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### **Economics as Social Engineering? Questioning the Performativity Thesis**

João Rodrigues

DINÂMIA – ISCTE  
Lisbon, Portugal  
joao.rodrigues@iscte.pt  
Av. Forças Armadas, Ed. ISCTE  
149-026, Lisbon, Portugal  
Tel. 00351217936838  
Fax. 00351217940042

Ana C. Santos

DINÂMIA and  
Dep. of Economics,  
ISCTE Lisbon, Portugal  
anacsantos@iscte.pt  
Av. Forças Armadas, Ed. ISCTE  
149-026, Lisbon, Portugal  
Tel. 00351217936838  
Fax. 00351217940042

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#### **Abstract**

The social engineering ambitions of economics have never been so high. Economists have been praising its ability to construct successful markets from scratch and science students have followed them approvingly going as far as to claim that the economy is in the end embedded in economics. This paper scrutinizes the performativity program of economics, as put forward by Michel Callon which attempted to demonstrate that economics is powerful enough to enact the reality that it describes. It shows that the research carried out thus far has provided very little understanding about the power of economics to construct and shape reality. The performativity thesis, at best, has shown that economics, understood in a very loose sense, has an active role in the creation of market mechanisms. More work is then needed to illuminate the ways by which economics actually participates in shaping reality.

**Keywords:** Performativity, Market Mechanisms, Auctions, Experiments

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## **1. Introduction**

The social engineering ambitions of economics have never been so high. Economists have been praising its ability to construct successful markets from scratch and science students have followed them approvingly going as far as to claim that the economy is in the end embedded in economics.

This paper scrutinizes the performativity program of economics, as put forward by Michel Callon, that attempted to demonstrate that economics is powerful enough to enact the reality that it describes. It shows that the research carried out thus far has provided very little understanding about the power of economics to construct and shape reality. The performativity thesis, at best, has shown that economics, understood in a very loose sense, has an active role in the creation of market mechanisms.

The paper is structured as follows. Section 2 presents the performativity thesis. In section 3 the performativity thesis is deflated to the rather trivial assertion that economics by participating in market building produces the marketization of social life. Section 4 illustrates this claim with the analysis of most praised successful case of market building – the FCC auctions. The last section of the paper suggests a new direction for the performativity program and thereby reiterates the interest and urgency of a research program that investigates how economics shapes and moulds the economy and the social world.

## **2. The performativity of economics: neoclassical economics and marketing building**

The central claim of Callon's performativity project is that "economics, in the broad sense of the term, performs, shapes and formats the economy, rather than observing how it functions" (1998: 2). It highlights the possibility that, given the right circumstances, economic discourse might have a performative dimension, i.e. it can be powerful enough to shape the economy at its own image or to create situations increasingly in accordance with its theoretical presuppositions. The implication of this is that rather than discussing the realisticness of the assumptions of economic theory and their adequacy to describe and explain the economic world, theoretical and

empirical research should be redirected towards the analysis of the means by which economics interacts with the economy. Specifically, it should be devoted to the analysis of the multifarious participation of economics in the collective efforts of social engineering aimed at creating economic institutions, mainly of a market-like nature, that account for the successful enactment of the patterns of behavior postulated by economic theories.

The performativity of economics, like that of any other science, evokes two interconnected elements: the *singular existential statements* (SES) and the *sociotechnical agencements* (STA) (Callon 2007). SES are statements of the kind ‘at *such-and-such* a place, and at *such-and-such* a time, and under *such-and-such* circumstances *such-and-such* behavioral pattern can be observed’ that describe events and the particular circumstances, located in time and space, in which they might be observed. By describing the events and the circumstances in which they occur, the SES indicate, more or less explicitly, the operations required to bring them about, i.e. the SES evokes describable *sociotechnical agencements* that produce the events represented by the statements. Even though the “precise devices, operators, and operating modes . . . [may not be] directly described . . . [they] have to be describable (for instance, through the addition of other statements that complete the SES and clarify what it implies)” (p. 318). The statements and the *agencements* are therefore intrinsically interconnected in that “the verisimilitude of the statement (i.e., does the event occur or not?) cannot be dissociated from the context denoted by and built into the statement” (p. 319). The STA are men-made arrangements of heterogeneous elements, which include “human bodies but also . . . prostheses, technical devices, algorithms, etc.” (Callon 2005: 4), that are carefully adjusted to one another so as to bring about the events described by the statements. This “is realized only after a long collective effort, which one could call economic research, involving 90 percent engineering and 10 percent theory” (2007: 333). The critical feature of the *agencements* is “their capacity to act and give meaning to action”. This is, in fact, the reason for the choice of this word rather than the English equivalent, arrangement. The performativity thesis endorses a particular contingent and malleable understanding of individual and collective human action which is largely dependent upon the structural configurations of the arrangements

and the networks in which it takes place.<sup>1</sup> On this view, then, whether human action appears as selfish or altruistic, or exhibits predominant calculative or non-calculative traits, depends not on a supposedly unchanging human nature but rather on the nature of the arrangements which configure agents' behavior.

The STA bridge the gulf separating the theoretical statements forged by academic economists (or 'confined economists' to use an expression favored by Callon) and the economy and it is the core of the performativity program, which is devoted to the study of the 'ethnography of sociotechnical agencements' (2005: 5). The performativity of economics hence takes place when the sociotechnical agencements produce events described by economics statements. It is in this way that the statements of economics become true by construction or come to describe and represent their worlds correctly. The performativity thesis replaces the criterion of truth by the criterion of success or failure, where success is measured by the extent to which economics actualizes the reality it describes. Though, Callon notes, success is bound to be a temporary achievement. The performativity of economics has eventually to come to grips with 'overflowings', i.e. reactive responses to the worlds created by economics.

Even though it is stated in broad terms, the performativity program is about the performativity of neoclassical economics. This is not surprising given the tremendous influence of the latter in the academic and the policy-making circles. Neoclassical economics, which is the hegemonic conceptual framework of those involved in the concrete processes of market construction, contains what Callon dubs an 'anthropological program' with its inbuilt commitment to a particular view of human agency, prevailing human motivations, behaviors and forms of rationality. The performativity of economics thus amounts to the creation of market frames capable of producing "a self-interested agency obsessed by the calculation-optimization of his or her own interest" (2006: 31). Notwithstanding the explicit recognition of the inevitable variability and specificity of markets, Callon has an overall conception of this institution and of the calculative rationality prevalent therein. On this view, then, the STA of

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<sup>1</sup> This perspective is reminiscent of Callon's previous work within the actor-network theory (ANT) that aimed at surpassing the dualism of agency and structure (cf. Fine 2003).

economics are market institutions that potentially produce the “calculative agencies” postulated by neoclassical economic theory, i.e. *homo economicus*.<sup>2</sup>

The performativity of economics is then carried out by the performance of the ‘neoclassical anthropological program’ which, according to Callon, is characterized by three features: the disentanglement of things and humans; the centrality of individual human agencies; and the underplay of the uneven distribution of calculative equipment and capacities among agencies (2007: 343). Firstly, the performativity of economics seems to produce “disentanglements which cause market goods to proliferate while dissociating them from the agencies that are in the position to produce and trade them” (2007: 344). The disentanglement, or separation, of object and subjects of a market transaction, is one of the unavoidable elements of commodification processes. This separation stems, as Castree remarks, from the fact that the “commodity status of a thing, object, idea, creature, person or what-have-you is not intrinsic to it, but rather assigned” (2003: 277). This assignment is granted by an institutional setting that assures the critical conditions for the functioning of the market: the definition and guarantee of property rights. The set of property rights is crucial to sustain the alienability of the object, i.e. the physical and/or moral separation from its owner, the seller, on a formally volunteer basis, when the buyer and the seller agree on its monetary value. Thus, the performativity of economics, as a ‘process of marketization’, also requires “investments and precise actions to cut certain ties and internalize others” (Callon, 1998: 19).

Secondly, the performativity of economics produces “individual human agencies capable of calculating their interests” by supplying the means that enable the construction of individual interests and the attribution of the resources to calculate them (2007: 345-6). But Callon notes that the *homo economicus* postulated by economic theory can only be true by construction – “[I]f he exists he is obviously not be found in a natural state . . . He is formatted, framed and equipped with prostheses which help him in his calculations and which are, for the most part, produced by economics” (1998: 51). The performativity of economics is thus carried out by ‘collective calculation devices’ constructed by the collective efforts of professionals with different competencies (‘economists at large’ to use Callon’s terms). And these investments and actions are

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<sup>2</sup> See also Slater (2003).

always required to create the conditions for ‘calculative agencies’ to emerge and thus the self-interested and rational patterns of behavior presupposed by neoclassical economics (Callon even speaks of maximizing and optimizing behavior).

*Homo economicus* needs a specific environment to flourish and supporting material collective devices, created with the help of economic theory, which assist in the making of the calculations which the theory presumes him to be capable of doing autonomously. However, as Callon, notes “from the fact that calculations are made in the quasi-laboratories of calculative agencies (the word agent places too much weight on the individual) we should not infer that there are calculative beings, no matter how well or poorly informed they may be” (1998: 5). Neither can we assume that individuals become egoistic and a-social human beings.

MacKenzie and Millo’s (2003) study showed that not even in the supposedly rarefied world of derivative financial markets do participants become *homo economicus*: “they might have priced options as economic theory said they should, but they never became morally atomistic” (p. 139). On their view, these markets never ceased being moral communities in which social norms and values such as reciprocity, generosity, and reputation had also their part. They conclude: “With the aid of economic theory, of technology, and of much else, a passable version of *homo economicus* can be and has been configured cognitively, so to speak. Whether he can be configured morally, out of real men and women, remains an open question” (p. 140).<sup>3</sup>

MacKenzie and Millo spot a tension in Callon’s (1998) between this nuanced and open view and a more univocal idea of the performative capacities of economics. Callon then recognizes that “[a] total, unambiguous configuration is impossible” (2007: 347) and clarifies that any market is the product of different, and sometimes antagonistic, performative programs, contributing to the existence of mutually interwoven calculative and non-calculative moral agencements. The crucial research question of the performative program then becomes to study how “the anthropology of economics is constantly confronted with other, equally performative, anthropological programs” (ibid).

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<sup>3</sup> See also MacKenzie (2006).

Finally, the performativity of economics is the result of a political process which is deemed to carry the potential to ignore or aggravate asymmetries expressed by the capacity of “dominant economic agents designing and imposing modalities of encountering” (2007: 349). The market is, nonetheless, a highly plastic and malleable institution. It is prone to reconfiguration since there will always be ‘overflowings’ as a result of the effects of agents’ actions upon others.

### **3. Building markets: a mottled affair**

The performativity program of economics seems to be making the bold claim that economics is performative because it is powerful enough to enact the reality that it describes. And that this is based on the stringent condition that the performance of economics is carried out by particular *sociotechnical agencements* that produce events described by *singular existential statements*. However, on closer scrutiny, the performativity of economics ultimately consists in the participation of economics ‘at large’ in the creation of ‘collective calculative devices’ (the STA of economics) that assist human beings in calculating their interests in very particular circumstances (the SES of economics). Rather than transforming the world to the image of the bits and pieces that become successful, as one could be led to believe, economics is instead engaged with the construction of markets and in assisting the calculations of economic agents. The few empirical case-studies that have inspired or have been inspired by the performativity program show just that. They are all attempts to attest the capacity of economics to build markets and instantiate the behavioral postulates of neoclassical economic theory.

Garcia (2007), which is among the first studies of the performativity program of economics, reports the construction of an auction market for strawberries in a region of France at the image of the model of perfect competition.<sup>4</sup> This study marks the beginning of the interest in auctions and especially auctions of goods sponsored by public institutions. As Callon (2005) would recognize, the latter is one of the areas in which the interaction between academic economists, policy-makers and business interests has become more visible, with neoclassical economists having, as we shall see

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<sup>4</sup> This study was originally published in French in 1986. See MacKenzie et al. (2007) in which an English version of this article is available.

below, a central role in the design of these institutions. The studies of MacKenzie and Millo (2003) and MacKenzie (2006) of the financial derivative markets constitute another important contribution to the field. Their analyzes of the role of option pricing theory in legitimizing and actually facilitating, at least for a period, the development of financial derivative markets have drawn attention to some of the limits of Callon's performativity hypothesis. These studies and the debate they brought about, a sample of which can be found in the recently co-edited book by MacKenzie, Muniesa and Siu, *Do Economists Make Markets?*, have forced Callon to introduce further amendments and qualifications resulting in a looser understanding of performativity. The performativity of economics seems now to be reduced to the simple participation of economics in the construction of new markets.

The case-study by Holm (2007) about the introduction of fishing quotas in Norway is presented by Callon as revealing the performance of economics in that "the contribution of economics is productive insofar as it participates in the actualization of a world in which it becomes or is true" (2007: 337). But it is not at all clear which part of economics became true by construction. Economists proposed the introduction of quotas to limit the use of fishery resources and participated, together with many other professionals, in re-organizing the Norwegian fishing industry, whose management became more technologically-based. New regulations were hence introduced as well as new means for controlling, measuring and detecting the fishery resources. These procedures are deemed to have transformed "the dark and mysterious ocean into a transparent aquarium" and the "Norwegian fisherpeople into *homines economici*". According to Callon, this is an instance of the performativity of economics because "without economics the market would not exist . . . and the fishermen's calculative and maximizing rationality cannot be investigated as long as this market does not exist" (2007: 337-8). The claim implicit here seems to be the following: without economics there were no markets, hence the (re-)building of the market is an instance of economics enacting the reality it describes.

When considering that Callon endorses a broad conception of economics that encompasses all the resources that participate "in the construction of a world described and performed by statements and models that we readily agree belong to the world of economics" and that includes "[a] host of professions, competencies, and non-humans

[which] are necessary for academic economics to be successful” (2007: 332), then any process of market building becomes by definition an instantiation of economics.

So, it is not even necessary to empirically demonstrate how and to what extent economics participates in constructing worlds that conform to it. Any process of market building produces such effect because it belongs to economics’ worlds and performs the ‘neoclassical anthropological program’, characterized by the triptych disentanglement - individual human agencies - unequal calculating capacities. But this is a rather circular reasoning or, at best, a trivial one, as others have already noted (e.g. Fine 2003 or Mirowski and Nik-Khah 2007).

The lack of a stringent notion of performativity ultimately underlies the failure of the performativity program, both in its descriptive and interpretative ambitions. As Fine (2003) noted, Callon’s approach lacks an adequate theoretical framework able to discern the mechanisms at play, at the micro level of individuals’ behavior and at the macro level of the “logic” of the capitalist system and its main institutions, that could account for the relations between material and ideological processes and the participation of economics in shaping each one of them and their mutual relation. Without this, Fine argues, “the idea that economists constitute markets is simply a tautology or an assertion of causation without supporting argument” (p. 480). Callon ultimately fails demonstrating that the economy “is embedded not in society but in economics” (Callon 1998: 30).

Miller (2002), an economic anthropologist, confronts the performativity program with ‘virtualism’. He argues that the performativity project is simply untenable. Mainstream economics is an utopian ideology. But, due to the power it commands, it can have very ‘real’ effects on the values that are hegemonic in a given society and thereby on the language and social norms that are used by individuals to make sense of their actions and of those of others. Through the influence of certain economists, public discourses and policies may adhere to commodified understandings and promote commodification processes, which may create a “common frame” with an impact on the way individuals interpret the situations that they are facing, and also on the type of motivations that will be nurtured.

Nevertheless, and despite the ideological influence and the power that neoliberal economic theory commands, Miller claims, contra Callon, that the behavioral assumptions of neoclassical economists cannot become true. Economic relations are unavoidably embedded in and saturated by cultural and moral entanglements which make neoclassical economics views necessarily untenable descriptions of economic life. The same can be said of the patterns of behavior that can be found in capitalist societies. Indeed, he argues that what ends being “within the frame is *not* the market as an actual practice, but on the contrary a ritualized expression of an ideology of the market (...) a moral and ideological system whose intention is to create the normative conditions for exchange rather than a description of practice” (2002: 224). Therefore, Miller charges, “Callon’s emphasis on calculation and disentanglement ends up as an attempt to rescue more conventional notions of the market, for no particular good reasons” (2005: 5).

The positions of Callon and Miller are not necessarily incompatible. While mainstream economics proposes a recognizably utopian endeavor, following here the double sense of the world Polanyi (1957) used to criticize the viability of “market society” – it never existed and it is very difficult for anyone to imagine a society where it could exist – it nevertheless has a variable capacity to influence the way people think and behave. This influence, following Ferraro et al. (2005) here, may be exercised through two channels: (1) the direct role that the popularized versions of neoliberal economic theory have in the creation of a new common sense shaping the language used and the social norms invoked by individuals, and; (2) the influence that neoliberal theory has in the conduction of public policy and institutional design and the ways this moulds people’s patterns of behavior. Nevertheless, and to return to the critique mentioned earlier by Fine (2003), more work has to be done in order to clarify the links between commodification processes and their theoretical elaborations.

So, in the end, it is pretty consensual that economic theory influences individuals’ values and behavior, and that it does so through the diffusion of certain institutional arrangements. In the remainder of the paper it will be argued that if the performativity of economics has any chance of being a meaningful and tenable project, it must be a pretty local affair devoted to the resolution of simple problem-solutions with uncertain results. It can hardly put in place the ambitious forms of human agency assumed by neoclassical theory.

#### **4. The FCC auctions and the performativity of economics**

The FCC auctions have been announced as the biggest engineering success of economics, in general, and of game theory, in particular, and an expressive illustration of the performativity of economics. But the various studies made so far on this issue (Guala 2001, 2006; Nik-Khah 2006a, 2006b) provide ample evidence that shows that the auctions do not support Callon's stringent notion of performativity. Even though the FCC auctions succeeded in building a market for the selling of licenses, and this process benefited from the contributions of game theorists (GTs) and experimental economists (EEs), among other resources and professionals, they cannot count as an instance of making economics true by construction in any meaningful way. Moreover, the fact that the FCC auctions can be framed within the neoclassical anthropological program, as Callon defines it, does not seem to be particularly illuminating.

##### **4.1 The FCC auctions: the goals**

In 1993 the US congress charged the Federal Communications Commission (FCC) with the design of an auction mechanism that would allocate licenses to use the electromagnetic spectrum for personal communication systems. The FCC made an unprecedented call for academic game theorists to participate in the policymaking process. This call gave interested parties the idea of hiring game theorists as consultants. Game theorists responded to the call and participated in the process of market building as consultants for both the institutional regulator, to assist in the design of the auction, and major telephone companies who needed advice to help them obtaining their most desirable licenses.

In 1994 the FCC implemented what was to be known as the simultaneous - multiple round - independent auction (SMRI) which would soon be praised as "the greatest auction in history" (McAfee and McMillan 1996: 159). The SMRI auction launched a market for thousands of spectrum licenses in which most U.S. telecommunications firms in the telephone and cable-television business participated. Its success in raising billions of dollars for the public coffers has been taken as evidence for the practical usefulness of game theory. The FCC auction is deemed to have supplied "a case study in the use of economic theory in public policy" (McMillan et al. 1997: 429) which

constituted “a triumph, not only for the FCC and the taxpayers, but also for game theory (and game theorists)” (*Fortune* in McAfee and McMillan 1996: 159).

According to the official version, as recounted by the game theorists themselves, the auctions aimed at creating a transparent and an efficient market that would allocate the airwave spectrum rights to highest value users - those who most valued and made best use of them. Until 1982, the spectrum licenses were assigned by an administrative hearing process (recognizably slow and non-transparent), which allocated licenses for free. After 1982, the licenses were sold and allocated via a lottery system that significantly improved the speed and transparency of the allocation mechanism. However, it did not prevent opportunistic behavior. Licenses could be bought and resold by individuals who did not want to use them, and thus undeservedly appropriated revenue raised with the commercial use of the public spectrum.

The auction mechanism seemed to offer a tremendous advantage over the alternatives. It offered the possibility of identifying the firms with the highest use-values for the spectrum, which would be in the position of paying the highest prices for using it and, as a result, maximize the FCC’s revenue. This required the design of an auction mechanism that encouraged bidders to reveal their true valuations while preventing opportunistic behavior on their part.

#### **4.2 Building the FCC auctions**

Game theory and game theorists took the credit for building the FCC auction. Though, as we shall see, it involved many other resources and participants. The contribution of auction theory proceeded in a piecemeal manner. The game theorists plainly acknowledged that “[t]he spectrum sale is more complicated than anything in auction theory. No theorem exists – or can be expected to develop – that specifies the optimum auction form”. The reason for this was that “[m]ost of the existing theory omitted the crucial feature of the spectrum auction: the fact that the licenses complemented and substitute for each other” (McAfee and McMillan 1996: 171-2).

Because auction design raised important practical questions for which theory had no answers, the building of the FCC auction was a complex and mottled endeavor that is

best depicted as a patchwork of various partial solutions to particular issues of auction design. Auction design “is a kind of engineering activity. It entails practical judgments, guided by theory and all available evidence, but it also uses *ad hoc* methods to resolve issues about which theory is silent” (Milgrom 2000: 271). Game theory’s major contribution consisted in “developing intuition”, in particular, “to show how people behave in various circumstances, and to identify the tradeoffs involved in altering those circumstances” (McAfee and McMillan 1996: 171).

The auction design raised three key challenges. First, ensure that highest-value users bought and paid the licenses at their values; second, allow the composition of favored combinations of licenses taken into account licenses’ complementarities and substitutability; and; third, prevent opportunistic behavior on the part of the bidders that would jeopardize the competitive gains obtained from instituting the market. The theory would help looking at the strategy of competition: “how bidders choose their bids, not knowing the value of the item for sale and not knowing what their rivals know; and what the seller can do to stimulate the bidding competition, not knowing how much any of the bidders is willing to pay” (McMillan 1994: 146).<sup>5</sup>

Based on game theorists’ advices the FCC opt for the ‘simultaneous - multiple round - independent’ auction (SMRI) that gave bidders the possibility of operating in several markets at the same time so that they could have the chance of composing desirable aggregations of items or adjusting their aggregation to a last-resort composition if their first-choice aggregations became unattainable. The licenses would then be allocated to the highest bidder that paid his bid price. This auction was also considered more capable of dealing with the free-rider problem that was likely to occur in the alternative auction considered – the combinatorial auction.<sup>6</sup>

Many detailed rules were also devised to avoid the opportunistic exploit of any gap. For instance, an activity rule required the payment of deposits on the total number of desired licenses at the beginning of the auction to ensure that market participants had actually

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<sup>5</sup> This account is based on game theorists’ reports of the events after efficiency had been set as the main goal of the auction in detriment of other welfare goals set by the congress such as the expansion of public access to new technologies, products and services, and the decentralization of the licenses awarded to include small businesses, rural telephone companies, and minority groups (Nik-Khah 2006 a).

<sup>6</sup> In the combinatorial auction the sell of compositions of licenses would hamper competitive bidding for the single items because only part of the gain from competitive bidding would accrue to bidders.

the intention to own and use the licenses. Given the high stakes in presence, the government was also concerned with simplifying the tasks in order to reduce the incidence of mistakes. To avoid the ‘winners’ curse’, that is, the selling of the licenses to traders who overestimated their value (cf. Kagel and Levin 1986), or to avoid the cautionary behavior of risk-averse bidders, the bids were announced at every round so that traders could make better estimates of the licenses’ values. Improving licenses’ assessed value would induce higher bids from cautious bidders and thereby raise auctioneer’s revenue. The incidence of unpredictable mistakes was considered by allowing bid withdrawal, though with a penalty.

The next step of market building was then to glue together these partial solutions and evaluate whether they could be implemented in an operational environment. To this end,

[j]udgment and guesswork were needed to merge the various partial theories, to weigh the government’s various objectives, to estimate the relative sizes of the different effects, and to evaluate whether a proposed scheme was workable.

Laboratory experiments also were used to test whether people bid as theory predicts, and to look for hidden gaps in the rules that might leave the auction open to manipulation by the bidders. (McMillan 1994: 151)

Game theorists give the impression that laboratory experiments were used to test the relative magnitude of conflicting effects and work out the gaps left by theory. But experimental economists did much more than that. They were crucial to actually put the various pieces together into a workable mechanism and solve the complications that emerged while trying to do so (cf. Guala 2001, Nik-Khah 2006a, 2006b). The building of the FCC auctions followed a division of labor in which game theorists proposed the auction form and the rules that would organize the functioning of the market and the experimental economists implemented these rules in an electronic market.

After stabilizing the auction rules, the experimenters subsequently tested the auction under conditions that closely resembled the market to be implemented. Only then were experimenters able to assess the combined effect of the auction’s rules, which could not possibly be predicted by non-experimental means. Because the data collected from the laboratory and from the FCC auction were similar in many relevant aspects (e.g.

bidding patterns, price trajectory, license aggregations, etc.), the experimenters were confident that the same goals had also been achieved in the FCC auction.

Even though the accounts of the economists involved in the auction design make believe otherwise, the success story of the FCC auctions has been contested. Nik-Khah, based on the archives of the FCC, tells a different story:

Many business buying licenses defaulted on their down payments . . . , leading to considerable “administrative delay” in re-awarding licenses. The lion’s share of licenses won by ‘small’ and ‘entrepreneurial’ business went to entities bankrolled by large telecoms, representing a failure to get licenses into the hands of a ‘wide variety of participants’. The auctions have not lived up to their promise to promote ‘rapid deployment [in] rural areas’, as both large telecoms and smaller firms have tended to concentrate their effort on large metropolitan areas . . . Overall, the allocation of licenses produced by the auctions proved to be unstable, as the industry has gone through a spate of merger and acquisitions and telecom failures, ultimately leading to a high degree of license concentration. (2006a: 31-2)

### **4.3 The FCC and the performativity thesis**

It comes out very clearly that the process of market design, culminating with the implementation of the SMRI auction, is a pretty mottled endeavor that mobilizes various heterogeneous resources. As Nik-Kah (2006a, 2006b) clarifies, the design of the FCC auction mobilizes two main conflicting theoretical contributions: auction theory, which influenced the choice of the SMRI auction, and Walrasian general-equilibrium theory that informed the creation of the electronic market. The construction of the SMRI auction also benefited from the knowledge and experience with other attempts at building auctions for the sell of spectrum licenses as well as from ‘judgment and guess work’ about how the various bits of the auction were to be put together. And it suffered the interference of the various interests in confrontation.

Though game theorists were eager to wrap their contribution with the allure of science, emphasizing that “the auction design process was driven not by politics, but by economics” (McMillan 1994: 147), Nik-Khah (2006a) convincingly argues that the

process of building the auction was a political one marked by the interests of the constituencies in presence, namely those of the telecommunication corporations. As mentioned above, large corporations hired academic economists to help them to position in the policy-making process, first by lobbying for the most favorable architectures for the auctions and then by assisting in the definition of their clients' bidding strategies. For, as Plott, recognized "[b]usiness understood that the rules and form of the auction could influence who acquired what and how much was paid" (1997: 606).

Because "game theory was unable to provide a knock down argument for the optimality of a specific auction form", Nik-Khah concludes that "firms narrowly constituted interests played a major role in the policy-making process" (2006a: 17). To Guala (2006), however, "experimental and theoretical considerations did play a role in declaring one solution superior to its main competitor" (p. 25). Moreover, the choice of the SMRI auction was also based on pragmatic considerations because it was deemed "a simpler design that was likely to do the job" (p. 26).

From the foregoing analysis, it does not follow that game theory was useless for policy-making and that the performativity of economics, however it might be defined, is a fruitless endeavor. The failure of the FCC auction in promoting a variety of goals, including the sought-after efficient allocation, is probably more an indication of the intrinsic difficulty in designing any market mechanism, and especially so when there are huge stakes involved.

The SMRI auction ended up being the result of a patchwork of various inputs which makes it increasingly hard to evaluate their partial contributions. This is indeed recognized by Callon (2007). He takes these auctions as illustrative of a case of co-performation of two alternative *sociotechnological agencements* where "none of the protagonists is able to push his or her own program through to the end, for none of them is able to completely frame the world that they create". As result, "they can only adopt a logic of compromise in which some elements of their world are realized and others are not" (p. 341). While experimental economists had to accept the solution proposed by game theorists (i.e. the SMRI auction), the experimental economists also introduced

elements of their own world by imposing technical solutions drawn from experimentation.

Even though Callon acknowledges that the final design “was a patchwork, cobbled together with elements from competing worlds”, he does not derive particular conclusions from this state of affairs. The various elements in the end constructed a world in which they could work: “whether they state a formula, build a piece of software, or devise an accounting technique, they all give themselves a world or worlds so that the formula, model, or software that they put into circulation (utter) finds an environment, agencements, enabling it to function” (p. 341). Even if we accept that the various bits and pieces of economics perform in the FCC auction, as Callon describes, this does not seem to constitute an interesting and meaningful case of performativity.

For the FCC auction to count as an instance of performativity – understood as the capacity ‘to make the world that it describes, and that makes it true, exist’ – it would have had to generate market outcomes implied by any of the theory(ies) involved in its production. There are two obvious candidates here. The SMRI could count as a performativity success of either game theory or experimental economics. For the SMRI to count as a performative success of GT, it would have had to allocate licenses to their highest-value users. But it would have had to allocate those licenses at competitive equilibrium prices to count as a success of EE. These are the two alternative statements that would meaningfully allow asserting that the SMRI is an instantiation of the performativity of economics. That various bits and pieces of economics participated in the construction of the FCC auction is in itself not very informative. Nor is it the fact that the FCC auction can be framed within the neoclassical anthropological program.

Callon does not do either test. Instead, he takes the FCC auctions as an instantiation of the neoclassical anthropological program. Because the SMRI solution was proposed by the game theorists, Callon does not hesitate declaring the victory of game theory: “The GTs won the battle and pushed the disentanglement process a step forward, deploying the market world further and further. Without economics (that of GTs) this deployment would have been simply unimaginable” (2007: 344). Even though the FCC auction created a market for selling the licenses, which were previously allocated via a lottery system, it is not at all clear how the FCC auction operated further disentanglements. The

introduction of the auction simply changed the allocation mechanism. The dissociation between the regulator and the license users was in place prior to this intervention.

Neither is it the case that the FCC auctions furthered the centrality of individual human agencies. It could be expected that the economic agents, i.e. the telecommunication companies, were already guided by their commercial interests and that they had the resources to pursue them. Indeed, the large corporations attempted to do much more than simply playing the game as best they could within a given set of rules. They attempted to determine the rules of the game to their advantage too. In this case, taking self-interest and opportunistic behavior as a point of departure is a better depiction of the process of market building. This comes out very clearly in the process of market design. The regulator was aware and concerned with being outsmarted by these powerful agents.

The FCC auctions therefore show that the 'socio-technical agencements' designed and tested in the laboratory produce 'calculative agencies' by defining the economic problem at hand and by controlling the range of admissible actions under the presupposition that economic agents pursue their individual interests and will take advantage of any gap if they can. Control is crucial. The success of social engineering ultimately depends on the extent to which the control exercised in the lab when designing market mechanisms can also be exercised 'in the wild'. Otherwise, the economic engineer will fail bringing about the intended outcomes. The FCC auctions shows that, in market building, this control must also be exercised beyond the market borders. The flaws of the FCC auction indicate that the regulator was not effective in controlling the actions of the bidders, especially those that took place outside the market but that substantially affected the market outcomes. As a result, the market became more concentrated in the hands of a few large corporations. But again, Callon does not see this having any effect on the status the performativity of economics.

## **5. Conclusion**

Callon's performativity program entails the bold claim that economics can become true by construction. But Callon only succeeds in showing that market building produces the rather trivial effects that he attributes to the neoclassical economics' view of the world.

This could be symptomatic of the failure of the performativity project. But perhaps the performativity project has simply set the target too high. Rather than establishing *a priori* the presumption that economics can shape reality at its own image and then provide simplified views of economic reality so as to fit it, a more interesting research agenda for the performativity program would be to identify the difficulties that economists face in their engineering projects.

Market building is a necessarily complex and mottled endeavor that mobilizes various heterogeneous resources, recruits professionals with varied and often conflicting worldviews, and destabilizes the balance of the interests in presence. It is therefore a constant process of negotiation and compromise in the collective effort to sort out the various cognitive, technical and political problems that emerge when designing an operational market. Even though the participation of economics and economists in market building might be important and effective, it hardly makes theory true. This is not to say that the performativity project is misplaced. The fact that economists do attempt to enact the realities their theories describe is relevant. What is missing is more research that investigates the mechanisms whereby economics shapes and moulds reality and the obstacles that get on the way and prevent economic theories from becoming true. But it should be clear that the ultimate goal is not to make economic engineering more 'scientific' and capable of constructing the world of economic theory. The obstacles are not external interferences that once known can be removed and allow economists to carry out their policy goals in a scientific like manner. These obstacles are always present whenever economists are engaged in social engineering activities.

The ways by which economics shapes the economy certainly deserves more analysis and interest. Its role in promoting and realizing commodified ways of social life, and its impact on values and social norms, attest for its utmost urgency. But rather than preaching that economics constructs reality to its image, the new studies should illuminate on how economics actually participates in shaping that reality.

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