

Demonstration on Educational Industry is the Basic Industry in the Era of Knowledge Economy

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Abstract. Based on the analysis of the basic industry evolution course in different developing stages of human society, put forward the concept of the family education expenditure coefficient, analysis the relationship between household expenditure on education coefficient and social development stage. This paper proposed and demonstrated that the educational industry is the basic industry in the era of knowledge economy.

Keywords: Educational Industry; Basic Industry; Knowledge Economy

1. Analysis on the Properties of the Education Industry

There are roughly three opinions on issues of education industrialization.

First, specialists represented by Tang Min consider that education should be industrialized; second, some other specialists insist that education should not be industrialized; the third opinion, which is also the main viewpoint in the current education domain, is that education should be partial industrialized, while education industrialization is a choice between angel and evil, is a process with constantly improvement, the influence it makes to national welfare depends on the role government plays in the self-regulated of partial industrialization process.

So, does education has the properties of industry?

Education is quasi-public product, since human capital, as its product, is with externality, while the consumption process of education is non-competitive and non-exclusive. In this paper, we would make a concrete analysis of the industrial properties of education.

Market demand of education. It refers to the market needs which are provided to education by social economic development. From a global viewpoint, individuals, families, companies and society, each of them have urgent needs in education. The basic task of education is to train qualified personnel for socio-economic development, even provide socio-economic development achievements in scientific research if it is able to do so. From this point of view, education, which is the same as other industries, is restricted to the market demand. Education market demand plays a regulatory role for the development of education, and also the essence of the property of the education industry. At the same time it should be noted that the education market demand have a significant impact on the other basic elements of the education industrial poverty.

Education industrial capital. It means the capital input for education. Like other industries, Education also needs investment. Investment in education is material condition while organizing education, also the basic guarantee of the education industrial poverty.

Education product quality. It refers to the qualified extent of graduates having been trained, and the social economic benefits' degree brought by scientific research. In any case, industries pay attention to product quality, so does education.

The cost accounting of the education industry. It refers to the ratio of the education industrial capital to the number of qualified graduates, as well as the ratio of the education industrial capital to the effective scientific research achievements. All industries emphasis on the cost accounting, so does education. But the pursuit of the cost accounting of the education industry are: with a less amount of education industrial capital, developing a larger number of personnel with higher quality, and providing scientific research achievements with better social economic benefits.

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Education economic benefits. It refers to economic value appreciation of the educational investment. The appreciation of the educational investment is a complex system, not only indirect and direct, but also macro and micro. We need to analyze from different perspectives. First, analysis from the material production cycle process in which personnel involves, education has economic benefits. Illustration: Educational investment → train talents → involved in the material production → produce economic benefits. Second, analysis from education providing scientific research achievements, education has economic benefits. Illustration: educational investment → scientific research achievements → transform to productivity → economic benefits. Third, analysis from educational investment provided by the material production department, education has economic benefits. Illustration: the material production sectors invest in education → scientific research → scientific research achievements → material production → economic benefits. At last, Analysis from that educational investment promotes the Primary industry and the Secondary industry, education has economic benefits. Shown: educational investment → improve school material conditions → promote the real estate industry, building materials industry, instrumentation and machinery industry, book printing and publishing industry, IT industry, service industry → product economic benefits. Either way, the investment can produce economic benefits if only for personnel training and scientific research.

From the analysis shown above, education does have properties of industry.

2. Analysis on the Educational Industrial Characteristic.

The products are unique. The products of education industry are educated workers. It is difficult to measure whether the products are qualified or not, the quality is high or low.

The investment is unique. Investors can be country, institutions, enterprises, individuals and social donation, different investor has different investment purpose and different value orientation.

Complexity of the benefit evaluation of the education industry. Education industry produces economic benefits, social benefits, as well as political and cultural benefits, while its influence takes longer time delay, which brings complexity of the benefit evaluation.

The particularity of the industrial management. There are strict controls over the education industrial investor's qualification, school conditions and demands, contents of education, profitability, tax policy and land policy. Only in this way can promote the healthy development of the education industry.

3. Trajectory of the Development of Basic Industries in Human Society at Different Stages

Basic industry, which is the basic and necessary condition of other industries' development, refers to the industry that provides basic support and service to the social economic activities.

The development of human society has different historical periods, while the economic development has different basic industries. Since agricultural society, the development of basic industry can be roughly divided into such periods below:

First, during agricultural society, agriculture is the basic industry in economic system.

In agricultural society, according to the traditional classification in our country, it divides people's activity area into four types of "official, agricultural, industrial, commercial". There is no doubt that agriculture is the basis of the whole society and economic activities.

Second, in the period of industrialized society, the scale and quality of human economic activities have been unprecedented increased, likewise various industries named by modern industrial economic come into being. Industries like coal, electric power, transportation has become the basic industries early or late, which formed basic industry group of industrialization and post- industrialization era.

Third, with the advent of the knowledge economic era, every country is forced to re-build the whole basis of social, political, economic and cultural. Education industry has gradually become an important basic industry in economic system.

Education industry is a collection of organizations which produce productivity and improve the quality of productivity. In the knowledge economic era, education do have the basic poverty of industry.

In the knowledge economic era which is on the horizon since 1950s, education is no longer only public department invested by the government, a comprehensive industrial system with self-value-added capacity, but also basic industry promoting economic development.

Assume HI as the average total income of a family, HC as the average total expenditure in education of a family, then the family education expenditure coefficient $EN = HI / HC$. According to preliminary research, a national household education expenditure coefficient and social development stage has corresponding relations shown in the table below:

EN	$EN \leq 0.15$	$0.15 < EN < 0.30$	$EN \geq 0.30$
Social development stage	agricultural society era	industrialized society era	knowledge economic society era

China is a huge developing country with the most population in the world, that's why China has the world's largest education market. According to a survey made by Chinese Academy of Social Sciences, when asked what your family save money into banks is for, there are 64.2% of people select " for children' s education " ,which is higher than " for seeing doctors " (51.4%), " for providing for the aged " (46.2%), " for buying house " (37.1%), which are thought to be very important. When asked "in the next 5 years, which one would in top 5 of your household spending?" 82.8%people choose "children's and own education", next to "eating" (91.6%),but higher than the considerable parts of urban families' spending such as dressing, living and seeing doctors. In addition, 68.2%people said that someone in their family is to go to school now or in the next 5 years.

From agricultural society to industrialized society, then knowledge economic society, the evolution of the industrial structure and basic industry is shown in Figure 1:

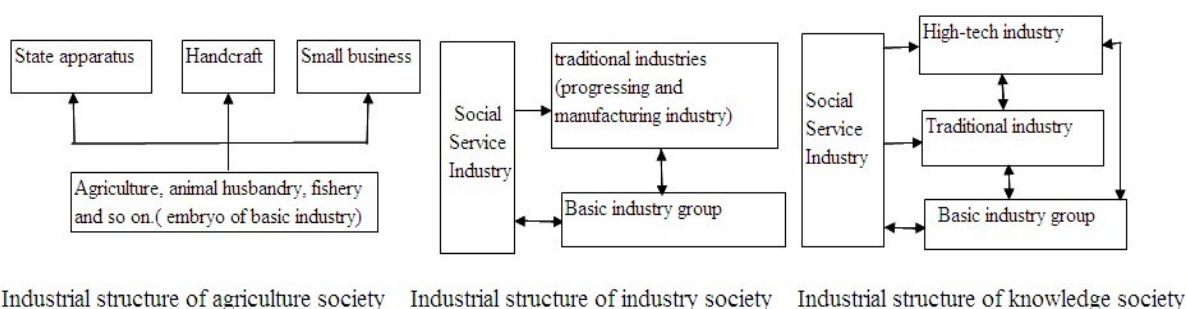


Fig. 1. Schematic diagram of evolution of industry structure and basic industry

4. Theoretical Analysis of the Education Industry Being the Basic Industry of the Knowledge Economy

4.1. This is Determined by the Special Connotation of the Knowledge-Based Economy

Knowledge-based economy is economy based on the production, dissemination, distribution, and use. It has four characteristics: 1. Scientific and technology research is increasingly becoming an important foundation of knowledge-based economy; 2. Information and communication technology is at the core of the development process of knowledge; 3. Service industry plays an important role in knowledge economy; 4. Quality and skills of people are to become a precondition of knowledge economy. The main body of knowledge economy is talent that has great human capital stock and remarkable innovation ability, as well as the carrier is the value and use value of knowledge itself.

In 1990, the U.S. economist Paul Roemer put forward the economic growth model with technological progress as an endogenous variable, completely bring knowledge into the economic and technological system, that is, the level of knowledge and human quality is one of the inherent power of productivity improvement and economic growth. The model preliminary interpreted how knowledge innovation activities lead to sustained economic growth, thus affirmed the foundation status of knowledge innovation, technological progress and intelligence human capital.

Knowledge economy is economy with brand-new configuration. The economy revolution it initiates makes the improvement of material production capacity come true, drives various forms of mental work in social production change towards mental labor as a lord and the direction of developing new knowledge resources.

Knowledge is unlimited and renewable; it has a powerful effect on promoting the social productivity, which mainly depends on the basic supporting effect of education and education industry.

4.2. The Development of Education Industry has been the Foundation of the Development of the other Industries in the Knowledge Economic System

Knowledge economy need to priority develop education industry as the basic industry. Education industry is not only a single aspect of the industrial sector, but also the foundation related to the development of all the other industries. It has been the overall foundation of the whole economic development, what it may be said “A slight move in one part may affect the whole situation”. Education economy influences the economic development in all directions such as knowledge innovation, talent training, information delivery and demonstration, kinds of operating skills and management innovation, economic structure adjustment and upgrade.

4.3. The Development of Education Industry is the Engine for the Whole Development of Knowledge Economy

Knowledge economy needs a knowledge-based social system and a learning organization model. “Human capital is the real source of new economic growth in the 21st century”, hence, as the main channel of human capital formation, education will inevitably possess a foundational status which is more important and more essential.

Education industry is just like the “power source” for the whole knowledge economy. Without the great development of education industry, there is no great development of human capital and great improvement of talent quality, even no great development of the other industry. The quality of education industry development decides the development level and quality of knowledge economy, while effects the development of the whole economy and society, either in good point or in bad point.

4.4. Education is the Most Important Element which the Development of Knowledge Economy Depends on, Education Industry is taking a Larger Proportion in Economic Aggregate in the Era of Knowledge Economy.

According to the traditional economic theory, economic development depends on the elements such as natural resource, capital and technology. Assume that economic development is D, natural resource is N, capital is C, technology is EC, accordingly, $D=f(N, C, EC)$.

Nevertheless, in the era of knowledge economy, education(ED) has been the fourth key element promoting the economic development after natural resource, capital and technology. The formula is written as follows: $D=f(N, C, EC, ED)$

The trend of the contribution rate of natural resources, capital, technology and education on economic growth is shown in Figure 2 [1] (the United States, for example, A-line represents the trend of contribution rate resources make to economic growth; B-line represents the trend of contribution rate capital makes to economic growth; C-line represents the trend of contribution technology makes to economic growth; D-line represents the trend of contribution education makes to economic growth.)

According to Figure2, There is education, which is the only one in the four factors, making more and more contribution to the economic growth.

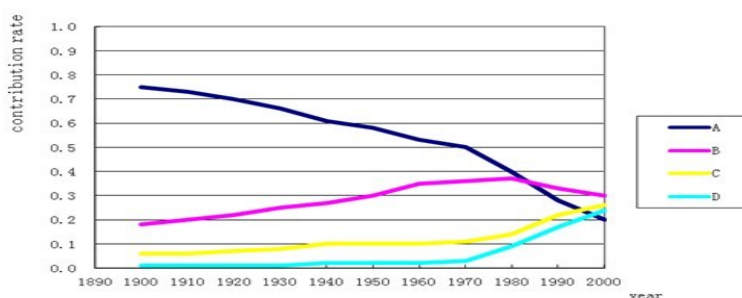


Fig. 2. A diagram representing the contribution rate of each production factor to economic growth in the recent history of America

4.5. The Education Industry has a Mercantile Rate of Return for Individuals, Investors and the Society

Based on a measurement and calculation, in developed countries, residents can make a profit of 12.3% from education investment. In the middle-income developing countries, this rate reaches 23%. What's more, in developed countries, the mercantile rate of return of education investment from enterprises is 7.5%, which is much higher than the bank interest rate. Education investment has low risk, an adequate cash flow and long-term steady income. Education itself is not only a new economic growth engine, but also a producer of high-level workers and productive force of scientific knowledge form.

4.6. It is Illustrated by the Development Process of Developed Countries that Education Industry, as a Fundamental Industry of Knowledge Economy, is Chosen by History

In the 17th-18th centuries of the UK, education and science had been paid much attention and popularized, though and popularized, though it had not been called an industry. In 1662, the King of the Great Britain authorized the establishment of the London Royal Academy, oriented by the aim of natural science development. Cambridge and Oxford had been promoting education of natural science since middle 17th century. Because of this, the Great Britain had been ruled the world for two centuries.

From the earliest days of the United States, the leaders like Jefferson and Franklin made the education popularized and connected it with the nation's fate. During the Civil War, the government established a law to provide land to universities. So hundreds of universities like the MIT had been built like spring mushrooms over years. In the last half century, the United States held the idea of "we are still in danger" and reformed its education system by rising investment and providing higher loan. In the year of 1983, in order to develop knowledge economy and education industry, the US government promoted the 2016 project which is about the education reform. President Clinton once stated in his speech, "The new economy is knowledge economy. The government must spend more money on education, upgrade technology for education and put education on a prior position." Just as Kern, an American economist, said, "Education is a huge industrial department. It is the biggest one, or at least one of the biggest."

The United states have made education a fundamental department of the national economy by all the measures mentioned above, and this gave a great support to the economy growth and helped the country first opened the gate of knowledge economy.

5. Conclusion

After comprehensive analysis, it is considered that education is with propertied of industry; education industry is of particularity while having characteristic of basic industry in the era of knowledge economy.

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