

Workshop organized by the Innovation and Regulation Chair

“Innovation in Network Industries: Accounting, economic and regulatory implications”

Paris, 16 March 2011

Presentation

Network industries lie at the heart of economy and society. They provide key infrastructures and technologies, and have deserved indeed special missions of general interest. Therefore, they used to be organized as publicly owned monopolistic entities, thus subject to administrative law and regulation. Nowadays, these industries are undergoing major economic transformations. From one side, they have been gradually opened up to competition, which has drastically changed their structure and functioning. From another side, the rapid digitization of our economies and society, fuelled by network information and knowledge technologies, favors the emergence of new industrial players and new services, as well as it changes the design, production, distribution and consumption of related goods and services. Finally, industrial deregulation, technological change, financialization and globalization effects, international accounting convergence, the ongoing financial crisis, just to name some, have challenged industrial affairs. This has increased the risk of developing disparate and even rival modes of governance and regulation, with divergent functioning, implementation patterns and rationale.

Such transformations raise important issues, including the *financial needs* required for the deployment of technological change, and the changing *role of regulation*. From one side, the development and implementation of new technologies require massive investments that call for careful forms of legal-economic design and policy. From another side, such evolutionary process defies the received theoretical perspectives on the role of the State and of the Law. Different concepts of regulation arise: either as a regulatory framework establishing a level playing field, as a strategic instrument to be exploited in industrial affairs, or as a driver towards greater economic efficiency and social effectiveness.

In this context, network industries (telecommunications, postal services, energy, water and so on) are of utmost importance. Lessons for accounting, economics and law can be learned from their experience and transformations, especially at the theoretical and regulatory levels. The present conference and workshop aim to contribute to the ongoing debate on management, governance and regulation of these industries by shifting towards greater recognition of the fundamental implications of their ongoing transformations. Scholars adopting different perspectives on these matters (and coming from different disciplines) are invited to share their views in order to generate ideas and suggestions for addressing the current issues and advancing knowledge about effective and efficient management, governance and regulation of regulated industries. Special attention is deserved to the development and deployment of related technologies by individuals, groups, organizations, society, and nations for the improvement of economic and social welfare.

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Program

9h50-10h00: Welcome by workshop organizers

Morning Session

10h – 11:30: Accounting for Costs, Prices and Innovation

Y. Biondi (Cnrs – Ecole Polytechnique of Paris) and P. Giannoccolo (Bologna University) – Complementarities, intangibles and the accounting system: implications for welfare-improving industry regulation

Giuseppe Marzo (Ferrara University) – intangibles and accounting structures in regulated industries: conceptual framework and practices

Gilles Koleda, Antonin Arlandis, Stéphane Ciriani, "Les opérateurs de réseaux dans l'économie numérique. Lignes de force, enjeux et dynamiques" (2010)

Coffee break

11h45 – 12h45: Regulation of Competition and Pricing

Frederic Marty (CNRS – GREDEG, Université de Nice Sophia-Antipolis) – "Margin Squeeze Strategies in the Telecom Sector: A Comparative Analysis of US and European Competition Case-Law"

Thierry Kirat (Cnrs, University Paris Dauphine), Does Public Contract Law meet Accounting ? A Comparative Analysis of the Judge' Assessment of Costing and Pricing in Economic Litigation on Contract Performance (France-United States)

Afternoon Session

14h00-15h00 - Perspectives on Telecommunications industry

F. Lirzin and S. Reiche (Mines ParisTech, Paris), Three fundamental trends structuring digital economics and its challenges

Rebai Lilia and David Flacher (University of Paris 13 North), Tariff complexity, market power and regulation - The case of telecommunications

Coffee break

15h30-17h00 – Innovation, Economic Organisation and Regulation of Network Industries

Christine Müller et al. (WIK), The investment and innovation dilemma in regulation: theory and international experiences

Rafika Khabouchi (U of Montpellier 1), “Vertical separation, Investment incentives and Collusion in network industries”

Mehdi Feizi (Institute for Monetary and Financial Stability (IMFS), House of Finance, Goethe University Frankfurt), Dynamic (In)consistent Antitrust Enforcement and Cartel Infringement : A Differential Game Approach

Program Details

Morning Session

- **Accounting for Costs, Prices and Innovation**

Y. Biondi (Cnrs – Ecole Polytechnique of Paris) and P. Giannoccolo (Bologna University) –
Complementarities, intangibles and the accounting system: implications for welfare-improving
industry regulation

Coopetition is a strategic mix of cooperation and competition that is likely to occur in presence of complementarities in demand or supply side. Innovative industries are critically concerned with coopetition through R&D joint ventures and other cooperative agreements between competing firms. In turn, these joint activities raise specific accounting issues concerned with recognition and measurement of intangible resources committed to, and generated from them. This makes regulatory frameworks and policies critical to enable the optimal mix from corporate and welfare viewpoints. We develop here a heuristic economic model of one industry characterized by joint utility from the demand side, and potential complementarities in R&D activities. In this specific industrial context, cooperative strategies that enhance consumers' welfare should be carefully distinguished from collusive strategies that purport extracting rents without such welfare improvement. This result has main implications for regulatory wholesale pricing benchmark, and specific cost accounting standards for purpose of costing and pricing.

Giuseppe Marzo (Ferrara University) – intangibles and accounting structures in regulated industries:
conceptual framework and practices

The last decades have witnessed an ever growing interest on the regulatory policies aiming at introducing competition in sectors where monopolistic (especially state-controlled) operators existed.

The fundamental conclusion Governments arrived after many years of state-controlled monopolistic operators in utilities sectors, such as telecommunications, gas, electricity and so on, is that those operators were inefficient and sometimes ineffective.

A strong impetus for reforming markets developed, with various features across sectors and Countries. In particular different regulation tools have been used. Policymakers focused on removing barriers to entry, supporting network interconnections, regulating prices and promoting access to utilities, and finally imposing structural or functional separation.

In general the achievement of regulators' objectives of improving efficiency and promoting innovation is based on a model of sector's functioning molded upon neoclassical approach to markets, firms and values, where static efficiency is assured while potentially damaging the dynamic long-run efficiency, where the value of resources can be fairly defined and they can be factored in together on the basis of a common and well-known function of production.

For example, the price level regulation (in the forms of rate of return or cost of service regulation; price cap regulation, revenue cap regulation and benchmark regulation) relies on the determination of input necessary for the production of a pre-specified product (or

service), where resources' values are assumed to be fairly assessed in order to generate the basic conditions for competitive conditions to arise. This echoes the neoclassical flavor of exogenously determined technology available to all operating firms, these being therefore equal.

The adoption of the neoclassical approach seems very dangerous once one considers the prominent role that R&D and intangibles in general play as the major drivers of the competitive force of any firm. In fact, after a long time during which the neoclassical standard firm was the main reference for research and policy making, academic research, institutions and practitioners have identified intangibles as extremely importance for the firm continuity. This repositioning called for new models for accounting and visualizing intangibles, in order to improve firm management. Debate on the effectiveness of the proposed models is still open, but a common vision has been reached, that intangible, firm-specific and path-dependent resources are at the core of the value-creation process.

A clash exists therefore between industry models relying on the neoclassical standard firm, and business models that explicitly depart from that towards the recognition of firm-specific and path-dependent features.

On this background, some aspects deserve attention. Firstly, the importance of accounting system not only as a neutral measurement system, but as a system that actively participate in both generating the boundaries and defining the object it is devoted to measure. Despite the market-based models adopted by Regulators, costs, prices and values are determined jointly within the accounting systems adopted by firms. In this sense, all analytic models used by Regulators assume a production-function-firm, with standard inputs mixing together in order to obtain a predefined output, and resources' values assumed to be fair. Nevertheless, that those values are fair is doubtful. First of all, only costs related to tangible and tangible-equivalent resources (such as labor costs) are considered, this being in contrast with the acknowledged role of intangibles. This is the result of the application of neoclassical model, where the same technology (therefore the same intangibles) was available to all firms, being therefore null any difference. Accounting for intangible is certainly a difficult task, but the risk is that modeling as intangibles did not exist could lead to fake results.

Secondly, some resources are extremely rare, and therefore only a mark-to-model approach can be adopted since a market-value does not exist. Thirdly, economic values does not coincide with accounting values from an ontological point of view, and therefore that costs upon which price regulation is based are those prevailing under optimum conditions is a questionable assumption.

The second important aspect is related to the tension between static versus dynamic efficiency. This point can be analyzed under two perspectives. Firstly, the consistency of adopted values (for cost and prices) for price-level regulation with the innovation processes. In other words, are those values able to capture the possible future expansion of the opportunity set available to a firm, so enabling investment to take benefit from them? Finally, how the way business risk is reflected in the cost of capital used by regulators influences creative and innovation processes in regulated firms?

Both questions call for a better understanding of systemic relations between firms, where intangibles are the main constituent of the emerging properties of the system. In order to better appreciate this point, it suffices to recall that the pressure for developing competitive markets has sometimes led to the dis-integration of previously vertically-integrated

monopolistic operators, under the opinion that the production functions of the new operators were additive and therefore equivalent to the incumbent's. But a deeper consideration of intangibles would probably opened different alternatives. In fact, the most important intangibles are embedded in the social context of the firm. They share a social dimension that impedes their breakdown or isolation. They are so firm-specific that are not replicable not divisible. Functional or structural separation can therefore lead to an industry system less efficient than the monopolistic operator. (Biondi and Giannoccolo, s.d.)

In investigating those aspects, the paper will take a firm-based perspective, in the sense that different theories of the firm will be presented to help to deal with the above presented issues.

Gilles Koleda, Antonin Arlandis, Stéphane Ciriani, "Les opérateurs de réseaux dans l'économie numérique. Lignes de force, enjeux et dynamiques"

<http://www.coe-rexecode.fr/public/content/download/29592/294485/version/3/file/Document-de-travail-N16.pdf>

- **Regulation of Competition and Pricing**

Frederic Marty (CNRS – GREDEG, Université de Nice Sophia-Antipolis) – “Margin Squeeze Strategies in the Telecom Sector: A Comparative Analysis of US and European Competition Case-Law”

Margin squeeze occurs when a vertically integrated incumbent takes advantage of its dominant position on a given market – and the rivals' dependency on the incumbent asset or product - to foreclose a related market. Such strategy consists in fixing the upstream products wholesale price and the retail price for the final output in such a way the margin between them is too weak to allow a fair competition downstream, or to make the downstream market attractive for potential new entrants. In the Deutsche Telekom case, the European Court of Justice, following the General Court and the Commission, explicitly recognized for the first time that a margin squeeze constitutes a specific form of anticompetitive exclusionary abuse. On the contrary, in *Linkline*, the US Supreme Court held that a margin-squeeze claim cannot be brought under the Section 2 of the Sherman Act as long as the vertically integrated operator has no antitrust duty to deal. As a consequence, a plaintiff should demonstrate that the incumbent charges excessive prices on the upstream market or develop a predatory pricing strategy in the downstream one.

Such transatlantic divergences are likely to lead competition authorities to analyze incumbent market strategies in two very different ways. It also draws two specific dividing lines between the ranges of sector specific regulation and competition policy, as the *Trinko* decision of the US Supreme Court already did.

This communication will aim at analyzing the economics criteria used by both jurisdictions to characterize such a market practice and to assess its compatibility with competition law requirements. Putting into relief these transatlantic specificities will also lead us to consider the optimal allocation of responsibilities between sector-specific regulators and competition authorities considering history, market structure and dynamics but also legal, procedural and institutional frameworks. In this way, we will have to examine to what extent the European conception of a special duty of a dominant operator vis-à-vis an effective competition market structure could lead to asymmetric regulation decisions.

Thierry Kirat (Cnrs, University Paris Dauphine), Does Public Contract Law meet Accounting ? A Comparative Analysis of the Judge' Assessment of Costing and Pricing in Economic Litigation on Contract Performance (France-United States)

Judicial reasoning is a crucial issue for both sociolegal studies and comparative law. The literature in both fields overlooks accounting matters in legal reasoning. The paper will address this issue through a comparative empirical analysis of public contract cases before courts in France and the United States. We scrutinize the way the French and American judges consider the assessment of additional costs and additional fees claimed by firms which contract with a public authority. The empirical material is provided by administrative courts records, namely: the General Services Board of Contracts Appeals in the USA; the Cours administratives d'Appel and the Conseil d'État in France. The paper argues that the American Judge, from the Boards of Contracts Appeals to the Supreme Court, have been able to elaborate a legal doctrine of cost accounting methods and principles, while the French administrative judge lets that issue aside. The reasons of that difference cannot be found in differential sensibility of individual judges toward accounting matters; it reflects institutional features of both legal systems. The paper will then broaden the perspective in order to provide a more comprehensive comparative analysis of the legal context in which regulation, case law and the styles of administrative judges' reasoning affect the treatment of additional costs and contract equilibrium issues in both countries. The explanatory power of the Weberian concepts of formal versus material rationality of civil law versus common law legal system is tested.

Afternoon Session

- **Perspectives on Telecommunications industry**

F. Lirzin and S. Reiche 2010 (Mines ParisTech, Paris), Three fundamental trends structuring digital economics and its challenges

Changes in digital technologies have a deep impact on firms and their strategies. Traditional structure of the ecosystem into four layers is perturbed: device manufacturers, networks operators, service providers and media are mixing up together. For example, free consumption of media is shifting the localization of economical value. This evolution can be summed up into 3 main trends leading to three scenarios. In the first one, the whole value chain is integrated and owned by oligopolistic operators. Consumers / citizens are separated into communities related to these operators in all aspects of their life (from the type of music they listen to to Internet of Things). In the second scenario, everything is owned and controlled by a central platform which banishes any form of piracy. In the third scenario, everything is free from the access to networks to any type of cultural good, all financed by advertising and tie-ins.

A survey of digital actors confronted to these scenarios leads us to uncover a fundamental phenomenon: an irresistible fluidity, which raises four challenges, namely financing of culture, financing of infrastructure, network security, and enabling of democracy. None of the three scenarios is sufficient to face these challenges, and any regulation, whether local or international, has to decide how to combine them.

Rebai Lilia and David Flacher (University of Paris 13 North), Tariff complexity, market power and regulation - The case of telecommunications

The aim of this article is to demonstrate that beside the traditional forms of market domination based on product differentiation, another type of dominance exists even in presence of close substitutes. It's the case of market dominance involved by tariff complexity. While the classical forms of market dominance are widely treated in academic literature, those implied by price list complexity are rarely explored. Our article investigates the impact of prices information on the telecommunication operator's market power. For this purpose, we relied on an original database built on a large statistical inquiry upon a sample of 1500 Tunisian representative individuals'. The questions addressed aimed to examine the impact of information on their choice's behavior relative to different means of telecommunication (wire line or wireless phone, sms...). The analysis relies on Wilcoxon signed-rank test to investigate changes in the choices classification made by individuals when informed about market prices. It also relies on sequential association rules to extract sequences of close substitutes and compared them in the two situations examined (before and after information). We finally evaluated the potential dominance of operator's by estimating "contextual substitution thresholds". These analyses enabled us to show that even if the consumers sustain that price is a very important criterion they are actually not able to deal with the tariffs complexity. We showed that when informed, they changed their behavior in the sense of diminishing the domination that is exerted upon them. These results suggest that a relevant market regulation could rely on lowering tariff complexity set by operators.

Coffee break

- **Innovation, Economic Organisation and Regulation of Network Industries**

Christine Müller et al. (WIK), The investment and innovation dilemma in regulation: theory and international experiences

In this paper, we survey from a theoretical point of view to what extent cost-based and incentive-based regulatory regimes stimulate investments. For the purpose of this analysis, we furthermore differentiate by different efficiency measures, i.e. allocative efficiency, productive efficiency and dynamic efficiency and analyse to what extent each efficiency measure is stimulated by the regulatory regime. Special attention is paid to incentives for dynamic efficiency.

Overall, we find that conventional cost-based regulation only stimulates allocative efficiency and strongly encourages over-capitalization (Averch-Johnson-Effect). Moreover, we argue that current forms of incentive regulation only lead to productive efficiency, predominantly incentivizing short-term efficiency in terms of operational expenditures (OPEX). Also, additional instruments such as quality regulation and/or additional allowances, e.g. investment budgets as applied in Germany, may incentivize replacement and expansions investments respectively. However, from a theoretical point of view, incentive regulation does not stimulate dynamic efficiency in the sense of explicit regulatory stimuli for asset innovation leading to a dynamically efficient CAPEX allocation. Thus, we conclude that complex trade-offs result from the guiding idea of an efficiency oriented network operation (productive efficiency) and the incentivization of dynamic efficiency. A scrutiny of the state-of-the-art of related academic work shows that this problematic is merely characterized and should be further elaborated within IRIN from different perspectives.

Another paper presents and evaluates international case studies of countries pioneering in-cresed regulatory measures towards (dynamic efficient) investment. Therefore we analyse international experience from regulatory regimes that already look back on a long history of incentive regulation and recently revised or plan to revise their regulatory framework to further stimulate investments and innovation in a smart grids context. The pertinent examples in this context are the United Kingdom (UK), Italy, Norway, and the Netherlands.

Our case studies show that the analysed countries take more or less intense measures to increase the regulatory provision for investments and dynamic efficiency. The UK can be considered as pioneer in pursuing this path by changing the priorities from a regulatory focus on cost-efficiency to a holistic innovation and output-oriented approach with a forward looking, long-term value for money perspective, albeit still lacking regulatory practice. A less holistic but rather straightforward solution has been implemented in Italy where the regulator may increase the rate of return for specific investments. In the Netherlands, revised approaches towards investments and innovation are still under discussion. The intensity of the debate however suggests the importance of this issue. Norway corrected the time-lag problem with capital expenditures. Overall we conclude that the approaches taken in the UK, Italy and Norway as well as the current discussions in the Netherlands are encouraging steps towards increased regulatory measures towards investments. In order to tackle the overarching climate targets from a regulatory point of view, it is crucial that other countries become alert, initiate the debate and follow their examples.

Rafika Khabouchi (U of Montpellier 1), “Vertical separation, Investment incentives and Collusion in network industries”

This paper analyses the investment incentives in a vertical separation structure and its impact on firms’ behaviors. We find that when firm less value the investment made upstream, it will be more encouraged to deviate from the collusive agreement.

Mehdi Feizi (Institute for Monetary and Financial Stability (IMFS), House of Finance, Goethe University Frankfurt), Dynamic (In)consistent Antitrust Enforcement and Cartel Infringement : A Differential Game Approach

In this paper, we analyze a differential game, simultaneously à la Nash or hierarchically à la Stackelberg, between a firm that might be violating competition law and the antitrust authority, which attempts to minimize the social loss. The main contribution of the paper is to incorporate dynamic (in)consistency and (non)commitment in antitrust enforcement via open loop and feedback equilibrium. Moreover, this paper goes beyond most of literature with regard to the cartel penalty scheme which is not only proportional to the infringement degree but also to its duration as well.

It turns out that the probability of auditing is always rising with the cartel record and the infringement degree, it is decreasing with the fine structure parameters in the Nash solution but not necessarily in the Stackelberg one. The infringement degree is declining with the probability of auditing and penalty structure parameters. Although, firms have higher cartel intensity under non-commitment, they prefer commitment; whereas non-commitment is socially preferred, though commitment leads to higher antitrust enforcement. Therefore, contrary to the literature, we found that a credible commitment of the authority on the frequency of use of this policy may not always enhance the efficiency of the enforcement of the competition law.