Extracting the information: espionage with double crossing

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This paper addresses two very old issues in human society: espionage and double crossing. Our major conclusion points out that there will be a serious over rewarding problem in the direct mechanism due to double crossing in espionage, and a competitive mechanism with a relative performance regime can possibly mitigate the over rewarding problem and still extract the information.

Keywords: espionage; private investigator; double crossing; renegotiation.

JEL Classifications: D82; Z.

1. Introduction

In an environment with asymmetric information, hiring a private investigator (PI) to dig out the secret of opponents is probably the most direct and often used method in real life. Espionage is prevailing in many areas covering business or industrial intelligence (see Sable 1985; Arensman 2001; Crane 2005; Fellings 2001), matrimonial investigation (see Asian Business 2002; Saywell 1999) and military intelligence (see...
Rositzke 1988; Marenches 1992). The impacts of these covert\textsuperscript{1} actions have been stronger recently, as computers and the internet have accelerated the transmission of information.

However, it would be interesting to know exactly how much information can be extracted by espionage. The answers can be very complicated, as there can be various aspects to look at espionage. The purpose of this paper is to focus on PI’s loyalty and ask if there exists a mechanism to ensure PI’s loyalty and extract information. There are mainly two loyalty problems under concern. First, PI might not put in full effort to dig out the truth, and this is the well known moral hazard problem. Second, if the value of information is really high, the targeted side might pay PI to keep silent or even to transmit error information which in turn can benefit the targeted side. This is the double crossing\textsuperscript{2} problem. There has been an extensive literature addressing the moral hazard problem (see, e.g., Hart and Holmstrom 1987), and the idea is to follow the revelation principle (Myerson 1979) and focus on a direct mechanism where PI is willing to participate. On the contrary, there has been no theoretical discussion on the double crossing problem, despite the fact that there are many documents recording how double crossing is adopted as a successful strategy in real life.

Hence, this paper will start by following the literature and examining whether a direct mechanism can solve both loyalty problems in espionage. This approach will be similar to that of contract renegotiation (e.g., Fudenberg and Tirole 1990); we will add an extra double crossing-free constraint in the designing process. Double crossing is de facto a form of renegotiation where PI asks for renegotiation on the terms of contract. The difference between the two concepts is that double crossing is renegotiating with the investigated side, which, if having conflicting interests, will find it beneficial to outbid the reward in the espionage contract and buy the PI’s silence to conceal the information. We will demonstrate that, to prevent double crossing in a

\textsuperscript{1} In some area, espionage is illegal (see, The Espionage Act of 1917 and the Economic Espionage Act of 1996).

\textsuperscript{2} According to Wikipedia, the free encyclopedia, double agents may be agents of the target organization who infiltrate the controlling organization, or may be previously loyal agents of the controlling organization who have been captured and turned by the target.