

The Bargaining Processes.
Exploring the Complexity Using System Dynamics Modeling.

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Abstract

Bargaining is becoming a very suitable alternative for making decisions in companies and other organizations. This is the reason why many authors speak about the arriving of "bargaining age" to describe increasing use of this process in the present. In a business context, modeling bargaining is an extremely complex task, because it requires the identification of the variables influencing this process, many of them soft and difficult to formalize. This paper synthesizes some of the outcomes of our research during four years. One of them is a model called BARGAIN I, which describes and gives an explanation to the impact of bargaining in business results using System Dynamics.

1. Introduction

From diverse perspectives, have been proposed several theories and models for describing bargaining processes (Pruitt, 81; Bacharach & Lawler, 81; Fisher y Ury, 81; Fisher & Brown, 88). Concerning System approach and from a business perspective, was Dunlop (1958) the first in using it, to analyze labor relationship. Later, among others, have been Abell (1975), Kochan & Wheeler (1975), Strauss (1978), Walker (1978), Kochan (1980) y Greenhalgh (1987), who have provided a conceptual wide frame to analyse collective bargaining. However, the main characteristic of all these models is neither formalize mathematically their analysis, nor describe dynamics aspects of the process.

2. The model BARGAIN I

In order to build the model, a company dedicated to develop industrial projects was selected, within this company the following sub-models were identified: productive-commercial,

financial, human resources and bargaining. This paper shows a very high-level description of the model, which contains originally around 400 variables & parameters. How to share the value added in the company, and the identification of the key points for a bargaining process, are the main issues addressed in this paper.

The bargaining process that takes place between workers & management of a company is link to the process of distribution of the value added that the company has generated. Considering the proposal for the "Value Added Statement" of a company (Bonsón, Escobar & Martín, 95), the net value added generated increases according to the annual income for the delivered services, while decreases due to the annual expenses in procurements, external services, depreciation endowments, and other tributes. This value added will be later distributed in order to pay the labour expenses (extrinsic rewards) and to recompense the external funds (according to their corresponding interest rates). The remaining amount will be the utility (in case it would be positive)

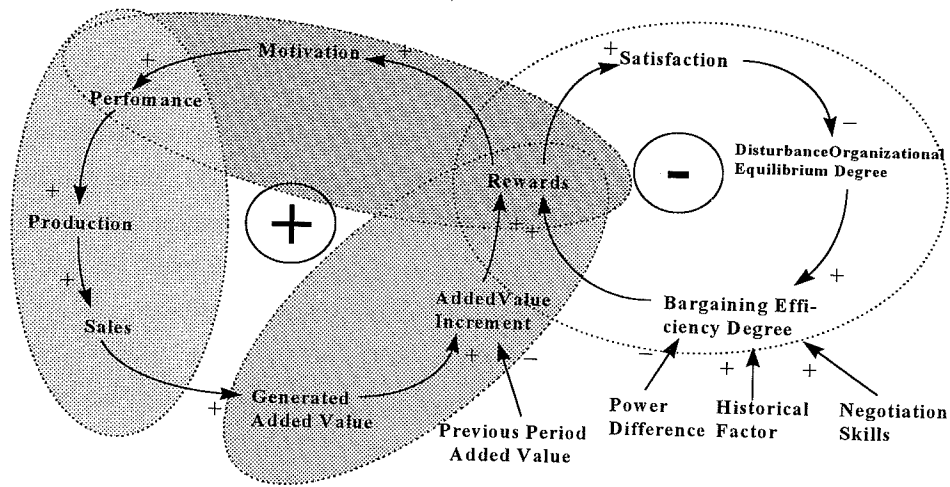


Figure A: Overview of model structure

obtained by the company, utility that will be later distributed among stockholders (dividends), Treasury Department (taxes), or will be retained as accumulated retained earning.

Concerning the identification of the key factors influencing a bargaining process, a variable called "bargaining efficiency degree" has been defined. This variable depends on four factors. The first one is called "organizational equilibrium disturbance degree" and retains, from the previous bargaining process, the dissatisfaction of the company management & workers. The second measures the "negotiating skills" of the workers and firm representatives. The third, is a historical factor, showing the influence of the last bargainings. Finally, the variable power difference between the parts (Bacharach y Lawler, 1981) is used.

Figure A shows briefly how the model works. Initially, a certain level of rewards will exist in the company, leading to a particular level of workers motivation. This level of motivation, according to the organizational equilibrium theory (March & Simon, 69), depends on the existing relationship among the worker received rewards, his contribution to the organization, and his possible subjective feeling of injustice (by comparison). The worker level of motivation will be then translated into performance improvements (Thietar, 77) and therefore, in benefits for the production process. If this improvement in production is totally accepted by the market, sales will rise so as the value added generated by the company. Comparing the value added, with the one obtained for the last fiscal period, an incremental value can be obtained. This increase, when positive supposed, must be distributed among three agents: external capital funds (payment of interest), firm's results, and rewards for labor force. These rewards will create another, or the same, level of motivation, closing the cycle (positive feedback loop).

On the other hand, those rewards for the workers, as well as dividends and reserves for the company, will cause satisfaction levels both of them. Those satisfaction levels, compared with desired ones, will produce discrepancies. The sum of those discrepancies has been defined as the "organizational equilibrium disturbance degree". This variable plus "negotiating skills", "power difference" and "historical factor", will cause a certain "bargaining efficiency degree". The higher efficiency degree, the greater labor expenses, reducing the profits of the company (negative feedback loop).

3. Conclusions

Bargaining, considered as a decision making system in the companies and other organizations, will continue growing during the next years. Present and future managers of those organizations will need a better understanding about bargaining, and the distribution of generated

value added, processes. The model BARGAIN I proves that System Dynamics is a very suitable methodology to describe and study those phenomenon's. SD reveals relations among variables, feedback loops, and shows how the bargaining process works. The model BARGAIN I can be easily used for training, but also allows a more concrete utilization for the quantitative and qualitative study of the impact of bargaining in business outcomes.

4. References

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