DOI: 10.20472/IAC.2023.061.001

MUSTAFA AKAN
Halic University, Turkey

NATALIJA KONOVALOVA
Riseba University, Latvia

PRINCIPAL-AGENT PROBLEM IN A DYNAMIC CONTEXT

Abstract:

The objective of this study is to analyze the principal-agent problem concerning the investment behavior of the agent in the dynamic context using Optimal Control Theory.

Two models were considered:

1. An agent has a contract with the firm for infinite horizon

The result was that the agent starting to work in a small company would invest heavily in the Productive Capacity (PC) of the firm and gradually decrease it to the long-term equilibrium level while increasing the PC up to its long-term equilibrium level. An agent will put more effort into the firm if the proportion of profit he receives increases. Increasing the fixed salary will have a smaller but similar impact.

However, his efforts will be always less than the efforts the shareholders would put into the company if they were making decisions themselves.

An opposite behavior will prevail if the firm was large.

2. An agent has a fixed duration contract with the firm

An agent starting in a small company will begin to put a high effort (higher than amortization of PC) into the company at the beginning thus increasing the productive capacity and begin to reduce his effort until he reaches the point where his effort is equal to the amortization of the capacity and then he continues to decrease his effort until both the effort and the capacity of the firm vanishes at time T, the contract period.

The general conclusions of this study are:

. There is no optimal incentive (profit sharing ratio) to synchronize the objectives of the shareholders and the agent.
. Higher the fixed salary and profit-sharing ratio higher will be the effort of the company.
Fixed salary has less of an impact than the profit-sharing incentive.
. Shareholders should always sign a fixed-long term contract with the agent.

Keywords:

Agency Problem

Optimal Control
Dynamic Context

JEL Classification: D22