



Markets for information: Of inefficient firewalls and efficient monopolies ☆



Antonio Cabrales^a, Piero Gottardi^{b,c}

^a Department of Economics, University College London, United Kingdom

^b Department of Economics, European University Institute, Italy

^c Institute and Department of Economics, Università ca Foscari, Venezia, Italy

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ABSTRACT

In this paper we study market environments where information is costly to acquire and is also useful to potential competitors. Agents may sell, or buy, reports over the information acquired and choose their trades in the market on the basis of what they learnt. Reports are unverifiable – cheap talk messages – hence the quality of the information transmitted depends on the conflicts of interest faced by the senders. We find that, when information has a prevalent horizontal differentiation component, in equilibrium information is acquired when its costs are not too high and in that case it is also sold, though reports are typically noisy. The market for information is in most cases a monopoly, and there is underinvestment in information acquisition. We also show that regulatory interventions, in the form of firewalls, only make the inefficiency worse. Efficiency can be attained with a monopolist selling differentiated information, provided entry is blocked.

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1. Introduction

It is common to observe potential competitors in a market exchanging information about issues pertaining to that market. To take an example from the labor market, human resource managers often discuss the characteristics of potential employees in their sector. Analogous situations arise in the housing market, or in financial markets. This is somewhat surprising since the information supplied often has a rival nature. The firm manager mentioned above may prefer to be the only one to know that a particular job applicant is adequate for her needs, as this reduces the competition if she intends to hire her. As a consequence, managers may not be trusted to make truthful reports over the information they acquired.¹ At the same time, in many situations information may be quite costly to acquire. Just think of the costs of finding a suitable candidate in an academic job search. These costs, together with the common interest nature of the information, generate a clear incentive

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E-mail addresses: antonio.cabrales@gmail.com (A. Cabrales), piero.gottardi@eui.eu (P. Gottardi).

¹ A striking example of this rivalry in the case of financial markets appears in the following quote from *The Economist*: “Buy-out firms complained that banks which were supposedly advising or lending to them sometimes snatched deals from under their noses. A notorious example was the battle for Warner Chilcott, a British drugmaker, in late 2004: while working with buy-out firms bidding for the company, Credit Suisse teamed up with JPMorgan Chase to launch a bid of its own”. *The Economist*, October 12, 2006: “Banks and buy-outs: Follow the money”.

for setting up a market for information, so that the agents who acquired information can provide reports over it, possibly in exchange for the payment of a price, to other agents. The soft nature of the information transmitted as well as the rivalry we posit in its use create a challenge for nontrivial information transmission.

As we will see, this transmission is more likely to happen if different individuals have different values for the same bit of information, or if some specific skills or features are needed to profit from a given news. In the language of industrial organization, we will see that information about a horizontal dimension, instead of a vertical one, is particularly amenable to profitable exchanges. Furthermore, the conflicts of interest faced by the information transmitter mentioned above are clearly mitigated when he is not interested in trading in the market. In the wake of financial scandals after the dot-com bust and the concerns by regulators about the objectivity and the conflicts of interests of financial analysts, one typical recommendation of regulators in various countries was the introduction of “firewalls”, separating who provides information on a market from who trades on it.² Finally, the possibility of exchanging, or selling information to other traders may in turn affect the agents’ incentive to acquire information.

We consider a model which, although admittedly stylized in some dimensions, allows us to capture what we believe are some key factors at play in the issues described above: information acquisition, its transmission via non-verifiable reports and underlying market outcome. One of our main objectives is to analyze the efficiency problems that arise in environments where these features are present and the scope for regulatory interventions. To this end we will also address the following issues: when is information acquired? If so, does a market for information form and how competitive is it? How noisy is the information transmitted?

In particular, we investigate a market where a single, indivisible unit of an object is up for sale. It is useful to describe various features of our set-up by making reference to the example with which we started the paper, though the analysis clearly applies to many other situations: we could think so of this “object” as a worker (to be even more precise, let’s say a movie actor). The market is organized as a (second price) auction, where several potential employers can participate. The worker comes in different possible varieties (attractiveness to different audience markets), and each employer only values one variety. In addition to employers, who are the potential buyers in the market, there is the agent (the actor himself or an agent), who initially owns the object and has no utility for it (he cannot produce a movie on his own), and some other agents who are not interested in trading the object. The true variety is not known ex-ante by anybody, but can be ascertained, incurring a given cost, by any market participant. This is because the attractiveness of any particular actor to different audience markets is extremely hard to anticipate and requires costly market research activities.³

Besides the market for the worker there is another market where information is exchanged: any agent who acquired information can set a price (which may be zero) at which he sells a report about his information to other potential buyers. The information transmitted, as we said, is non-verifiable, thus reports are pure “cheap talk” messages. The softness of the information, for example, would make it hard to prosecute successfully an advisory company who advertised an actor for his attractiveness to young viewers when in fact he is not.

As can be seen from the brief description above, the model displays a number of important simplifications. We show however in one of the final sections on robustness checks that the main conclusions, in particular those regarding welfare and information transmission, survive several natural extensions (concerning, e.g., the specification of the buyers’ possible valuations, the timing of the different actions, the nature of the information provider and so on).

We characterize an important class of equilibria of such game, where the sellers of information tell the truth whenever they cannot strictly gain by lying. More precisely, they report the true type of the object when they are not interested in it, and send an uninformative report when they do. A first finding is that in equilibrium, when information costs are not too high, information is acquired and in that case it is also sold by its acquirer to third parties potentially interested in the object. That is, the market for information is active. Typically, only one trader acquires information in equilibrium, the market for information is then a monopoly. Information is either sold at a positive but sufficiently low price such that all the uninformed buyers except one purchase it.

We also show that both when information is acquired by a buyer, who faces a conflict of interest in his reporting, or by an agent not interested in trading, who faces no conflict, the object ends up in the hands of the agent who values it the most.⁴ That is, the allocation is ex-post efficient. However the level of investment in information acquisition is not efficient. In particular there is typically underinvestment, independently of the identity of the agent who acquires and sells information, i.e. when he is a potential buyer ([Proposition 1](#)), but also when he is an agent not interested in trading the object ([Proposition 2](#)). Actually, in the second case the inefficiency is even more severe. Hence restricting the possibility of selling information in the market only to agents not interested in trading upon it (as with the introduction of “firewalls”), while improving the truthfulness of the information transmitted, can worsen the overall market outcome. The reason is that

² Section 501 of Title V in the Sarbanes–Oxley Act (significantly entitled “Analysts conflicts of interest”) requires financial firms to establish specific safeguards to ensure the independence and separation of analysts from traders.

³ In many interesting applications it is even likely that the employers have a higher prior knowledge than the worker or his agent concerning his fit to a specific firm.

⁴ This feature, unlike the other ones reported below in the text, is not robust to various extensions of the model. In particular it depends on the fact that an agent either does or does not like the good, and the ones who do like it value it equally.

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