vice-versa

- European energy policy defines imbalances that are later replicated and magnified at national and local level.
- As suggested by Turin School's motto, "all policies are local", and implications at local level should define the fine tuning of European strategies.

FIELD – an addition to Governance indicators?

- "All stakeholders in regulatory matters should be entitled to have a clear picture of the rules of the game in which they are going to be participants and inadequate or asymmetric information flow may lead to market imperfections"

(Brown, Ashley C.; Stern, Jon; Tenenbaum, Bernard; Gencer, Defne - Handbook for Evaluating Infrastructure Regulatory Systems. World Bank, 2006)

Slide 37

Alternative dispute resolution and risk management: interactions with FIELD methodology

By **André Niedostadek**, Hochschule Harz

I am quite glad to be here and I am very happy that this Scientific Committee offers a lot of opportunities to speak about different topics.

We already heard some success stories. Now I have to make a very sad announcement: I can't offer a success story about the topic I am dealing with. When I got the invitation from you and I briefly looked through the invitation I was quite surprised because some topics were addressed I have been dealing with for 15 years: conflict management. So what does conflict management have to do with the topic we are discussing here, FIELD?

Within the next 5 minutes I would like to draw your attention to a special approach to conflict management which is called "alternative dispute resolution" and risk management and its implications to the FIELD methodology. Both conflict management and different forms of alternative dispute resolution seem very popular: you can do a lot of training in this field. But, the problem is that there is a huge gap between theory on one hand and practice on the other hand. Thousands of books and articles have been written on these topics but you can hardly find any institutional approaches to conflict management in practice. This is really a pity sometimes. Nevertheless, I made the experience, during the last years, that sometimes it is not a very good approach to speak about conflicts because we are very reserved, we do not have any conflict in our project or topic we are dealing with. Sometimes is better to speak about risks. And when you speak about risks, which are part of our life, they result first of all from uncertainties. We can face many forms of risks like financial risks, project risks, legal risks, operational risks, reputation risks (I just got this idea from the social media, it can hurt directly your reputation). In respect to local services we can also identify a variety of risks and how to deal with them? In the risk management system a lot of approaches and also instruments have been identified to deal with this risks. I want to address one point: if a risk is resulting from a conflict, and there a lot of risks resulting from a conflict if you think of all the different actors and

their interest, then alternative dispute resolution and other forms of alternative dispute resolution like mediation, they can be an instrument to deal with these risks.

When it comes to the interaction with the FIELD methodologies we face three main challenges:

- 1) when thinking about alternative dispute resolution, how can this form help to manage or to prevent risks and conflicts that are related to local services? I do not know any survey in this context, it could be an interesting topic to work on;
- 2) What kind of risks we typically face, in which areas? For example, I know that in Italy there have been a few mediations concerning water. In Germany there have been a few mediation referring to transport. It would be interesting to find out how it is in different countries, and to highlight some best practices;
- 3) and finally the most important topic at all: how can we encourage decision makers to encourage ADR when dealing with these kind of risks? This is really a challenge and it is very difficult to convince somebody to use these techniques.

Imposed policies and shared policies: how to design bottom-up interventions

By **Angela Ambrosino**, University of East Piedmont

I would like to point out some ideas coming from **cognitive legal theory**, just to reflect all together about the importance of social norms and legal norms in local regulation. Why people do not go to this kind of “courts”? one of the main point of the cognitive legal theory is that people in their life face two kind of rules: legal rules, given by the legislator; and other kinds of rules that are customs and habits and all behavioral rules and social rules that come from social interaction. Cognitive legal theory underlines that if we can analyze what kind of social rules come out from social interaction maybe we can have better instruments to develop new rules and new policies.

Cognitive legal theory has recently led to a new research field, **modern legal theory**, that says that we need to model social behavior and legal rules, but before we have to understand. So first of all we need a big observation: we have to choose a special context and we have to analyze how players in that context play. We have to analyze individuals, organizations, institutions. This is a sort of preliminary step that allows us to understand the dynamics of social interaction. And we can try to analyze - applying a multidisciplinary approach – which are the determinants of that behavior. If we can develop such an approach then we have more chances to develop a policy that is able to really be effective on incentives and people behavior.

FIELD and mechanism design: some foundations

By **Andrea Gallice**, University of Torino and Collegio Carlo Alberto

[Elisa Vanin: FIELD methodology, as Franco will explain in a minute, intends to collect a basket of information about players, incentives, relations and information flows that lies behind a new policy, project or regulatory framework and this basket of information should serve for further action, for following some actions and that is the reason why FIELD can be a preliminary stage for the design of a mechanism, for example in the sector of local public services or in other domains. That's why we asked Andrea to give us very brief foundations about the links between FIELD and mechanism design.]

So indeed I will provide a very brief overview of some economic theories that can be related, and actually they are related, with the FIELD methodology and approach. So namely I will briefly mention something about game theory and mechanism design. These are famous, elegant and powerful branches of economic theory. You may have already heard about game theory. This became also popular over the last two years

thanks to the novel and then the movie *A beautiful mind*, the life of John Nash, one of the founders of the field. By the way what I'm going to say, given that people here have pretty different backgrounds, is going to be pretty obvious for some of you but I hope interesting and intriguing for some others. Game theory is the formal study of the strategic interaction that occurs between agents and agents can be individuals, institutions, firms, countries so for instance the current crisis and the diplomatic relations between US and Russia and Syria is a typical example of a game that involves countries or, more related to our context, a game can be the situation in which firms compete among themselves to conquer customers or lobbyist, push the agenda and try to have some new technologies or something subsidized. The idea is to study strategic interaction in which the final outcome depends on the combination of the moves or of the actions or strategies chosen by the players involved. The peculiarity of game theory, what makes it different from the subfield which is mechanism design, is that in game theory the game is already there so there is already a set of rules, a set of players and, normally, researchers or authorities or whoever is interested in, wants to study and to look for the equilibrium of the game potentially for predictive purposes. So you want to anticipate what is going to happen given players incentives and possible moves. A bit different, and more related to FIELD methodology, the subfield called mechanism design, and the title is quite self-explanatory, so in mechanism design, contrary to game theory the game is not inherited but there is an authority, normally called the principal, who is called to design a set of rules such that the player that will participate in this game will reach a certain outcome. Most of all, quite often in mechanism design, actually a peculiarity of mechanism design, is that agents or players have some private information so the principal has to structure a mechanism, to structure a game that somehow is incentive compatible so it's such that agents are incentivized to reveal their private information. A typical example which I guess many of you possibly have to deal with in their daily activities, the role of a regulator who has to regulate a certain sector and in order to do so he has to know costs, the structure of the firms that operate in that sector. So if the regulator goes and ask the firms: "Please tell me your costs" it would be a bit naïve on the side of the regulator to expect a sincere answer on costs. Firms may have incentives to lie and possibly to overestimate their costs. What mechanism design teaches us, at least in theory, is that it is possible to design a mechanism and a set of rules such that in this specific example firms will autonomously decide to declare the truth, so the real cost. By the way mechanism design as I was telling you at the very beginning is an important branch of economic theory which has been recognized also by the words of the Nobel prize in 2007 to the founders of the field. So what are the main ingredients? Players so the actors that are involved, strategies, the possible moves that they can make, the information they have and the final pay-off. So in this respect the FIELD methodology is a good starting point because I think later Franco or Elisa will show us the FIELD matrix explicitly asks to define the set of players, and the role, the interaction, their own information and their incentives, so these are the basic ingredients. It will be a little bit again naïve to expect that one can easily apply theoretical results to specific situations. I'm a theorist myself so I'm not sure I'm allowed to say what I'm going to say but indeed there is often a gap between theory and practice. So in theory with mechanism design you can prove powerful and beautiful results with the use of equations. For instance it doesn't really matter if actors are just two or two hundred or two thousand. The theoretical result is valid for any possible number of players. Similarly it doesn't really matter if strategies available to each players are two, two hundred or two thousand. Again, the theory is very general. As you can imagine once you have to translate these results in practice the situation is not so easy. So if the number of players increases then the problem becomes of a higher order of complexity because, obviously, there are many things that you may miss and also the economic analysis, the economic theory are built on assumption of perfect rationality of the player which often is not really met in reality. But certainly, I guess, mechanism design is a powerful tool that can be helpful for the development of FIELD methodology, which again collects the basic information indeed. I would also like to conclude with a motto that I found in the material we got. So FIELD motto is "*Understand first then take action*". I would say this is perfectly in line

with the mechanism design approach, so first as a regulator you have to understand who are the players, which are the options and then try to implement your objective.

Presentation of FIELD methodology

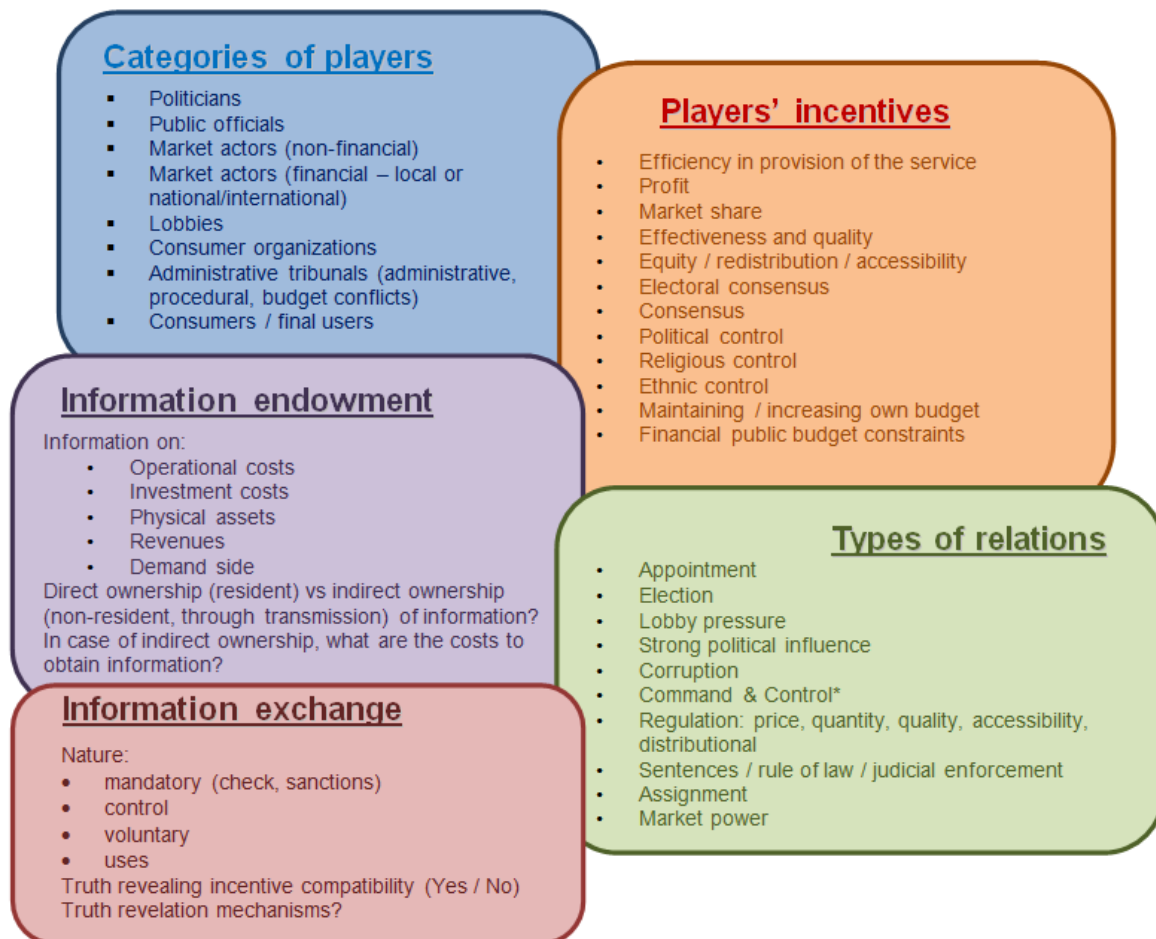
By **Franco Becchis**, Scientific Director Turin School of Local Regulation

Well, first of all for people who don't know us very well let me remember some historical steps that have driven us here. Sixteen years ago the first Summer School on Regulation was held in Torino, in Italian. Five years ago the transformation of the summer school into an international summer school occurred with the figures that Elisa showed to you. The more application were growing, the more we at Fondazione were asking ourselves "How can we cope with this strange phenomenon?". Actually I know that our summer school has no fee but there is a travel cost and two weeks full of lectures and case studies, also the weekend sometimes, so it's not a free meal. So the question we were asking ourselves has been and still is "How to cope with this interesting phenomenon?" that is a growing demand, a big demand in the world to know how to regulate at local level, that is evidently not satisfied at academic level. Or, better, there is a fraction of regulatory issues at national level that is telecommunications and railroads that is covered more or less but nothing or maybe very few initiatives on the local dimension. The question "How can we cope?" is the reason that drives us here today because our first answer has been "Maybe we can transform the Summer School into a School." It's not an easy question because schools normally steam out from academies, from university and we are not a university. Foundation for the Environment is a think tank but it's a think tank that has a growing network of people that enjoy the fact of exchanging information, working and teaching for us. To me, personally, it's particularly interesting the fact that the Turin School actually is steaming out in a territory that is not exactly the territory of the academy, of the university. Obviously it is not against the academic territory, but it's not in or maybe is overlapping. We have not yet a precise institutional answer on where we are going, for example let me say that the Turin School is, for the time being, an initiative, a network. It's not a legal entity and we are thinking about if and how we should transform it into a legal entity in order to give more opportunities to the development of the School itself and these issues. By the way in this precise moment we have a class that is working on a lot of issues that steams today in these five minutes presentations. It's also an experiment, it's very difficult and I thank you all for the effort to shrink difficult concepts into five minutes but it's also an experiment in order to get more with less and I hope we will succeed in this. Basic ideas of the tentative to transform the Summer School into a School are very simple, maybe two or three. I will propose you two. The first is that I know perfectly that in Ankara or Torino the mayor, or the regulator, or the municipal county, or the county assembly culturally speaking work in very different contexts, and sometimes, if we think about Africa and Asia, anthropologically, so we know the difference in terms of how the institutions work and regulate at local level but at the same time we have learnt – I say this because we learnt, having in class people from Nairobi, Seoul, Bangladesh, Helsinki for years – that there is also a lot in common in terms of problems, that the mayor or the regulator faces, in terms of opportunities, in terms of instruments to be used. So this is why our class works. It's a class with Asia, Africa, South America, Europe and it works. Also the working groups that are three or four depending on the numbers. The working groups are normally framed in a way that we get different approaches from different countries, different cultures and it works. So if it works it means there is something that we can learn and teach to people coming from very different institutional and cultural contexts. So this is the first basic idea. The second basic idea, some of you, Céline and other people cited that, is that institutions matter. Obviously we are not doing anything new in terms of science, we are just grasping the best of political economy, the best of game theory and mechanism design and I will come back to this issue that Andrea was suggesting, and trying to grasp the best of these streams in order

to give to local policy instruments, possible instruments. So the second idea is that institutions matter. We have discovered that studying portable biogas means for us, first of all, that you need to outline the institutions, not only in the formal way, the mayor, the county, the village assembly. Let me cite Erving Goffman, a sociologist, this is very useful for us. He said that public life is a representation. What does sociology and public life as a representation matter with regulation? Well, if you have participated to a session of regulation you know that actors, players, actually act in front of the audience and when they stop the meeting and go to the bar with friends they do, tell, think and propose different things because public life is also a representation. I remember the meeting with Lars on the regulation of the waste-to-energy plant in Torino. I remember that we actually were engaged in a very transparent process that has something of representation too. The roles, the network, the lobby and so using also sociology in understanding regulation can be a useful hint. So institutions in the sense of formal ones but also informal institutions because we know that institutions are not buildings, are not bricks. Institutions are rules and the most powerful rules are not the written rules but the rules that are actually embedded into everyday behavior. Think about traffic rules, public life rules, rules about money and contracts and so on. So these two ideas are at the basis of our tentative or effort, common problems around the world at local level – by the way actually the motto “all policies are local”. We like very much the motto but it’s not exactly true. In a way it’s a stress of something because, obviously, monetary policy and foreign policy are not local, fortunately. But we have stressed in a way the concept that at the end, practically, all policies, not all, flows and link into local dimension. So two basic ideas.

Let me say something about the agenda, agenda for teaching and agenda for research, also agenda for, in a way, consulting if legal constraints will allow us to do also some consulting. In Italy NGOs can do consulting for a fraction of their turnover, Foundation for the Environment do some little part of consulting and in the future maybe the Turin School, legally entitled, could probably enter in a form of market for consulting. So let me say something about the agenda. Something about the past agenda. Elisa showed some steps, let me try summarize them in a different way. First of all we asked twenty or thirty people around the world to fill a table on ownership and roles at local level that are exactly the very simple questions of LO.RE.NET, the network of local regulation. These are very simple question that sometimes people don’t ask. Who owns the pipes in the water sector? Who owns the landfill? The first step has been collecting simple information, kind of bricks, that are not useful per se. You can spot it in the website of the Turin School, LO.RE.NET for sixteen countries. So we have sixteen countries with some very simple questions on ownership and roles filled, with some mistakes. Obviously when you ask people, the question is “How much reliable is people?”. Well we have actually asked persons that are experts and also asked for external referees but sometimes we find mistakes and we are trying to in progress improve this very simple basic tool that is LO.RE.NET. The FIELD methodology exactly steams out from this attempt to go beyond the simple table on ownership and roles. And FIELD, as Andrea has already told, is basically simple in the structure because we asked about who are the players, the actors, what is the information endowment, how and if they exchange information each other, in which way, what are the incentive of the player and the type of relationships between players themselves so if you look at these boxes, these five areas of questions at the end of this analysis we should have a first picture of the main forces that work in the public scene and behind the public scene. We have done as an experiment in Cairo, Sofia and Belgrade but the question is that there are a lot of hurdles in this analysis, there are a lot of critical points and some have already been outlined, let me cite for example the question of players that we know. You cannot define the municipality a player, you can define the mayor a player and probably the director general of the municipality another one. When players are organizations or institutions the question of principal agent and also the theory of bureaucracy steam out and this is a very difficult moment for attempting to simplify the picture. What about incentives? Well, we have a list of incentives that are the traditional ones (**Slide 38**), from pure profits to religious control. Someone suggested us that we cannot understand local governance and local services in some parts of Africa or Asia without the question of religion. Remember Cairo in which Christian Copts traditionally

collect some part of the domestic waste fraction or *cartoneros*, not religious, in Argentina and things like that. So the question of identifying, defining and measuring incentives is not easy and sometimes institutions and people have different incentives, conflicting or converging. Think about politicians, that can work for electoral consensus or budget or other incentives, sometimes conflicting, sometimes not.



Slide 38

Information endowment, the third box, we have for the time being five types of information that we decided are mostly relevant: operational cost and investment cost, physical assets. It's strange but sometimes regulator doesn't know physically what assets are and where they are. They have to ask to regulated firms about physical assets: building, pipes, trucks, landfills and things like that. Revenues and demand side are the other information. The fourth box is about information exchange that is the flow of information between players and we divided information exchange into four families: mandatory – for example the environmental authority in Torino ask to waste to energy plant to give the information about the release of CO₂, NO_x and other pollutants, it's mandatory. Control, that is another form of information exchange. The local regulator of the water sector to the utility voluntary – we know that people and institutions exchange voluntary information but Andrea told us that when information exchange is voluntary it is subject to probably misaligned incentives so we rarely find, unfortunately, situations that are incentive compatible. We find it in the textbooks, a lot, but when you look at the everyday life, meetings, regulations, conflicts, you find also in the family and with friends, more and more situations in which incentives are not compatible than situations in which they are. The fourth category of information exchange is uses, *consuetudo* in Latin. People everywhere tend to look at uses as norms, more strongly in

common law countries, more easily in continental law countries, but everywhere uses are strictly important. And fifth box, the types of relations that are the kind of relations that link players each other, for example, very simple, the mayor is linked to the utility in some countries by a precise relationship or the lobbies are linked to the regulator of the utilities in another precise relationship or, for example, elections, political influence or patronage or cronyism, delicate issues, and mostly delicate corruption that is the most difficult question we had to ask to people that fill the sheets and so on. Let me say that it would be a success to me if we could rise around this tentative more critical hints than cheers because we need them in order to go on and applying FIELD to at least twenty or thirty case studies around the world in order to refine it because there is a long way to the point that Andrea was suggesting, it's a long way to arrive at the end of a very comprehensive understanding of a situation and then, well, we are ready to design a mechanism. Actually we have experienced a very interesting case in welfare policies with Compagnia di San Paolo and Ufficio Pio in which the misaligned incentives in the relationship between the foundation and the municipality, people asking for money and institution giving money, have been outlined actually and so in this sector probably we are near to a possible suggestion for mechanism design in order to improve welfare policies themselves. Let me cite just a curiosity about the fact that in the Summer School all these issues are taught, are given to the classroom in a more structured way but we meet frequently situations in which the handbooks, in particular on information, say some things but we cannot find them into reality. For example, let me cite the fact that economists know that the core issue in regulation is that firms enjoy a superior level of information and use it to extract rents. Examples of actual situations in which these firms had superior information at the local level on this information and use it to extract rents are not so frequent to find and to teach in class. Another example is mechanism design. Regulator should not punish the firm because the firm is bad and is trying to get rents because we know that punishing the firm because it is trying to extract rents means destroying the superior information of the firm itself. So what the regulator should do is to try to design mechanisms in order to induce the firm to do some moves and to reveal information and the regulator can capture and use for the social goals. All the handbooks, Tirole, Sappington and so on. What about reality, what about municipality and utilities of water, waste, transport, energy, district heating? So our effort is to try to enrich the basket of applicable examples that can be useful for a practical classroom, for policy makers at local level and not only for handbooks and academics. Let me say that with this scientific committee our tentative is to give a more structured and framed way to design the future of the Turin School and the decision to concentrate on FIELD copes exactly with the phase of our life in which we are as Turin School and my hope is that step by step the network can enrich itself, the contributions can grow and we can move forward from FIELD to a more insightful instrument and, at the end, to more insightful and effective policies.

Some case studies of preliminary application of FIELD methodology to different contexts

Multiple actors and the problem of aligning incentives in the context of biomass plant projects

By **Daniele Russolillo**, Fondazione per l'Ambiente / TSLR





Multiple actors and the problem of aligning incentives in the context of biomass plant projects

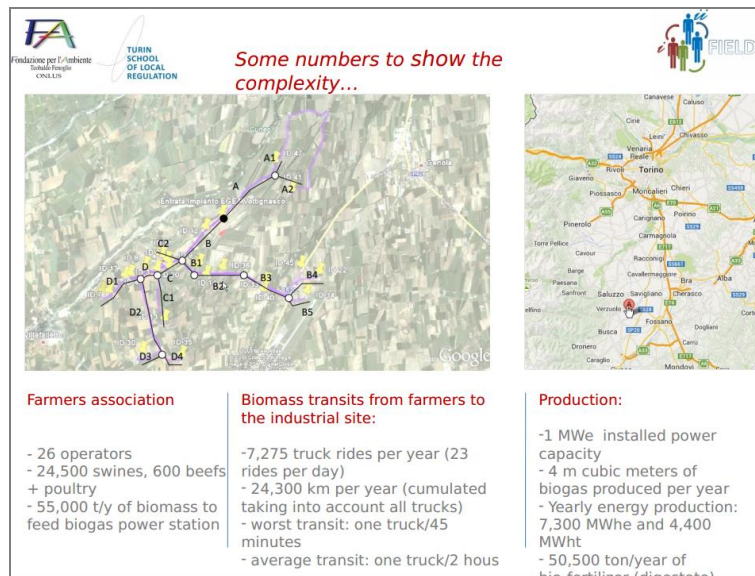
Ther case of EGEA Biogas power station in Vottignasco (South Piedmont)




Daniele Russolillo
Fondazione per l'Ambiente -Turin School of Local Regulation


Slide 39

Basically what we want to show you is an application of the FIELD methodology to a very real case and it's an hands-on approach to a power station that uses biogas. We know very well this biogas power station because the company, the utility that created it, is a stakeholder in the European project that we won this year. Elisa told you about, it' is BIOTEAM project in which basically we study the sustainability both from the financial and environmental point of view of biomass and bio-energy pathways. Being them a stakeholder we know quite a lot, quite everything about their biogas power station, so we thought let's apply the methodology and let's see if it's ready for an hands-on, for real applications in the real life. For those of you who are not aware about biogas power stations, they act in this way. You take manure from beefs, poultry and usually swines, you treat it in a technological plant, you produce biogas because they ferment and then you burn biogas in an energy system and you can produce thermal energy, electricity and a couple of other products I will speak later about. So it's a quite consolidated solution, a lot bigger than the solution that Alessandra showed you, which of course is a solution for developing countries. This is a solution in well established economies, with a strong network and fully industrialized countries. They act very simply in this way but why do we apply the FIELD methodology to it? Because it is a very complicated system with lots of actors. I have been asked to specifically talk about players and incentives. So I'm not going to speak about information endowment, I'm not going to speak about the relations between players, I'm going to speak about players and incentives. Why is it very complicated? The biogas power station has been localized in a very small city in the south of Piedmont, one hour driving from Turin southbound. In the map on the left (**slide 40**) you can see in the little yellow dots all the farmers that are going to transfer manure from swines, beefs and poultry to the station that is localized in this little place that is called Vottignasco.




Slide 40


The first difficulty is the little city that hosts this power station has got 500 inhabitants but the biomass that will be needed for this power station comes from nearly 25,000 pigs. So this gives you the numbers, a very small village will receive an incredible amount of biomass to be treated in one single station and this is very important for the relationship and for the incentives of local citizens, lobbies and associations who have to receive this kind of intervention. Let's have a look at the numbers: 55,000 tons of biomass to be fed to the biogas power station every year. This means 7,275 truck rides per year in this small area in the south of Piedmont in this little city of 500 inhabitants, 24,000 km per year that these trucks will make to transfer the biomass from the farmers to the single power station. This means in some little villages around that area there will be one truck every 45 minutes or one truck every two hours. So the impact at local level is quite big. The production of energy, electricity is quite interesting, is quite high. We are not going to go into these details but another thing I want to tell you about is that apart from energy production this power station can produce 50,000 tons/year of bio-fertilizer. Basically it's a waste product of the technological plant. It is not wasted, it is not taken into landfill but it is actually used to fertilize grounds. As you can see this is quite complicated because in a system like this one you have a lot of players. In **Slide 41** I highlighted the players that are interested in our local analysis. Of course other players interested would be the national grid regulator, the national energy and gas authority but they are not of interest in this case because we wanted to make the FIELD application at very local level. So for instance we got EGEA, which is the local utility, that actually is the owner and the proposer of this power station, we have the local association of farmers that is an important player. When I say association I mean 26 farming industries, 26 farmers united together into an association to work with a power station. Then we have the Regional Farmer Lobby, we have the Piedmont Region, the Province of Cuneo from the point of view, not politically speaking, but the civil servants of the Province of Cuneo who have to deal with the authorizations and the permits, we have the Environmental Agency of Cuneo – Cuneo is the most important city in the south of Piedmont -, we have the City of Vottignasco, which is this small village, 500 inhabitants, on which territory they built this power station, then we have the City of Vottignasco again, not from the political level but from the level of civil servants, and then we have citizens associations that basically is the lobby of the citizens that at the beginning kind of didn't want this power station.



Fondazione per l'Ambiente
Tribunale Frenzo
ONLUS



TURIN
SCHOOL
OF LOCAL
REGULATION



Incentives alignment...

Player	FIELD category	Efficiency	Profit	Mkt share	Quality	Equity	Electoral consensus	Consensus	Political control	Financial public budget constraints
EGEA	Market actor (non financial)									
Local association of farmers	Market actor (non financial)									
Regional Farming Lobby	Lobby									
Piedmont Region	Politicians									
Province of Cuneo	Politicians									
Province of Cuneo	Public officials and civil servants									
Environmental Agency	Public officials and civil servants									
City of Vottignasco	Politicians									
City of Vottignasco	Public officials and civil servants									
Citizens associations	Lobby									

FIELD methodology would have suggested to start from highlighted incentives to build the right strategy to take best decisions.
 It went this way thanks to:
 - outstanding technical project and environmental performance
 - optimal "field preparation" with communication campaigns and promotion of farmers association

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I analyzed the system considering the incentives structure that Franco told you about few minutes before the break and as you can see you got efficiency, profit, market share, quality, equity, electoral consensus, consensus, financial public budget constraints. If you analyzed them and you try to understand which incentives are relevant for each player you may come up more or less with the metrics like this one in which one, obviously, the red ones are the relevant incentives. If you apply the methodology like it is, FIELD methodology would have suggested to start from the highlighted incentives to build the right strategy to take the best decision. What does it mean? It means that if I am the mayor of Vottignasco, this little village that hosts the power station, and I want to understand who the players are, what are their incentives and what are the most important steps I have to take at the beginning to arrive to a nice solution, I have to start to analyze those incentives and to understand if those incentives are aligned between the players. The incentives that you see in yellow, so efficiency, quality, consensus and equity, were the incentives that were aligned better. So if I was the mayor of Vottignasco, if I was a local institutions that wants to undertake this project, I should have started to analyze those incentives. And it's exactly what happened. This application of the FIELD methodology is backward, in the sense that the power station has been already built so we kind of pretended to do it before it was already built, we did it upside down but it exactly went this way because the utility, because of the strong reputation and trust on the territory - it has been there for a long time - managed to create a fantastic relationship with the local authorities and with them they both designed an outstanding technical project with good environmental performance and they did an incredibly good field preparation with communication campaign and promotion with the farmers associations. This looks like a kind of normal thing to do with this kind of power station but it is not what usually happens. In the same Province of Cuneo they have been trying to do other power stations like this one and they failed because the players did not get together and did not want anything to do with this kind of solutions. So I can say, we can say that the FIELD methodology is ready today to analyze this kind of situation. The last note before leaving you is that when we apply this kind of methodology to this kind of situations we have to really understand what is the local provision of the service. In this case, that is biogas

power station, it is not provided energy and digestate, the fertilizer. These are obvious but these are not the services we have to think and we have to have in mind when we think to apply the FIELD methodology. The real service of this power station is to solve the problem of farmers who don't know what to do with the manure. Usually, agronomically speaking, they put the manure on the fields because this has been done for thousands of years, it's a normal fertilizer but historically they have been doing it in the wrong way with incredibly bad environmental damages because the nitrates go to the sky and there are lots of problems. So the real provision of the service here is solving the farmers' problem of getting rid of the manure in the most cost-effective way and in the most effective way in general, also for the population, because this solution doesn't have, for instance, any bad smell. That's the thing we have to think about. In this way it worked and we can say that we are trying to apply the methodology even further with all the rest of the matrix component.

Short vs. medium-long term incentives involving different management models for forestry projects

By **Franco Molteni**, Foundation for the Environment

The subject of my contribution – forestry – is a bit heterogeneous in comparison with the normal typical sector which are part of the public services matter.

Forestry has some analogies with public services, as forests provide public services, like hydro geological risk prevention, landslides prevention, snowfalls prevention, flood prevention, or biodiversity conservation, which entails in many cases other benefits for local communities, in terms of recreation activities, cultural aspects and tourism and so on.

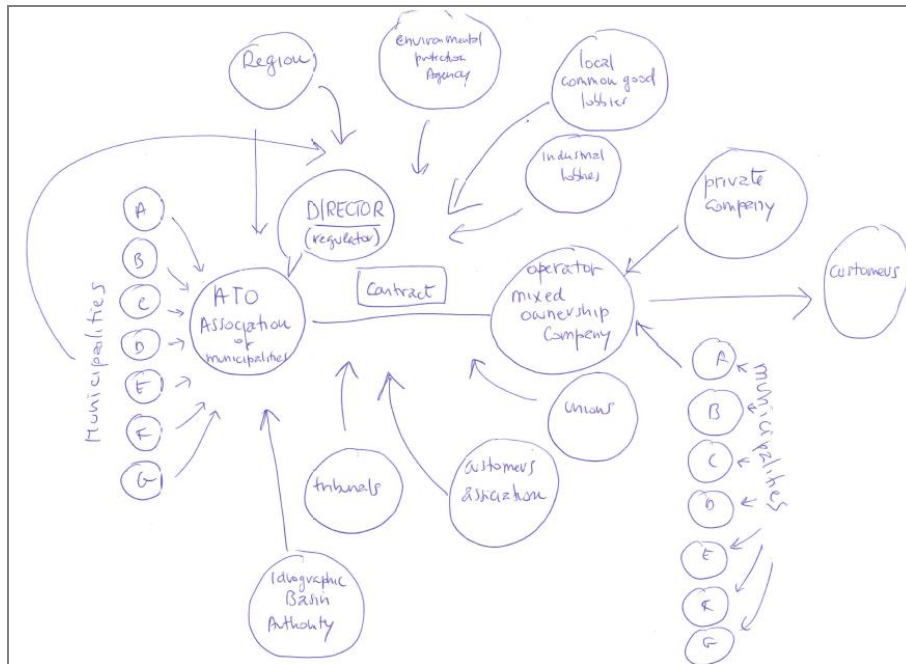
The problem is that forests also provide products, forestry is an economic sector, one can easily imagine that there is a fundamental trade-off between the productive function and the public service functions I mentioned. Of course there are legislations that make public services guaranteed in protected area. In those cases the goals of managing forests are set by specific regulations of the protected areas, but in all the other forest areas (in Italy 80% of the total surface) there are not established goals, there are just some limits, set by forest legislation and forest local regulation, but one forest owner – either public or private – can manage the forest according to the goals and functions he decides. Even in case of public owners, which in the case of Italy refers mainly to municipalities, in the current context of shrinking local financial resources, it happens that municipalities are in a position where they can sell the resource represented by forest in a way that according to contractual patterns which have a sort of short-term perspective. Unfortunately I do not have the time to develop the whole reasoning about the different patterns that may apply according to medium/ long-term vs short-term approaches to forest management.

Beyond owners there are other actors, principally the forestry enterprises, who have different incentives compared with the owner. Summarizing, there are currently in Italy situations where the problem of having long-term goals which go for the public service that the forest can provide compared with short-term objectives can represent dynamics that FIELD methodology can address. Nonetheless, the problem is that forestry and forest sector is a poor economy and a tool like FIELD methodology, which entails some further costs, I am afraid will put some risks to the economic margins that the whole operation involves.

The system of relations and information flows in the water regulation sector in Florence area

By **Andrea Sbandati**, CISPEL Toscana

I try to make an application of FIELD methodology to the water service organization in Tuscany and in Florence metropolitan area. The first part of Franco Becchis' speech on FIELD methodology was about categories of players. I tried to draw all the players involved in the water service system in Tuscany (**Slide 42**).



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It is not so complicated. We have the administration who is responsible for the service in Italy, and in Tuscany and in Florence as well, the so-called ATO, that is an association of municipalities. Then we have the single municipalities, in reality we have 287 municipalities here, and we have just one public body that is the local regulator of the service. On the other side we have a public-private partnership company, called Publiacqua which is the operator of the service in Florence metropolitan area. There is a 25-year contract which regulates the service between the public body who is the responsible of the service and the operator. All the others players are part of the categories Franco Becchis told about before: politicians, municipalities, public officials, markets and lobbies, consumers, the environmental protection agency, the national authority of water, that is another recent actor in Italy that decides something about tariffs and quality of the service. I want to briefly discuss with you two points of the relationships between players. The first problem refers to information and the second refers to the relationship between the municipality that is part of the ATO, the local regulator and, at the same time, is a shareholder of the company. In fact the company that runs the service is a public-private partnership so there is a private company inside the company itself and, at the same time, the municipalities are at the other side of the regulation system as well. About the information flow, it's clear that all the information is inside the company, that is normal in utilities, but maybe it's of interest for you to know three things that could correct in some way the asymmetry. First, at the beginning of the concession ATO itself red the industrial plan of the service, not the operator but the ATO itself, so they tried to find and to elaborate technical and economic information before the concession started. Usually the opposite happens. There is a tender and the operator makes itself the industrial plan. In Italy we have decided to do in another way: we try to put inside the local

authority ATO the information to avoid at the beginning asymmetric information in the system. I don't know if this is a good idea but it tries to balance the asymmetric information. The second way in the regulation system in Tuscany and in Italy is that of course, by law or by contract, the operator has to give information to the public authority and to the national authority. You have penalty if you don't give information or if you give wrong information. This is not exactly the best way but I think it could be useful. Since two years ago, the information the company owns is the base for tariffs. The information that the company gives the authority is used by the authority to make the tariff. This kind of information is certified, so it's not simple to modify it, to change figures. Moreover it is not always interesting for the company not to put the correct information because this is the base of tariff itself. So three things can correct something about the asymmetric information. I don't know if it is possible to do more in regulation of local services. The other point has something to do with conflict of interest. In part of Italy, and in Tuscany as well, we face this problem. The same municipalities and the same mayors participate to the meetings held by the ATO and by the mixed company, they wear a different jacket. So we are discussing in Italy, since many years, about this problem of conflict of interest because this jacket, this role of the municipality is different in these two situations. In one case they are regulator, in the other they are shareholder, so they have different interests in these two different contexts. This is a problem because it is not so easy to make regulation in this system. Of course, when the company is private this problem disappears. The solutions we try to adopt are two: first all the tariff decisions are not taken by ATO. The national authority takes them, so these mayors don't decide tariffs. Mayors decide only investments and something about the quality of the service, not the tariff. The other solution is the following: the regional law established that all the power of the associations of these local regulators are in the hands of the director of the ATO, one man on the top has the majority of power, he decides everything. The meeting of the mayors or other offices has no power. He is the regulator, one single man. The director of the ATO is chosen by the mayors in accordance with the president of the region, so we have a third part involved in this decision, not only the mayors. The director of the ATO is a technical independent profile and he is not chosen only by the mayors but mainly by the president of the region. Maybe it is not enough, it is not the best solution but in this way we try to reduce interference from the politics in decisions about regulators and about regulation of the mixed company. These are the two solutions that we have implemented in order to solve this problem, to move the decisions about tariffs at the national level and to describe a very very technical and independent profile as a director of the ATO. These are the two contributions I think it would be useful to give to you with reference to the application of FIELD methodology in Tuscany.

Open debate

Alberto Asquer (skype confcall)

Greetings to everyone. I try to get a sense of this FIELD methodology and these studies that I heard. I think there is plenty of scope to keep an interest on this methodology, for a number of reasons. It seems to me to provide a well-structured approach toward exercises of social network mapping, institutional mapping, to help driving our attention to what really matters in the governance of the provision of local public services and related regulation. However there is also plenty of interest to see to what extent we can stretch this framework even further, to help us to structure comparison between cases, for example, to help us driving our attention to the key relevant factors that affect performance in the delivery of local public services. However, there is also some scope to consider it with interest with respect to its role to elicit some critical view to the political economy of the local governance of public services with many interesting points of contact with élite theories and everything which has to do with various forms of collusion and agreements and negotiations within the very local political economy. Of course I think there is

also some scope to have a look at it in the extent to which it can help designing more effective institutions. This is with respect to the FIELD methodology. Let me just add what I would also like to organize a Scientific Committee where several of these cases can be also brought to the wider attention beyond our network of the TSLR. Within a couple of months there will be a panel within a Conference on competition and regulation in network industries to be held in Brussels that will be focused on local regulation. It is organized by the network of the TSLR and it will bring to the attention to this community of scholars the pluralism of the methodologies used to study local regulation, we will have a case study, a comparative case, a quantitative study, a more qualitative study with Q methodology, incidentally not really a FIELD methodology application and this is something we have to take care of the next time an opportunity arises of organizing a panel within an international conference.

Lars Anwandter

The big intuition of the TSLR is that local regulation is a major topic but it has never been analyzed in big academic details. Local regulators interact in local monopolies with sometimes very big firms and they are in a certain way isolated. These local services have a very direct impact on users. Users, as we know from the Portuguese case, even do not know much about these things. And these local regulators are often under-skilled and they are often quite alone. This is also the experience of the various ATOs in Italy, the local regulators, that were amazingly small with offices of 2 people and they had against them, for example, Veolia, or Suez. This asymmetry of information but even of firing power is huge, so I think the success of your School and the attempt to make a network is because the unity can make an exchange and make get information from one another. I always take the perspective of the consumer, but even for a bank it is important that local regulation is a fair game, otherwise it is not sustainable. The worst case of local regulation in the water sector is these continuous renegotiations that even the paper by Guasch shows in Latin America. This is a nightmare for a banker who wants to make a loan and have mechanisms that work. This might be an interesting thing for the shareholders, maybe equity people in a non-clear game manage to have more firing power, but a bank does not want to have always wavers. We have a shared interest of the debt side, if not of the equity side.

It is really incredible for me to hear politicians saying that it is too costly to have regulation, this is a typical approach in today's world. They are maybe asking me for a loan of around 2 hundred million euro, but it is too costly to have someone to manage this loan over 15 years. They are trying to, as we say in Italy, "*make a wedding with dry figs*". The benefits of regulation are amazing. The UK is a very good example in the water sector of how you can achieve a very high leverage in terms of debt, so you get a lower return, your financial costs go down and your leverage goes up so you get more debt, so this means that your cost of capital goes down drastically and implies that in a capital intensive industry tariffs go down significantly. So it's even in the interest of the users and of the banks.

Where this does not work maybe there is not the political insight, or the private lobby of the shareholders is too strong. The situation of Italy, with the referendum of the water sector was one big case where the non-capacity of the policy makers to communicate that the lack of return on capital would freeze investments, has been to me a major defeat as a Country, as a citizen working here, as a professional.

We are still working with the ruins of this situation. There is no one saying that you need a return if you do not have taxes. Everyone is promising a land that does not exist.

Given that, I read the paper with interest, I find it sometimes very complex. A lot of players, incentives, graphs and arrows. You mentioned what is the direction of the School in the future and you are thinking about something like consulting on a policy level and you are talking about 20-30 case studies. I would encourage more this case study-approach, trying to learn lessons more on a qualitative view instead of quantitative indicators.

For me there are three big research questions / case studies:

1) to me, the national regulator is often a better solution than the local one. I think a local regulator is fundamental for the communication with the local people but to get away from a series of conflicts of interest, from regulatory capture and to get into benchmarks, I think that every sector should have a national regulator, even local public transport. You can have both, e.g. contract regulation, but you need to have a national body that does some of the job that the local regulator is either too close to do or does not have the skills. This interaction between the national and the local level is a fundamental research question – the Portuguese water case could be an interesting case. I am talking here about only one relationship, between the national and the local regulator, information flow, governance of this: who does what?

2) In contract regulation, who managed to avoid regulatory capture? I would like to have one good case. I think most of them are under regulatory capture. After the negative case study of Buenos Aires, who managed that?

3) Conflict or risk management in terms of information flows. When we talk about who owns information, the consumers and NGOs do not, but they have a high impact on politics as we saw in the Italian referendum. How do we manage, in the local public services which affect the life of everyone, to make sure that citizens are educated and take the correct decisions? Therefore, how do we ensure this information flow from maybe the National regulation to citizens, in the interest of the sector, but also in the long-term interest of our children?

Meltem Baggis Akkaya

The first point I want to address is: how are you thinking of overcoming the problem of subjectivity? Results you have gathered are integrated into a model that you call matrix and they are measured by some proportions, which are quite subjective indeed. If you change sampling, then the result changes. You need to be more scientific. Apparently you are going to make a new model or to improve it. This is one of the most problematic areas that I found.

The secondo point: you have done a great job in addressing all the actors in daily language of the regulation problem. But, as you said, when you increase the number of players the question becomes more complex. The system named FIELD is presented as a combination of game theory and mechanism design. When you talk about game theory it seems that you use some definition of game theory and you stop there. You define the players very well, which is nice, but then you stop. In order to enhance the system you need to base your model on an existing game theory model, like – I would suggest - the Bayesian game. I know it's very difficult when you have too many players. You can simplify it and then continue step by step, but in the end this is a stochastic model. You have many independent players all working under incomplete information, so it's very difficult to estimate, and you need to do it, you need to improve it, you cannot just stop there saying you are using a game theory concept. Defining the actors is a very good step but then it needs to be more linked to existing models. I do appreciate and understand difficulty of estimation. It's all about designing the model, the model matters more than the estimation indeed in game theory but you need to improve it. Or, if you want to stick to a matrix model, then I would suggest another one, which is much more complicated, called continuous time Markov chain, that has been especially used in the American context. But I do appreciate the attempt to make the model more a game theoretical model. One step further needs to be done.

Andrea Gallice

Maybe my intervention was misunderstood. What I mentioned about game theory was just a potential direction where to go, but this was not meant to be an assessment of the current situation and in this sense I agree with your remarks.

The approach that I think was behind the design of the matrix was not directly connected with a game theory approach. What I think is that potentially you can use the basic ingredients that FIELD methodology

aims to elicit as a possible way to try to model things through game theory, but I do not think this was the status quo of the situation. I do not think they expected to use FIELD to this extent as it is by now.

Franco Becchis

Lars, your suggestion to go on case studies is very good. Meltem, you are right about subjectivity, it's a problem. We are trying to ask people and to ask referees to control what they are saying. But also OECD when they collect this very bulk of information from different countries, they too have a problem of *referage*.

About the application of GM to FIELD, we should not go too much on modeling because if you want to model you need to identify and quantify payoffs and it would be a very difficult way to go. We have tried to do a simulation in welfare, trying to apply repeated game to charities that give money to people. Of course the pay-offs have been completely invented, but we tried to get something from the framework of interactions in single case studies. Probably academicians would have instruments to go on in a more quantitative way, probably we would not.

Céline Kauffmann

At OECD we also tend to have academics and experts of the country who say "this makes sense, or you should take that with the pins". Perception is something very problematic.

Atanas Georgiev

I came out with an idea on how FIELD might be applied. What if FIELD and its future versions could be used to describe systems that work according to other governance indicators? If using FIELD we can describe a working system, this can then be given as an example and compared to other systems that maybe perform worse

Yane Svetiev

I am very supportive of the approach that you have to research question, a sort of "get your fingers dirty" approach rather than what we see in academia mostly, where we have a more "A beautiful mind" kind of research. From this perspective I really encourage your going out in the field and trying to get information from there as a first step. But it seems to me that if you think about all of the comments, they drive us to one important issue: what is the goal of the exercise ultimately and – if there is more than one goals – what is the sequence in which you pursue those goals?

On one way, and I heard you mentioning it, there is the policy formulation goal and the data gathering goal. One way you can frame it is that these are two independent and distinct steps and you first do the data gathering and then the data is used to generate concrete policy proposals. I would actually be a little bit skeptical about that because I do not think the two steps are independent and that's partly because it is very rare in these sorts of situations to be designing institutions from scratch. Usually what is going on is that there is something already in place and you need to understand what is going on, whatever regulatory system is there already and then think about how to correct existing institutions. And that actually helps because you do not have this process of "mammoth" data gathering which then leads to policy formulation. What you need to be thinking about is what are the institutions in place, what are the failures that in fact need to be corrected.

If you conceptualize it into this way it also give a justification for your choice of a comparative approach, because sometimes you can identify failures only by seeing alternative arrangements where that failure is not in fact present.

If you re-conceptualize it in that way, you do not have these two separated steps of data gathering and policy formulation and you can approach it in a more integrated way. That also gives you some traction on how you present the information you gathered. You already received some comments on the fact that

sometimes it is difficult to digest: there is so much on paper and it is difficult to understand it. Again, if I am right that most of this can be conceptualized as some kind of failure identification and correction exercises that can also give you a way to present information in a way that is perhaps more easily digestible.

I have two other comments. One has to do with whether Mechanism Design for the revealing of hidden information or Game Theory is the real conceptual framework that's behind your analysis.

If you think about theoretical Mechanism Design – all the papers by Bengt Holmstrom⁶ – they are all very pessimistic about the ability to design an incentive-compatible information revealing mechanism. Maybe what you have here is more than one incentive in place (not only money like in the Holmstrom model) and you can use these other types of incentives. But then you need to think about it also from a normative perspective: do you want to be using the fact that someone wants ethnic or religious prevalence as the information gathering tool because it is questionable that you can suggest that as a policy formulation. But if on the other hand you say “These people have multiple objectives – not only money - and some of them do not know how to achieve them. And once they do not know how to achieve them, they do no longer behave strategically because in fact they need to learn together with others”, there you go beyond these models of strategic interaction where nobody can move because everybody is acting strategically. Because some of these goals are more complex and we do not know exactly how to achieve them we sometimes need to act cooperatively with other actors.

To the extent that you pursue further empirical research, one question you might want to explicitly include and research more deeply – and it's already there – is the question of the interaction between formal and informal institution and rules. At conceptual level there is no theoretical model that deals with this question, at least to my knowledge. At empirical level, there is a lot of conflicting evidence. There is some empirical level that says that the formal displaces the informal, like the kids in the kindergartens in Israel, and the blood bank, and so on and so forth. That's just evidence from experiments. There is also some Law and Economics literature in contracting that suggests that formal and informal mechanisms are not substitutable but they complement each other (the formal helps the informal)⁷.

If you can gather that kind of information from your field studies that would be very useful both from a practical perspective but also to an academic audience because this is an issue on which there is no conceptual way to resolve it and so the more there is empirical evidence the more we can say about it.

Catarina Roseta Palma

You have this tool that you created, and you have to decide what you want to do with it. I do not think you should insist on the game theoretical approach. In my view, if you want to use it for practical terms, then you have to use indicators of outcome. That's the only way this can be practical, this can be interesting. If your idea is “I really know how the system works, now I am going to see what are the elements of this system”, frankly this is not that interesting. If the person you are asking has the information, already knows how the system works and you get a description from them and how it is, who cares? What are you going to do with that? The way to make it really interesting is if you get a number of case studies and you see that these are organized differently and you look at the outcomes in terms of quality of service, transparency, governance indicators, if you can somehow - from the descriptive information of the location - get insights into why this works better than that, that would be really interesting.

Secondly, the matrix is very complex, I think that with some efforts you can make it simpler. You can organize better all the categories you have. For example, there are three types of players on your matrix

⁶ See for example Holmstrom, B. *Moral Hazard in Teams*, 1982, *The Bell Journal of Economics*, 13 (2): 324-340.

⁷ See for example:

- Gilson, R. et al., *Braiding: the interaction of formal and informal contracting in theory, practice, and doctrine*, 2010, *Columbia Law Review*, 110 (6): 1337-1447.

- Bozovic, Iva and Hadfield, Gillian K., *Scaffolding: Using Formal Contracts to Build Informal Relations to Support Innovation*, 2012, USC Law and Economics Research Papers Series No. C12-3

- public representatives (politicians, public officials, administrative tribunals)
- market actors, you can organize them in another little box
- lobbies, final users, ...

If you organize the information in the matrix better, you can have different categories. You have relationships within categories and between categories and that makes it more interesting and at the same time simpler and less confusing.

The same for incentives. Incentives are a little bit harder to organize but some of the incentives are based on the market outcomes (efficiency, profit, market share, effectiveness, quality), than you have incentives that are completely different, like political control, equity, electoral consensus, and you can probably try to organize them, e.g. under social norms. You should not remove the complexity all together because you want to reflect the reality as much as possible, but if you organize the information better then it is easier for everyone to understand. The ideal would be to look to one of the colored pictures resulting from your matrix and immediately understand what's going on, and that right now is still not happening.

Another comment: at the beginning of the paper you talk a little bit about Mechanism Design and I think you did not develop it much but in terms of the incentives, it is even worse, you did not develop the topic at all. For example you never talked about incentive pricing.

Finally, two missing points in the matrix:

- A relationship missing is the simple commercial relationship (people buying things from each other). Maybe in some markets it does not exist, but in local public services it does. You have market power, but it is kind of subjective.
- Concerning information endowment, you included investment costs, operational costs, assets, demand side. When you talk about revenues, you should not limit the analysis to total revenues, but you should analyze where they come from, if they are related to consumption, or if they are fixed, how they are calculated? Concerning the demand site: who are these consumers and is information available about price instruments versus non-price instruments? You should leave some space in the matrix to say if actors have this information or not. Finally, you should also have something about the distribution of costs and revenues amongst the different players who are in a commercial relationship: who bears costs, where revenues come from, who pays for what, where? Having information on the financial flows between the different players would make it more interesting.

Luca Fanelli

I found the tools very clear and useful at least if we use a part of it and not the whole tools.

I have two general comments. The first one is the question regarding the relationship between the information we build through the FIELD methodology and the recommendations we can take from this information. I think that putting in place some empirical studies, some recommendations will come out of course and so I think that the case studies can give this link between some kind of relationships and help us identifying which is the best and the worst to deliver a public service. Maybe some further link could be created by theoretical studies.

Secondly, I think that the tool is somehow more "hardware service" oriented so I think that if we try to analyze social services maybe we have to change something on the tool.

Going to your specific questions:

- about similar tools, a tool we use a lot in project management is the **stakeholder analysis**, that has some overlaps with this tool;
- about the contributors, I think that maybe triangulation between different people within the same network can give some different points of view and a more true picture;
- about the areas of application, I think that FIELD is somehow weaker about social policies, above all because in this case consumers do not pay the service they receive, but also because sometimes consumers do not want to receive the service they receive and this puts in place some more complicated question. We

are currently working on the new Social Card that the Ministry of Labor is implementing and I think we could use FIELD in order to understand better this policy;

- about the index, maybe something from **Network Analysis** could be useful, for example measuring the power within a network of players, which players is a hub, which player is a bridge, which one is peripheral or central and so on. It is also important to understand how much the process analyzed is important for the actors, for example a process could be very important for a player or maybe it is not so relevant;
- about the categories of the players analyzed, in general NGOs have different incentives from market actors and you treated them as the same thing.
- about players' incentives, maybe it would be relevant to treat separately personal vs. organizational incentives.

Giuseppe Acconcia

It would be interesting to apply some political society approaches, for example informal networks, passive networks and Singerman approaches⁸. It would be good to apply this to case studies, the case I can consider now is Egypt: for instance, how State capitalism was working in Egypt and later on liberalizations and as a consequence of the arising of new forms of State capitalism, that is to say more and more centralized public institutions. So we can work on the Egyptian case, in the context of crony capitalism with more centralized public institutions, and in this case it is very important to use theories of crony capitalism like Graziano. That said, we can consider that civil society works, at least in the Middle-East, as a substitute of the State and we can pick up some interesting things that we said today, for example the biogas that was considered before, and in the Egyptian case we can talk about PVC collectors, Zaballeen and Qarafa, that are areas where this is going on, we can study the local transport, which in Egypt and in the Middle-East in general is quite interesting, and last we can consider the public electricity sector, and in this case we can talk about street vendors and how street vendors use public electricity. So it is important to pick up different approaches and case studies that are relevant to the application of our matrix.

Céline Kauffmann

Since you are considering plugging the approach into policy making with a more practical impact, a discipline we are more and more looking at is behavioral economics and nudge regulation. We know that US and UK have used it to inform the development of new regulations and this can be a way to use some of the psychological aspects that you are disentangling in your study.

⁸ See for example: Singerman, D. (1995): *Avenues of Participation: Family, Politics and Networks in Urban Quarters of Cairo*, Princeton University Press.

TSLR's schedule for the next months: meetings, courses, participation to conferences

By **Elisa Vanin**, TSLR

First of all a governance aspect about the Scientific Committee. Our idea is to make it an open forum and to continue to invite other experts from some other fields or Countries who can help us to enrich the debate, so if you agree our idea is not to make it a close forum, but to invite new members in the next future. We would like to propose you also to renew the two roles of the President and of the Coordinator, I am happy that Alberto Asquer joined us on Skype, we would like to confirm for the next year Ioannis Kessides as President Alberto Asquer as Coordinator. This is our idea, if you all agree.

We will send you an e-mail in the very next days with a list of same international conferences that we identified as potential *fora* to spread information about the Turin School of Local Regulation. There are some open calls for proposals and calls for panels and we identified some of the as particularly promising so I will send you information about them and collect ideas from your side.

We will also send you information about a specific European programme supporting networking amongst researchers, not only in EU countries, which is COST (Cooperation in Science and Technology). Our idea is to apply to an open call for pre-proposals, working on the topic of information in regulation of local public services. After sending information by email we will contact you directly for bilateral discussion on this possibility.

We are going to launch short courses within our Executive Education Programme, this is a challenge because we are going into the market. It's not like the Summer School where admission is for free thanks to the contribution of a Bank Foundation, we are launching courses with a fee, let's see what the reaction of the market will be. The first course already launched is about mechanism design and local welfare policies, scheduled in mid-December, while we have others in the pipeline, for example one on Project finance and local regulation, which should be launched at the beginning of 2014. Any idea for new topics for courses is much welcome from members of the Scientific Committee.

Concluding remarks

By **Franco BECCHIS**, TSLR

We promise to fulfill 2-3 tasks in the next future. First of all, to summarize the useful comments, hints, suggestions and critics collected today, and to share them with you. Second, to be more precise on the way forward in using FIELD. Third, starting thinking about the next year Scientific Committee, enlarging and enriching it. Please send us suggestions for a new topic.

For me it has been a pleasure to participate to this rich discussion, thank you for being here.

■

Annex 1 : Summary of written contributions to the discussion

Some members of the Scientific Committee who could not attend the meeting contributed to the discussion with written comments to specific questions. Also some attendees sent some further comments after the meetings. These contributions are summarized below following the list of questions used for the discussion.

CONCERNING THE METHODOLOGY

1. SCIENTIFIC AND ACADEMIC BACKGROUND

FIELD methodology draws mainly on political economy, game theory and mechanism design and shows interesting contact points with the theory of conflict management/resolution and of alternative dispute resolution, as well as market mapping methodologies.

QUESTION 1.1

Reading through the methodology presentation and the case studies, do you notice any particular roots in specific streams of academic literature? Does the methodology recalls you specific seminal papers that might enrich its scientific basis and complement it?

[Contributors: Alberto Asquer, Olivier Crespi Reghizzi, Tatjana Jovanic, Stefano Piperno]

Alberto Asquer suggests that issues related to the resolution of conflict, especially around alternative uses of natural resources (e.g., water), recall the 'tragedy of the commons' works of Elinor Ostrom. Maybe part of her **Institutional Analysis and Development** framework could be related to FIELD. Somehow, the general outline of the FIELD method also recalls the **Advocacy Coalition Framework**.

Olivier Crespi cites the following references:

Ongoing PhD thesis by G. Canneva, AgroParisTech water services in France (research based on the incentive theory)

Massarutto, Antonio, Barbara Antonioli, Monica Monacina, Paolo Ermano, and Matteo Graffi. 2012. "La riforma della regolazione dei servizi idrici in Italia - L'impatto della riforma: 1994-2011". IEFE - Università Bocconi. <http://www.iefe.unibocconi.it>.

Massarutto, Antonio, and Paolo Ermano. 2013. "Drowned in an Inch of Water: How Poor Regulation Has Weakened the Italian Water Reform." *Water Utility Regulation in Developed Countries* 24 (0) (March): 20–31. doi:10.1016/j.jup.2012.09.004.

Literature by Menard, Saussier, Staropoli, Kodjovi (Paris Sorbonne, chaire des PPP) on local public services and incentives (**New Institutional Economics**)

Tatjana Jovanic refers to the research of Elinor Ostrom and Oliver Williamson and proposes the following references:

Prize Lecture by Elinor Ostrom: <http://www.nobelprize.org/mediaplayer/index.php?id=1223&view=1>

Nell, E.J and Errouaki, K. (2008) "Conceptual Analysis, Fieldwork and Model Specification: Laying Down the Blueprints for a Klein-Nell Model," MS. The New School, NY.

Akerlof, G. A and Shiller, R. J. (2009) *Animal Spirits: How Human Psychology Drives the Economy, and Why it Matters for Global Capitalism*. Princeton University Press.

Stefano Piperno proposes two streams of academic literature that have some common points with FIELD: **experimental economics** and **public policy analysis**. According to him it is necessary to enhance the use of controlled experiments, an instrument of evaluation of the effects of public interventions which is relatively “low-cost” (much lower than counterfactual impact evaluations). There is a very interesting experience in the UK, the Behavioural Insights Team created by the Government and leaded by David Halpern, a social psychologist. The initiative produced important results with limited costs, (<https://www.gov.uk/government/organisations/behavioural-insights-team>). This orientation would require more investments in behavioural sciences also at academic level (basic knowledge in behavioural sciences will be included in the CV of British civil servants). The Turin School of Local Regulation could take into consideration this approach in teaching activities.

Again in the UK the experience of “What works initiative” is also interesting. It tries to promote evidence-based initiatives of reform of public services through a series of independent centers of analysis (<https://www.gov.uk/government/publications/what-works-evidence-centres-for-social-policy>).

QUESTION 1.2

Are you familiar with other existing methodologies that have similar objectives to the FIELD methodology? If so, can you briefly describe the overlapping aspects and the innovative ones compared to FIELD?

Tatjana Jovanic suggests complex systems theory (agent-principal modeling as well) and agent based modelling.

More generally, Alberto Asquer, as a way of strengthening the FIELD approach, would suggest to read more about issues related to face validity of the method (i.e., plainly put, whether interviewees agree with the ability of the questions to ‘measure’ what they are intended to measure). This may relate to some issues arising from the interpretation of questions and/or answer options (e.g., corruption vs. bribery).

As another possible discussion about the FIELD method, he would pose the issue as to whether we can really (or how well we can) identify such things as ‘kind of incentives’ or ‘kinds of relationships’ without any specific reference to a particular temporal context, i.e., are questions about how ‘now’ interviewees perceive the state of affairs, or ‘generally’, or ‘how it should be in an ideal condition’?

2. CONTRIBUTORS

The methodology calls for the filling out of an *ad-hoc* survey by individual experts, invited to provide insights and data for a specific sector in a certain local context. A single case-study (local policy, project, ...) generally requires the involvement of a group of minimum 2-3 experts with different background, filling the survey out in an independent manner and allowing to enrich the analysis with different points of view. As known, there can be a trade-off between knowledge and independence: being strictly embedded in a particular context provides comparative advantages in extracting sensible information but at the same time imply personal incentives that could hinder a truth-revealing behavior in answering the survey.

Once the methodology is finalized, the ideal profile of contributors is as follows: (s)he has a very deep knowledge of the context, the actors and their relations, (s)he knows that his/her contribution will be kept anonymous, (s)he is informed that the contribution will be anonymously refereed, (s)he knows that after the revision by the referee (s)he will receive a reimbursement for the work done.

QUESTION 2.1

Contributors are expected to have a rich information endowment and have truth-revealing as an incentive.

According to you, what profiles are more likely to respond to this description? Would you like to provide any particular example from a few contexts you are most familiar with?

[Contributors: Atanas Georgiev, Alberto Asquer, Olivier Crespi Reghizzi, Tatjana Jovanic, Catarina Roseta Palma]

The contributors, that most likely match this description, may be:

- Academics
- Representatives of NGOs (consumer advocates, etc.)
- Think-tanks (NGOs, private)
- Media representatives / journalists / specialized journals
- Regulatory Authority personnel
- Legal consultants
- consultants specialized on the regulation and financing of local public services (i.e. in France Finance Consult, Service Public 2000, Citéxia...)
- international consultancies focused on the water sector (i.e. Trémolet consulting, Aspa Utilities)
- Local public officials who are not politically elected

More generally speaking contributors shall:

- Be Informed
- Be Independent
- Provide supporting documentation whenever possible
- Be incentivized to tell the truth

Concerning this last point, the suggestion is to “catalogue” reasons for which contributors might have any incentives to tell lies. This would entail some “sociological imagination” to figure out vested interests and dissimulation of actual incentives, relationships, and information exchange. It could be possible to figure out “standard scenarios” where any particular actor might be especially “at risk” of having incentives to misrepresent actual state of affairs, e.g., circumstance where the actor would prefer not to disclose collusion or political patronage or rent positions.

3. AREAS OF APPLICATION

The methodology is potentially applicable to all contexts where the design or the reform of local service, infrastructures and projects is in place. The TSLR has tested it into two sectors so far: water and sanitation services and urban waste collection and disposal in three capital cities of the Mediterranean and Southern Eastern Europe area (Cairo, Sofia, Belgrade).

QUESTION 3.1

Do you have in mind any particular sector where, according to your opinion, the methodology would be the most promising? Please briefly describe it/them and the reasons why you think that the methodology could bring added value to the analysis of the context.

[Contributors: Alberto Asquer, Tatjana Jovanic, Stefano Piperno]

As a general approach, Alberto Asquer would suggest to select cases according to the theoretical issues that the TSLR wish to address. If, for example, the TSLR aims to address the issue of explaining good performance of local public services (or effective implementation of infrastructure development projects; or effective public accountability or local public service delivery; or whatever other 'dependent variable'), then it would be fine to select 'polar' cases of 'success' and 'failure', possibly under different context conditions. This might help 'moving on' the application of FIELD method from relatively more 'descriptive' to 'explanatory' function. Concerning a specific sector of application, this could be one where there is variety of performance, like **urban waste**, where some municipalities have implemented differentiated collection while others do not attain minimum decent standards of urban hygiene.

Tatjana Jovanic believes that water and sanitation services was the most important sector for testing the methodology. **Local public transport and district heating** could be also important.

Stefano Piperno believes that FIELD methodology applied to local regulation can become an innovative instrument of experimental economics that might support the complex process of reform of the sector of local public services. This is something that could go beyond the classic "spending review" and aim to produce a change within public action using different methods and instruments of analysis. Evidence can come only from availability of data and much work is required within public administration in this sense.

4. DEVELOPING AN INDEX TO ASSESS PLAYERS' INFLUENCE WITHIN THEIR CONTEXT

One section of the matrix is devoted to register the relations between the players analyzed. The matrix is organized in order to make a distinction between “inbound” and “outbound” relations, according to who is the agent of the relation and who is the passive target. While processing the data collected in the three pilot case studies, the working group came up with the idea of creating an index in order to assess the “influence” of each player in the context analyzed, based on the number of outbound relations that the player exerts. In this preliminary phase, instead of using the overall amount of outbound relations for each player and compare them, an index has been calculated dividing the sum of outbound relations registered for a single player by the total sum of outbound relations registered in that city or case study (Outbound Relations Ratio). This in order to make data more comparable amongst the cities themselves. Indeed, big differences in the overall amount of inbound and outbound relations have been noticed between different countries (ranging from 41 in the waste sector in Sofia to 252 in the waste sector in Cairo). These differences are likely to be linked, at least in part, to personal views of the local situation, therefore it has been decided to take such index as reference instead of original amounts.

The next phases of the research will be devoted to providing more scientific robustness to the index.

QUESTION 4.1

Do you think that the development and refinement of such an Index can bring added value to the analysis? If so, do you have any suggestions for its improvement?

[Contributors: Alberto Asquer, Tatjana Jovanic, Ola Mattisson, Catarina Roseta Palma]

Alberto Asquer would expect that the structure of relationship links and the ‘quality’ of the relationship might be more relevant than the ‘intensity’, e.g., indicators such as the proposed index. He would try and investigate whether the index ‘serves to explain anything’, i.e., it could be an empirical matter to see whether the proposed index (or any modification) could be significantly related to any measurable ‘influence’ or ‘impact’ of actors on any aspect of the local public services policy domain.

Tatjana Jovanic draws attention to the fact that the situation is changing in respective countries, markets and cities. For example, in Serbia they are just entering the process of ‘restructuring’ public utilities, just introduced PPP and concessions regime, the rise of interest of local societies (local NGO public initiative) and they are expecting big changes in the future. What was accurate this year, may not be accurate later on. Such an index will have to take it into account such changes.

Ola Mattisson believes that an index might be a very good idea but he warns about the fact that FIELD is a complicated matrix to fill in. The more difficult the higher the risk that the data is incorrect, incomplete or insufficient. Failure to create robust data will make the index less powerful.

Catarina Roseta Palma proposes to take into consideration legal vs. shadow relationships (formal / informal) in the index.

QUESTION 4.2

What are the conditions under which the Index is likely to become a useful tool to easily identify the main actors within a system of relations?

Tatjana Jovanic suggests that it has to adapt to changes, among other conditions.

CONCERNING THE CONTENTS OF THE MATRIX

5. CATEGORIES OF THE PLAYERS ANALYZED

The following categories have been identified so far:

- **Politicians**
- **Public officials and civil servants**
- **Market actors (non-financial):** this category includes firstly companies, entrepreneurs and corporations mainly operating in service production and delivery, but may also include other competing players like e.g. NGOs and non-profit organizations and cooperatives, informal groups providing the service, ...
- **Market actors (financial):** this category refers to private banks and investors (local, national or international). Please specify in the free text the exact nature
- **Market actors (sustainable finance):** this category includes experiences in the domain of sustainable finance, socially responsible finance and investments, microcredit, ...
- **International Financial Institutions:** e.g. World Bank, International Monetary Fund, European Investment Bank, Asian Development Bank, ...
- **Lobbies**
- **Consumer organizations**
- **Administrative tribunals:** tribunal and courts that deal with administrative, procedural, budget conflicts
- **Consumers / final users**

QUESTION 5.1

Do you have any particular comment on the groups proposed? Is there any other relevant category of players that should be added to this list?

[Contributors: Alberto Asquer, Olivier Crespi Reghizzi, Tatjana Jovanic, Catarina Roseta Palma)

Generally speaking, Alberto Asquer warns about the possibility that the categories take for granted a certain typical societal and political context, especially related to Western countries. He wonders whether the list could be modified if the FIELD method is to be applied to developing countries, where actors such as a 'chief of clan' or a 'local religious authority' might play an influential role also on such matters as public service delivery. Possibly a preliminary exploratory interview about general societal structure with key informants might be included in the FIELD protocol.

Catarina Roseta Palma proposes to reduce groups, grouping them under three categories:

- 1) Political or public representatives
- 2) Lobbies / influence
- 3) Market actors

Olivier Crespi Reghizzi and Tatjana Jovanic propose the following further groups:

- Local regulators
- National Regulators
- Local politicians, who are a different group than their party fellows in ministries, who may also be public officials.

6. PLAYERS' INCENTIVES

The following incentives have been identified so far:

- Efficiency in provision of the service
- Profit
- Market share
- Effectiveness and quality
- Equity / redistribution / accessibility
- Electoral consensus
- Consensus
- Political control
- Religious control
- Ethnic control
- Maintaining / increasing own budget
- Financial public budget constraints

QUESTION 6.1

Do you have any particular comment on the incentives proposed? Is there any other relevant category of incentives that should be added to this list?

[Contributors: Alberto Asquer, Tatjana Jovanic, Catarina Roseta Palma]

As a general question, Alberto Asquer wonders why these factors are conceived as incentives rather than, say, objectives. It may be just a matter of language used, but he thinks that, within some disciplines or disciplinary areas at least, such factors as 'electoral consensus' or 'maintaining/increasing own budget' are conceived as a goals, rather than an incentives.

FIELD method is especially concerned with collective actors, but he wonders whether also individual 'incentives' (or goals) might be included in the list, e.g., personal income, personal career prospects, etc.

Tatjana Jovanic and Catarina Roseta Palma suggest the following further incentives:

- Transparency
- For consumers: reducing payments

QUESTION 6.2

A difficult but relevant task is to specify / define / measure the achievement (e.g. profits in the last year) and the pay-offs (money, power, consensus, credit, ...) . Do you have any particular suggestion to integrate the matrix in order to make such definition / measurement as quantitative as possible?

[Contributors: Catarina Roseta Palma]

The suggestion is to try to get some official data on a few outcomes:

- cost recovery level,
- quality of service indicators
- governance and transparency indexes

and see which aspects of the matrix connect closely with these outcomes.

7. INFORMATION

The following types of information have been included in the analysis so far:

- **operational costs**
- **investment costs**
- **assets:** physical assets
- **revenues:** market revenues or transfers
- **demand side:** who the customers/users are, where they are located.

QUESTION 7.1

Is there any missing type of information that is particularly relevant to the analysis?

[Contributors: Alberto Asquer, Olivier Crespi Reghizzi, Ola Mattisson, Catarina Roseta Palma]

The following types of information were suggested:

- Prices/tariffs
- Service quality
- Volume of demand/fluctuations
- Kind of regulation in place (formal regulation authority ? contract regulation? Informal regulation?)
- Provisions for future costs: In some contexts provisions are used, in others they are not. And this will affect cost levels, investment plans and re-investment plans.
- How costs are distributed: i.e. who pays and who receives? (financial flow / relationships)
- How revenues are organized: i.e. structure (fixed fees, volumetric payments?)
- Is there any economic information about the demand side, i.e. price vs. non-price instruments of demand.

8. RELATIONSHIPS

The following categories of relations have been considered so far:

- **Appointment:** when a person or an institution is responsible for appointing a person to a specific role in another institution. When collecting the first data some extensive interpretation in terms of assignment was observed, that led to the inclusion of another relation “assignment”;
- **Election;**
- **Lobby pressure;**
- **Strong political influence:** political influence strictly speaking, that is to say toward politicians or the electorate. When collecting the first data some extensive interpretation in terms of assignment was observed in terms of market power or market influence. This led to the inclusion a new relation “market power” ;
- **Corruption:** it is worth noticing that in some cases this relation has been understood as bribery, some further specification is necessary in the future;
- **Regulation** (under different forms: regulation of price, quantity, quality, accessibility, distributional aspects) ;
- **Rule of law / judicial enforcement;**
- **Assignment:** when a player assigns a service to an operator through e.g. concession, public tender, direct assignments;
- **Market power:** a company's ability to influence the market. This relation is likely to exist between two market actors;
- **Command and control.**

QUESTION 8.1

According to your opinion, is there any type of relations which is not clear or that would require further explanation? Is there any missing type of relation that is particularly relevant to the analysis?

[Contributors: Alberto Asquer, Catarina Roseta Palma]

Concerning any missing type of relation, the following were cited: possibility of complaint (from the consumers towards, for example, the regulator or competition authority); pure commercial relation (supply)

In general, relationships could be organized into two categories: formal vs. informal types of relations