Chapter 9

THE CONTROLLABILITY PRINCIPLE IN RESPONSIBILITY ACCOUNTING: ANOTHER LOOK

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Abstract: In this paper, we illustrate some subtleties related to responsibility accounting by studying two settings in which there are interactions among multiple control problems. In the first setting, two agents are involved first in team production (e.g., coming up with ideas) and then in related individual production (e.g., implementing the ideas). We provide conditions under which the agents are not held responsible for the team performance measure, despite each agent conditionally controlling it. The conditions ensure the incentive problem related to individual production is so severe it drives out any demand for the team performance measure. The team incentive problem is not binding because of the large "spillback" from the individual problem to the team problem.

In the second setting, we provide conditions under which an agent is held responsible for a variable he does not conditionally control. Conditional controllability is a notion derived for one-sided moral hazard. Our model is instead one of two-sided moral hazard. Under two-sided moral hazard, it can be optimal for an agent's pay to depend on variables conditionally controlled by the principal. This serves as a substitute for commitment by the principal.

Key words: Responsibility Accounting and Controllability

1. INTRODUCTION

A basic premise of responsibility accounting is managers should be held accountable for variables they control. There is some ambiguity about the definition of the word "control." A casual notion of control, which we refer to as controllability, is a manager's pay should depend on variables whose (marginal) distribution he can affect by his supply of inputs. Antle and

Demski (1988) use a principal-agent model to make the notion of control more precise. A manager conditionally controls a variable if, conditioned on other information present, the manager's input influences the distribution of the variable. This definition is referred to as conditional controllability or informativeness. Antle and Demski highlight the pitfalls of not distinguishing between the two notions of controllability: controllability does not imply conditional controllability, nor is it implied by conditional controllability.

Conditional controllability helps explain why certain measures are included in a manager's performance evaluation and reward system, even though the manager might not have direct control over the measures. For example, consider the practice of relative performance evaluation. Suppose a CEO's actions do not influence the S&P 500. However, given the stock price of the company the CEO runs, the S&P 500 can be informative of the CEO's actions. The CEO's performance is viewed as better when his stock price goes up by 10% and the S&P 500 remains unchanged compared to a situation in which the index also goes up by 10%. The use of relative performance evaluation helps sort out the noise introduced by shocks to the economy affecting both the performance of the CEO and the S&P 500. Relative performance evaluation is a fairly intuitive application of informativeness. In other settings (e.g., insulating vs. non-insulating cost allocations or choosing to designate a division as a revenue, cost, profit, or investment center), the implications of conditional controllability can be subtler.

While the relationship between controllability and conditional controllability is well established, less is known about the circumstances in which a variable is valuable in contracting. Conditional controllability is a necessary but not a sufficient condition for a variable to be valuable. For example, numerous operational measures such as number of patents obtained, customer satisfaction scores, warranty claims, etc. are often not included in the manager's performance evaluation even though the manager might conditionally control them. In this paper, we focus on the value of information.

In the first setting we study, the agents each take multiple actions, sequentially. The first act is taken in a team project. The second act is taken in an individual project. There is a spillover from the team project to the individual project--the first act of the agent influences not only the team output but also his individual output. Such a spillover may occur, for example, if a team is used to come up with project ideas, with individuals subsequently implementing various components of the projects. In this case, the individual output depends not only on the effort the agent exerts in the implementation stage but also on the effort the agents exert in developing