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Evolutionary and competence-based theories of the firm

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Abstract. Around the 1980's the critiques about contract theories of the firm were getting more intense, and consequently the so-called evolutionary and competence-based theories of the firm were born. Although forming less homogeneous groups, these theories focus basically on different questions: they primarily wanted to explain the heterogeneity of firms; they were eager to know why firms differ. In the present work I examine the critical remarks of the contract theories and the newly developed – earlier as well as present-day – theories of the major schools of economic thought.

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1. INTRODUCTION

The contract theories of the firm compare the appearance of transaction costs in the state of equilibrium, in case of different coordination structures and consider the structure of the lowest costs to be the most efficient – introducing a static model as a matter of fact. Even Williamson admitted that examining firms in rapid innovation is a much more complicated task, than what his model can handle: the contract theories are not suitable for examining cases of deficient equilibrium. The evolutionary branch of the theory of the firm rejects the efficiency, equilibrium and analysis frame of the contract theories and emphasizes dynamic aspects and the role of 'real' uncertainty, which does not allow to calculate the expected values. Doing so, **it places the firm in a dynamically changing, disequilibrial environment and considers it as an organization that has competences**.

2. THE CRITIQUE OF CONTRACT THEORIES

Another one of the most important arguments against the contract theories is the completely different approach of the role of the individual. As Hodgson (2002/1998[1]:55-56) points out: there are representative,

[1] First publication.

rational individuals with the same world model in Williamson's theory, who accept a contract or reject it and enter another contract due to the transaction costs of the economic environment, while **in case of the evolutionary theories trust and loyalty (also) determine the human decision**.

The contract theories assume that production costs are given and they do not change depending on different ways of coordination and transaction. According to Hodgson's arguments (2002/1998:58) it is regular that production – just as machines and tools do – depends on human activity,[2] given that the willingness and motivation of workers to learn depend on the production organization and the property rights. That is **the effort of the contract theories only to minimalize the transaction costs does not stand its ground**.

Therefore the contract theories and the evolutionary competence-based approach are considerably different, yet many authors try to fuse these two together in their works. The acceptability of **hybrid explanations** originates from the complex nature of the economic reality and from the fact that more causative mechanisms affect at the same time. The works of e.g. Richard Langlois and David Teece represent the approaches that are based on more theories, in which they emphasize the human learning and the improvement of competences and 'dynamic skills', while they accept the role of transaction costs to some extent. Their argument is that the firm does not come into existence because of the transaction costs, but because there are several possible constructions, when introducing very effective (market-like) incentives may destroy co-operation and learning (Hodgson 2002/1998:52). Figure 1 shows the connection between the theories.

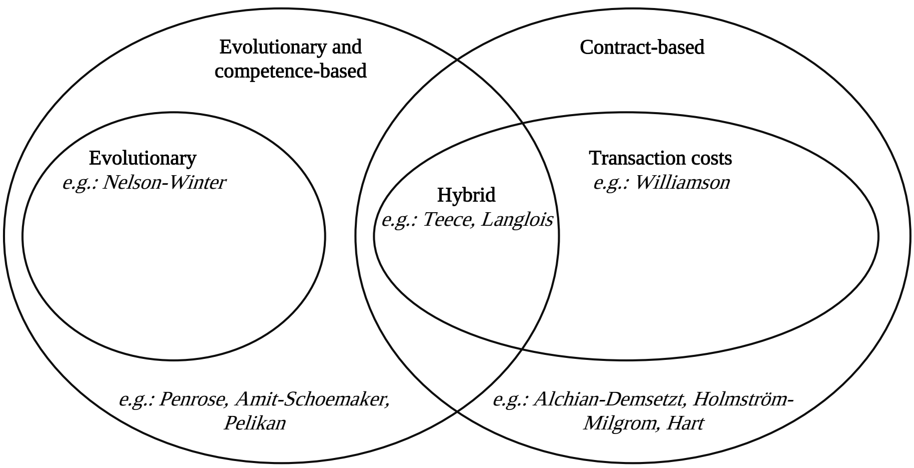

Figure 1. Relation between the evolutionary and competence-based and the contract theories
Source: Own design according to Hodgson (2002/1998:52).

[2] Previously Adam Smith also wrote about this in his classical work (The Wealth of Nations, 1776), whereas workers can specialize and improve their knowledge through learning-by-doing.

3. EVOLUTIONARY AND COMPETENCE-BASED THEORIES OF THE FIRM

The evolutionary and competence-based theory of the firm focuses on the problem of innovation, learning and steady competitive advantage and surveys the firm in the light of its own history. Doing so, the theory actually remarks upon that significant change that culminates in the real world in the establishment of learning and teaching firms as a consequence of information society. It exchanges the rational actions to the regular actions of the competence-based theory of the firm that include human limits and conflicts. The rules evolve in an evolutionary process. Thus the evolutionary and competence-based theory of the firm is a dynamic theory, where the evolution of the firms is influenced by endogenous (inside-the-organization) factors (Hámori-Kapás 2002:15), and consequently it completely rejects the optimalizing (profit-maximalizing) assumption of the neoclassical school of thought. It is not a unified theory: it involves a wide range of methods. In the following chapters I review different ideas that contribute to this theory of the firm probably the most significantly.

3.1. THE RESOURCE-BASED THEORY

One of the great bases of the theory is a new paradigm brought into focus by strategic management, namely the resource-based theory, by which we mean diverging, often rivalling opinions of many articles that have been published in the last 15 years in this topic. However **the foundation of each idea is that firms cannot perform every activity equally well, their resources and skills are heterogeneous, and the efficiency of each resource is also different**.

The competitive advantage depends on the different skills of firms as well as the different availability of firms to resources. **Possessing resources that themselves or the way they are utilized cannot be imitated, the firm will get into a more advantageous position**. The competitive advantage lasts until one of the competitors will be able to build this resource and/or the way it is utilized up in its own operation. So the resource market is imperfect and this imperfection leads to attaining rents.

The resource-based theory suggests building on and utilizing resources that will supposedly serve as permanent rents. These are the so-called **strategic resources**, which have the following characteristics (Figure 2).

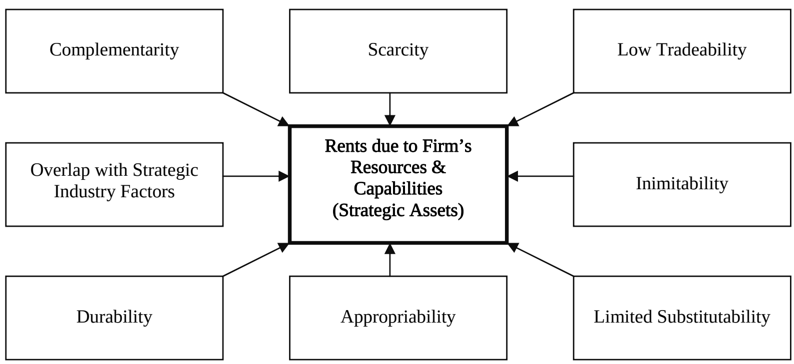

Figure 2. Desired characteristics of the firm's resources and capabilities
Source: Amit-Schoemaker 1993:38.

If a resource meets every criteria mentioned above, then it is:

- Of social character in that it is a result of business processes and interactions, and thus is embedded in the business environment,
- Complex,
- Implicit.

The strategic resources are the results of the organizational learning and knowledge, consequently the past and the history of the organization play a great role in their development. **They are firm-specific and are not linked to individuals, that is why they cannot be transferred easily from one firm to another**. The development of these basic competences[3] – which form the bases of competitive advantage and permanent rents – is due to such resources (Kapás 2000a:38). **The strategy has to declare what the firm has to do in order to possess such in-imitable strategic resources**.

So the purport of the firm is a new combination of the factors of production and the economic functions (Székely 1995:2), which is practically an advanced form of the classical thought of Penrose (1959:24), that is the firm is a combination of factors of production, where the allocation between the different fields of utilization is determined by administrative decisions. Penrose adds: the firm needs reserves to function stably (i.e. to handle uncertainty), which can be financial, resource of labour reserves (Penrose 1959:94).

Consequently firms exist because they are able to coordinate the collective learning process more efficiently than market organizations (Foss 2002/1996:161). Accordingly **its boundary extends until the utilization of the resource is more efficient inside the firm, than through the market mechanism.**

3.2. THE COMPETENCE THEORY

Organizational competences can be traced back to individual competences, but they do not equal the simple sum of individual competences, because not only individual competences, but the way they are connected affect them. This means that the organizational competence is of social character and is embodied in the organizational structure. **Competence** is the only business input that possesses the above-mentioned characteristics, this is why it can be considered as **the most important resource**. According to one of the creators of the theory, Pelikan (1988), competence is an **economic information**, on which the transferability of the other scarce resources depends, but which itself cannot be transferred or be measured reliably. Carlsson-Eliasson adds (1991, cited by Kapás 2000a:40) that competence is **the ability of the firm to exploit as well as to identify and expand its production potentials**. The competences of the firm depend especially on the competences of the leader and eventually of the owners.

The scarcity of competence as a resource is a view of primary importance, because it **is the eventual reason why firms cannot optimalize**. According to the contract theories introduced in the previous chapter maximalizing was possible, because the already given competences and the ability to obtain new competences are not considered to be scarce.

The knowledge mentioned in the competence theory **can only be obtained through 'learning-by-doing'** and cannot be transferred, consequently the knowledge of the firm is identified by implicit knowledge.

[3] According to Langlois and Robertson (1995:7), cited by Hodgson (2002/1998:75), firms and other organizations consist of two differentiated, but changing parts. The first part, the inner core consists of individual, constitutional co-operating elements, which are inimitable and invulnerable. The remaining part of the organization consists of additional abilities, which are vulnerable and are not unique. The role of the inner core is the same as that of transaction costs or contracts in the contractual approach. (Kocsis-Szabó 2000:71)

The implicit knowledge is the strategic tool – and here's the connection to the resource-based theory – that makes attaining the permanent rents possible.

It gives more emphasis to **learning-by-doing, as the source of internal growth**. Emphasizing learning and growth means, that – contrary to static and equilibrium-based approaches – the **individual itself is developing**. Due to the individual and situation-specific nature of knowledge, says Hodgson (2002/1998:73), not every activity inside the firm can be contracted.

3.3. THE EVOLUTIONARY THEORY

According to the evolutionary theory **the market competition creates an environment, which is similar to the natural selection: always the stronger individual survives**. In this uncertain environment the behaviour of the actors is not predictable, but the evolutionary process ensures, that the signs of development can be observed in the aggregate (Hodgson 2002/1998:67).

The idea of natural selection was popular for a long time among talents, like Alfred Marshall and Thorstein Veblen, but after their death it fell into oblivion until co-authors Nelson and Winter brought it into focus again. According to them the problems of the real world are too complicated to be understood, so firms cannot maximalize among the single alternatives. This is why they use simple rules (**routines**) (Nelson-Winter 1982:35). Thus the basis of the evolutionary theory is **bounded rationality**, which is handled differently from Williamson's view, because it is **not maximalizing, but a kind of compliance to rules is deduced from it. So the routine contains the regular, predictable aspects of the behaviour of the firm, by which the authors actually refer to the abilities (competences) of the firm** (Kapás 2000a:42). According to Winter these routines are more or less permanent characteristics of the firm, which may help in preserving abilities and other forms of knowledge and which have the ability to imitate things to a certain degree by means of copying, mobility of individuals, receiving etc. That is **routines can change as an effect of the leader's actions**: in case the owners are content they sustain the routines (genetic stability), otherwise they **search** for better solutions (internal mutation mechanism). That is routines play the same role as genes in biological evolution theory (Nelson-Winter 1982:14).

With this three key concepts: **routines** (genes), **searching** (mutation) and **selection**, the theory actually introduces **evolutionary dynamism** in the theory of the firm and describes the industrial growth.

The theory exceeds the contract theories, in that it considers **the firm as the bearer of a very special production knowledge at a given time** (and not only as an answer given to an information problem), which often possesses characteristics that distinguish it from seemingly similar firms of the same industry (Nelson-Winter 1982:175). **Such a firm is a unit that is able to obtain new routines, that is it is able to learn**. The mechanisms that ensure the sustenance of the firm develop and change as a result of interactions between individuals that make up the firm, and the firm and its environment. **Accordingly the firm is necessary, because it is the only possible organizational environment that ensures its sustenance and the adaptation to the environment** (Solt 2003:113).

The theory – in spite of its obvious faults – contains many novelties and advantages. It brings focus on:

– Irreversibility in time and continuous events,
– Long-term development, contrary to short-term corrections,
– Qualitative and quantitative changes,
– Variations and diversity,
– Disequilibrial and equilibrial situations, and

– Systematic and permanent possible failure and through this
– Non-optimalized behaviour (Hodgson 2002/1998:71).

3.4. THE FIRM, AS AN INFORMATION PROCESSING UNIT

The firm as an information processing unit theory closely relates to the evolutionary theory, it even extends it with **raising bounded rationality from the level of individuals to firm level**. **The firm cannot remember every piece of information, that is why it codes it into rules (routine)** (Kapás 2000a:45). It is also related to the contract theories, because it focuses on finding the cost minimalizing, information processing firm. It models the ability of the members of the organization of attaining, processing information. It assumes an uncertain, rapidly changing environment, which keeps contracts from being complete. One of the most important tasks of the firm in this environment is to collect and process information continuously. This information monitoring and processing ability is a rare and valuable resource. **The firm has the advantage over the market of being able to collect and process information cheaper due to bounded rationality**.

The firm is actually a communication network, aiming at minimalizing the costs of obtaining information and communicating. According to the model, communication is costly, because it takes time for members to perceive the information sent by others.

4. SUMMARY

The evolutionary and competence-based theory of the firm can be defined as a combination of the above described theories. So knowledge is the focus of the theory, which is disorganized and implicit.

The primary task of the firm is to collect and coordinate this disorganized knowledge. The firm is actually a common knowledge base, and it has an advantage over the market in coordinating this base. The cause of the existence of the firm is the demand for coordinating the disorganized knowledge and learning, that is the firm exists, because it can coordinate more efficiently than the market. The efficiency of the market lags behind the efficiency of the firm in producing, storing and using the tacit knowledge. So it must be emphasized that the firm is not originally above the market, it is able to develop and coordinate abilities cheaper only in certain situations (Langlois 1992, idézi Kapás 1999b:831).

The question of the boundaries of the firm refers to whether the firm performs transactions internally or on the market. The question is naturally related to the size of the firm, as e.g. if a part of the market transactions become internal, the size of the firm increases necessarily. As the firm becomes larger, the task of the leader is harder – more and more developed leading competences are required to fulfil the more complicated tasks. However competence is a scarce resource, that is why the possibility of an efficient giant firm is quite small.

The boundaries of the firm are shaped by its basic competences, which are aggregated for a long time, are implicit, cannot be transferred to another firm and cannot be bought on the market. These abilities determine what the firm can perform efficiently and what the market. If the boundaries of the firm are related to the basic competences, a dynamic theory is developed, as the boundaries of the firm necessarily change, if the routines of the firm change.

According to the theory routine ensures the coherence between the three mechanisms of the organizational structure.

The *incentive system* includes the payment and the monitoring system. The evolutionary theory of the firm lags behind the contract theories in explaining these aspects: it does not consider the problem of divergence of the ownership and management. In the future it has to be built in the theory.

Developing a common knowledge base is a precondition of *coordination*. It develops as an aggregate of the individual knowledge, but is much more than the simple numeric sum of the individual knowledge. Knowledge is disorganized inside the organization, but it is the task of the management to coordinate the disorganized knowledge of the individuals and form into a knowledge base.

Cognitive features are very important in the evolutionary theory of the firm. According to the theory – being dynamic – the cognitive abilities of the firm (e.g. cognition, comprehension) are also changing, and learning has a great role in this change. Learning is the process of changing the routines and developing new abilities.

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