Economic culture and knowledge economy

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Framing the subject

Knowledge economy requires an interdisciplinary approach. For the modern economist, analyzing the knowledge economy is a challenge. In classical economical analysis, the trader is informed and uses this information in order to maximize its satisfaction, its well-being. To understand the knowledge economy, the general equilibrium theory, wich is based on statistical analysis carried out on economic agents considered to be rational, needs to be revised.

We must take into account the complexity of human knowledge, but also that individuals have limited cognitive abilities [1], which is criticism on the hypothesis of "perfect rationality".

Knowledge economy assumes that the rationality of the economical agent is limited. The founders of this paradigm (knowledge society) believe that economic agents have incomplete information, imperfect choices and that they adapt their strategies in an uncertain environment which is in constant motion. Their collective behaviour appers as a result of interactions between them and the institutions, rules, laws, social networks, beliefs, conventions, etc [2].

The psychology of knowledge, creativity, helps us understand the mechanisms used by economic agents for decision-making. A decision can not be substantiated without knowledge. The increasing the role of computers in the modern world does not eliminate the limits of human knowledge nor the limited potential of the human being, neither their manifestation, but changes the way these limits are combined. For example, a computer compensates a small capacity of categorizing information with greater computing capacity.

The society towards we are heading is being called the knowledge society.This new society will have its own specific type of economy, which is referred now as the new economy. The termn new economy is not the best choice that coud be made, because the term was used before and can lead to confusions because every society had a specific kind of economy which was a new economy compared to the one before it. Obviously, the term to define what is fundamental in the society of today, both economical and socially, has not been set yet.

State of knowledge

In the field of information system management, the new economy manifested itselft under the umbrella of "knowledge management". Knowledge management refers to the organization of systematic planning, scheduling, monitoring and deployment of people, processes, technology and environment to facilitate the creation, preservation, sharing, identification, acquisition, use and measurement of information and new ideas in order to achieve strategic objectives [3].

The matter of generating and managing knowledge is a sensitive topic in our current economic environment. The last decade witnessed a shift of interest from tangible goods towards intangible goods.

Knowledge can be considered as the way the companies benefit from the know-how of its employees, business partners and external experts in its own interest or the process by which organizations generate value from their intellectual assets [4].

Explicit knowledge is knowledge that can be documented, archived and codified. It can be contained in artifacts such as paper or technology so it can be shared. For example, books can be read, databased can be inquired, in fact, many writers argue that explicit knowledge is not knowledge, unless it can have a meaning to us.

Tacit knowledge is harder to define. This kind of knowledge is hard or impossible to represent on paper or on other explicit means, there are located in peoples heads and represent their intellectual learning experience. They can be shared in a less tangible way. In some cases this type of knowledge requires a hands-on approach to be acquired, or can be shared through informal conversation.

In 1973 Daniel Bell was stating that the engines towards a new technological and economical order will be held by information and knowledge, thereby supporting by his statement the neo-classical model of economy as an adaptive and dinamic system. In the process of economical growth we find two indicators: the quality of work and the quantity of work. In the 1980's a new growth theory arises[1] stating that an accumulation of capital implies an accumulation of knowledge.

Current management theory has established three areas of organizational information or three areas where the creation and use of information plays a strategic role for growth and adjustment capacity of an organization [5]. First, based on the available information, the organization can understand the significance of changes in its internal and external environments; secondly, the organizations create, organize and process information and, especially, can generate new knowledge through organizational learning. The third dimension is the decision level, using information to support

[1] Romer&Lucas

decision making at all managerial levels.

In one of the most important works devoted to knowledge management, Ikujiro Nonaka and Hirotaka Takeuchi are attempting a new explanation of the Japanese miracle. The huge success of Japanese companies can not be accounted on hard working employees (though they are), nor access to cheap capital, not to the employment system per life, nor to relationships within the firm, but to their capacity to create organizational knowledge. By organizational knowledge, the authors define the ability of a company as a whole to create new knowledge, to disseminate this knowledge in all areas and to integrate, incorporate the products, services and their systems [6].

Knowledge management involves the following [7]:

- main pillar consists of people, especially those who are willing to learn and share knowledge;
- technology is helping to transfer and collect information (knowledge);
- processes are the component that link people and knowledge.

One of the most influential authors in terms of knowledge in organizations is Michael Polanyi [8]. Although some might say that the limit of our knowledge is the limit of our language, Polanyi believes that we know more than we can say. The concept of knowledge is viewed by Polanyi in three ways:

- true discoveries can not be attributed to an articulated set of rules and algorithms;
- knowledge is public, but largely personal;
- all knowledge is either tacit or stems from it.

As pointed out by many authors [9], success depends more on how knowledge is applied, not by generating and storing knowledge. So, no matter how consistent technological support we have, we should remember that information systems are only the environment, a catalyst for knowledge management, which is not less, but what is essential is the way the employees and the managers succed in exploit the availabel information and knowledge.

Analysis on the topic

To analyze the knowledge economy we analyze the different ways in which knowledge is viewed, namely as a production factor knowledge, knowledge as a public good, knowledge through innovation, the link between knowledge and growth, the link between economic growth and investing in higher education.

Along with traditional factors, knowledge entails as a factor with a role in economic progress. The key element of this new theory is to include knowledge in the category of production factors, with capital, labor and land. The ability of a countrt to benefit from accumulated knowledge will be crucial for the success of its economy. Knowledge takes many forms: a new manufacturing technology, a superior organization of all activities, progress in psychological sciences, new applications of the border sciences. While other production factors are characterized by rarity, knowledge as a production factor doesn't have this property. A difficult aspect to quantify (due to insufficient or lack of a suitable set of indicators) is determining the efficiency of using knowledge in the reproductive stock.

Models that incorporate knowledge through investment in human capital formation reveal that in addition to gains in productivity achieved in the work of individuals who have received professional training programs, there is noticed a general improvement of educational standards, leading to improved productivity of all factors.

Classical theory[2] states that to achieve economic growth is sufficient to increase the inputs of capital and labor. Cobb-Douglas production function accurately quantifies the growth equation. It is very difficult to quantify the effect of knowledge on economic growth, knowledge having an influence not only to the quantity of the output but also on the way products and services are being made.

Models that focus on research and development in private companies as a source of knowledge show that these companies do not keep the result on their work entirely for then, but some of it gets to the society, leading to positive externalities: increasing productivity in other firms and sectors benefiting from the extra knowledge obtained.

In recent time literature on the theory of economic growth, the idea of endogenous growth is catching more and more shape, meaning the growth is directly dependent on the market, opposite to classical growth theory which is exogenous (independent of market). Endogenous growth models have found useful in understanding the implications of growth on a whole set of policies (fiscal policy, public spending, education policy, trade policy).

Recent growth models consider research and development to be the leading train to growth. A basic assumption of these models is that research and development generates two basic types of outputs: a new product or a new process and information technology incorporated into new products.

In these models, trade liberalization and foreign investment can accelerate innovation and growth in some countries, in the others stagnation being visibe. A positive effect towards growth is possible for all participating countries in international trade and foreign investment if technology

[2] Robert Sollow, Solow-Swan neo-classical growth model

facilitate the dissemination of knowledge.

Knowledge has some characteristics of a public good: consumption of a part does not affect the consumption done by a different person, although it is clear that a book in a library can not be read by two people simultaneously. Although knowledge is not a pure public good, there are many positive externalities associated with it. Knowledge has a public nature, because if it is not secret or there are no proprietary rights, then the whole community can benefit of the knowledge and any competent user can make use of them as a public good. If knowledge is made public, they become non exclusive, meaning they can be shared without beaing sliced.

Knowledge does not cease to belong to the one who shared them first, to the source of knowledge. But once knowledge becomes public there can not be private control over using that knowledge, only regulations on intellectual property rights.

Economic agents do not compete with each other on the consumption of knowledge already made public. Carluer [10] identifies two aspects of this absence of rivalry. First, an agent can access the some knowledge as many times as he neads, without leading to additional costs. Second, at some point, certain knowledge can be used by many businesses, without any of them to be deprived of this possibility. In other words, the marginal cost of usage is zero.

There has been said that developing countries can "jump" over certain stages of economic development, entering directly into the information society. I argue that this is not possible.

In industrialized countries the research and development was funded with surplus resources released from traditional industries. Resource allocation was possible under the existence of efficient capital markets, the initial prices of top products and services were raised, only some consumers being able to afford them, but thus contributing to the development of top tier companies. A bad situation for developing countries can be defines as a dependence of the less developed compared to those with advanced technologies, leading to a new type of colonialism, technological colonialism.

Developing countries can and must accelerate economic growth and governments must support those sectors expected to be the future, though industrial policy has its critics. One of the best solutions would be a policy of small fast steps for development and alligning.

One of the functions of education is the key contribution made to human capital. "Education should be recognized as the process by which humans and human societies can reach their full potential. Education is essential for promoting sustainable development and improves people's ability to solve environmental problems and development [...] education is ... the way to equality of

opportunity, to a healthy democracy and fair to a productive economy and sustainable development"[3].

Another aspect to be considered when talking about education and its relationship to society is "sustainable development" defined as a process designed "to meet the needs of the present without compromising the ability of future generations to meet their own needs"[4].

Economic theories of “human capital" was claiming that the human components of productivity can be improved by increasing financial resources allocated to higher education[5].

Conclusion

The modern economies, linked between each other, are forming a complex adaptive system. In such systems, not only natural resources are rare, but also the cognitive constraints of individuals. Therefore, it is necessary to change the paradigm about the engines of economic growth (shift from the accumulation of physical capital, with decreasing returns to human capital investment, research and development, innovation, with increasing returns).

In the knowledge economy, the state would have an important role. Promoting public policies that foster smart investments (in research and development, education, technology, communications, IT, etc.), subsidizing activities generating positive externalities, creating and implementing mechanisms for stimulating innovation (patents); developing projects for the transport infrastructure and support investment in education would be priorities for public authorities.

It is required a change of paradigm in terms of public investment, development based on innovation, research and development, investment in human capital, etc.

Strengthening the knowledge-based economy in Romania involves setting priorities, such as creating economic and institutional incentives, essential for entrepreneurship, investing in education to increase human capital and streamline processes for use and dissemination of knowledge, the formation of an effective system consisting of firms, research centers, universities, enabling inovation, dissemination of knowledge, creation of new knowledge, new technologies and developing IT.

In conclusion, the future depends in particular on increasing the capacity of understanding and of human interaction, in turn dependent on the education system tht needs to adopt a new attittude towards knowledge, development, life and focus on participation and initiative in solving real world problems.

[3] 21st Agenda, Earth Summit, 1992
[4] Brutland Comission, 1987
[5] Theodor W. Schultz (1961) sau Gary S. Becker (1962)

Personal views

Knowledge economy is rather a step in the same stage of development of modern society and I think it is closer to a transition state rather than the destination of the modern economy.

I was able to identify several elements that are listed as advantages or benefits of knowledge economy, such as the possibility of increasing efficiency and profits (by improving the training of their employees and labor productivity growth) focusing on communication (support knowledge sharing between employees of a company), knowledge can be used in the future, being stored by their representation, or expert systems, databases, or knowledge base, focusing on selective dissemination, depending on the priorities or novelties in the field, obtaining information and knowledge from customers and providing better service/products for future customers, encouraging continuing education through information and communication, knowledge sharing has positive effects on intra-organizational collaboration.

However, I can not address the following questions or problems: employees are reluctant when it comes to sharing information (resulting in the accumulation of irrelevant or incomplete information), knowledge management implementation means additional tasks for employees, implementations are using expensive technology whose future benefits are not clearly quantifiable, the cycle data - information - knowledge brings into question the relevance of representations that are stored, the representation of knowledge at the level that is desired still leaves open questions whether it is valuable enough, the support of managers that is needed in such implementations of knowledge management is more known to be missing with so many examples of failed initiatives, implementation costs of such a system are high, the existing organizational culture can be a major obstacle.

Given all these pros and cons, the knowledge economy is presented as a subject that lends itself well as for "praise" and credit, but also fertile ground for constructive criticism.

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