

VARIOUS CONCEPTS OF HUMAN CAPITAL IN PROCESS OF EDUCATION

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Abstract

Theory of human capital views education as a specific production factor and as a specific sort of capital. Besides this theory, alternative concepts of education were developed. Filter theory is interested in a selective function of education and created a different point of view of economic analysis phenomena in education. Signal equilibrium is derived from the Pareto's concept of efficiency and from the differences between private and public educational returns. Pieces of knowledge introduced in this paper resulted from solution of an institutional research intention MSM 6046070906 „Economics of resources of Czech agriculture and their efficient use in frame of multifunctional agri-food systems“.

Key Words

Pareto's efficiency, human capital, filter theory, education, signal equilibrium

Introduction

The importance of education in the contemporary world, also by the authorities of the European Union, is highly organized and supported. Education asserts oneself in the economic development, in the furtherance of Europe and capability to compete with the world.

With the aim and the importance of education, the theoretical economy has preoccupied this area for several decades. During this time, two basic theoretical trends of economic theory were defined. Human capital theory arose in the sixties of the last century, based on works by economists of the Chicago school, in which belonged G.Becker, J.Mincer, T.Schultz and others. Most noted was the contribution of G.Becker.

Its development was committed to a consistent application of the neoclassical economy as a methodological basis for the understanding of human behaviour. Its principles were applied on the effectiveness of deposits into the human capital and especially into education. Economic subjects allocated their resources with the aim of maximizing pure advantage, while taking into consideration the alternative costs, risk and principles used by the neoclassical theory.

“Capital is based on the fact that it is production factor which, itself, is produced. Human capital is the accumulation of investments into labour force. The most important sort of human capital is education. As all forms of capital, education means expenditures of resources in a specific moment, which should increase future productivity. Education investments are connected with a specific person and this connection gives the characteristic features to human capital in contrast to investments into other kinds of capital.” (Šrédli, 2003, p. 37)

As we see, the theory of human capital states that education is a specific production factor and is a specific kind of capital. Besides this states, there are alternative views on education, for instance the filter theory. This accentuates above all the selective function of the education and at the same time represents a somewhat different view of phenomena invested in the framework of economic analysis of education. On a parallel is the screening theory, which is interested in the similarity of labour market participants and their decision making. The main representative here is M.Spence.

Material and Methods

Education as a filter

Screening theory rates the education above all as an implement, enabling selection between educated individuals, according to their applicable qualities. At first it is considered the selective function of education. It does not accept the neoclassical premise of perfect acquaintance. The level of knowledge the potential employer has comes from signals contained only by a limited amount of information. One of these signals is education. The employer makes selections, however, according to other signals, such as race, sex, age etc.

From the point of view of the filter theory, education is of less importance than the rising of productivity, but education informs about the amount and quality of human capital. Therefore, the level of capability and desirable properties occur with the individual even before their professional preparation begins. The significance of education is in their demonstration of the acquaintance of the subject and the labour market. The significance of education therefore serves as a signal of the labour market.

Effectiveness of education depends on the ability of the market to allocate the needed individuals on the corresponding variances, so on the level of successful education is achieved by its selective function. Filter theory considered education as secondary. The effectiveness of education is important, however there are differently productive individuals, who are well educated. The extension of education in society is decreasing the contents of the respective signals.

As stated by F.Hirsch: "Education is in its economical function filter and factory. The extension of the number of diplomas means by itself a decrease of the number of singular from the individual diplomas" (Hirsch, 1976, p.48). Extension of education in society owes wide support from the part of government as well as from other institutions, which can lead to reduction of its importance from the point of view of reaching a better job as it was in the *sixties and seventies* of the 20th century in developed countries.

Hirsch anticipated the importance of the broad extension of university diplomas. But the lot of diplomas cannot be only positive.

Accentuation of the selective function of education gained a new importance only several decades later. More importantly is the analysis of education's influence in its role as a signal.

Results and Discussion

Functioning of education as a signal

The significance of a market signal and its function on markets, in this case of the labour market, M. Spence defines market signals as activities or properties of individuals in the market, which changes ideas and expectations of other individuals participating in the market. This very broad concept of the signal contains such different phenomena as prices, advertisements, advertising notice etc.

In labour markets, we meet some special signals. In the same way as in all markets here takes place processes of communication and exchanges of information. Potential employers are mostly unsure of the qualities of the person interested in employment. This is the question of investing under conditions of risk and uncertainty.

However, in a similar situation each buyer in the market sees that the degree of a risk is sometimes higher. Corresponding systems of the elimination (or reduction) of the risk are specific for different markets. In the labour market, the inquiring can adhere to certain ascertainable or presented features of the potential employee, like education, image, past employments, but also ethnic features or conceivably race and sex. These are examples of the signals in the labour market.

An important constituent of the given concept is expectation. Preconditions, that the individuals are learning based on experience and are revising their preceding estimations, are correct. In such cases, the markets react differently from previous ones. The screening theory is complemented by the hypothesis of persistent corrections of economic estimations.

Typical transactions on the labour market are bilateral, the employee is selling his working time, abilities and the employer is buying them. The quality of working services is however for the employer uncertain, he is buying a possession under conditions of risk and uncertainty, likewise the employee is buying a possession having unknown properties. It means the working conditions and further properties, while wage is pure transfer resulting from this transaction. None of the two sides (employee, as well as employer) can be sure at the moment, when the transaction concludes, what characteristic feature has exactly been submitted by the other side. That is to say, the employee does not know, how the potential working conditions will be and the employer does not know, how well the employee will work, how productive his services will be. Employee and employer adapt according to affirmation (expectation) of the future state.

Equilibrium in the labour market is already set. If the expectations of the employers concerning the relation between the productivity of the worker, which at the moment of hiring was unknown, and his features (education, working experience or further features) are confirmed by real results at his work, the employer does not change his expectations. The same should apply to the employee from the point of view between his expectation and the real state of affairs. Spence calls this signal equilibrium.

The employer to an extent can reduce this based on the past experiences and also on the basis of signals. Thus, if he gain the potentially useful information in the form of explicit characteristic features; such as level and type of education, personal characteristics, he can also take his behaviour according to impressions and other signals, which are not necessarily "rational" in the current sense.

Acquiring of this information may require certain costs, the employer compares returns from their obtaining and cost for their acquiring. Jervis (1970) classifies signals like this:

- Potential signal- represents observable changeable characterization of the individual.
- Potential index - represents observable unchangeable characterization of the individual.

Actual signal (index) is a potential signal (index), which affects the probable estimation of the employee's productivity from the part of the employer. Potential signals and indexes can thus change into actual ones, if they begin to influence the expectation of the employer. One of these is education.

The employer could determine the productivity of the individual and regulate him according to it. But in reality it takes time, before the latent abilities of the employee become apparent. He gets and from certain signals and type of school education, or for instance prestige of the graduated university etc. for the potential employee the education as a matter of choice. The number of years and kind of education represent for him financial and psychical cost (including alternative ones). The problem is his estimation of the optimum level of education.

For the employer it is at least, to a certain extent, advantageous to acquire information contained in the signals, because the use of the accessible information about talented people means for him an advantage in competition with other employers. As long as other employers use this information he would begin to fall behind them and his ability to compete would recede.

Education, as a signal, can be analyzed according to these questions:

1. How it is possible to characterize the state of signal equilibrium?
2. To what extent are participants in the labour market (employers and attendants) informed about the appropriateness of this and to what extent is this information complete and reliable?
3. Are signals as a source effectively employed?
4. Are featured signals representative?
5. What role does the demonstration and function of signals the process of learning come into play?
6. How big a role is played by uncertainty (imperfect information, misleading demonstration of signal activity) in the market?
7. How does this uncertainty influence the allocation of the labour market?
8. How many equilibrium states exist and are they on the same level?

Even if specific signal effects are sporadic in the labour market and require special investigation, they represent only one effect of signal activity, which appears in all economic markets. Their big significance leads to the fact, that signal activity begins to be investigated here. However, the importance of acquaintance and of further effects of signal activity is also outside labour markets. Their investigation is henceforth an open question.

Signal effects – example

Let us presume there is one employer and a group of people applying for work. Each individual is able to produce a certain final product. But whose work is unknown to the potential employer. For simplicity, there will be only two final values of the final product: 1 and 2. If perfect information were a function, the employer would pay in the form of a wage that is equivalent of the two values of the final product (1 and 2) to his employees.

Presume that the share of individual on the final product 1 is equal to n and the share of individual will be a final product 2 is equal to $1-n$.

But perfect information is not valid and the employers must decide whom he will engage on the basis of post experience, observable properties of the applicants and his own expectations. The results of these estimations can and need not be in harmony with real abilities of the applications. The employers will pay the wage to the engaged workers on the basis of the expected final product.

If this expected final product would be the same for everybody, as if there were no signals, nor indexes, it would look like this: (Spence, 1974)

$$W = n + 2(1 - n) = 2 - n$$

W – welfare

n – share of individual on the final product

Compared with the situation of perfect information, the individuals with final product 1 would be treated preferentially, as they would be undistinguishable from the members of the group with a final product 2. These on the contrary would be discriminated against. The return of an individual in the first group ($mp=1$) is increasing, when n is decreasing, harming the

return individual in the second group from rising, when n is increasing.

The employer essentially needs to take interest in distinguishing between members of both groups, because the total amount of work and paid wages are the same.

If better information is accessible, for the employer it is more advantageous to employ it, as it means his higher return in comparison with a situation with zero information. If we presume the existence of other employers, utilizing information contained in signals, our employer would be certainly handicapped. If he wants to keep up in the market, he must employ his information.

Conclusion

The filter theory views the level of the archived education as a relative index, which is far more affected by the level of education achieved by other individuals, than by the absolute level of education. It is above all an implement of selection, although other features are of secondary importance.

The concept of education in the signal theory complements the neoclassical concept of the human capital theory, more than to negate it. Deciding on conditions of risk and uncertainty in contemporary times is the subject of the new classical theory's investigation. It is also developing the analysis of situations of imperfect information, as in this case.

F.Hirsch and other theorists in this direction are not so interested in the effectiveness of education as such, but in its broader impacts. M. Spence's theory and others theories accentuates the significance of signals in the labour market. Education is one such signal. Spence understands that equilibrium in the labour market is such a state. When the expectations of participants in

the market (especially employers) are confirmed by reactions in the market, there is no need to correct their behaviour further. Spence consequently understands equilibrium as a state when expectations are in harmony with reality (correct expectations). This state can be called signal equilibrium. It occurs in the process of gradual adaptation. Owing to appearance of signals, some participants in the labour market are gaining, while others are losing. Education as a signal leads the employer to decisions, which are based on the minmax principle (maximization of returns and minimization of cost) in harmony with the principles of the neoclassical theory.

The signal theory does however also refer to the possibility of imperfect information, thus limited implication ability of signals, including the education signal. Signals concerning differences between employees, which the employer uses for his market decisions, does not need to contain important information; they may distort or change their meaning. The possibility of an incorrect decision in the sense of suboptimal allocation, which does not bring maximum advantage, is, according to his theory, just as possible as achieving of optimum allocation of sources. The signal theory represents important deepening of knowledge concerning the function of education in the contemporary economic theory.

The higher education in the society is more dispersed, it does not guarantee to its bearer an advantage in comparison with situation, where the share of educated people would be lower.

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