Zdeněk Tůma: Education as investment in human capital

Speech by Mr Zdeněk Tůma, Governor of the Czech National Bank, for the graduation ceremony, The New Anglo-American College, Prague, 20 June 2008.

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Ladies and gentlemen, dear colleagues,

It is my pleasure to be here today and to share with you some thoughts that concern the role of education as an investment in human capital in the long-term development of our economy and society in general.

Today it's commonplace for politicians to swear by concepts like investment in education, knowledge-based economy or the effect of education on long-term economic growth. They are also quick to add something about the necessity to pay for university education, at least those on the right wing of the political spectrum.

Don't worry, we haven't met today to assess individual political ideas, and we all know that sometimes it's a long road from what politicians say to what they do. However, the fact that you are sitting here today indicates that viewing education as an investment has its place in today's society regardless of political preferences.

I would like to use this opportunity to point out that although the concept of investment in education may be somewhat misused and can have unfortunate overtones for somebody, it has a rigorous theoretical foundation and is of high empirical relevance. In fact, I would only like to reinforce the conclusion you have no doubt arrived at – that you made a good choice when you invested in your further education.

In 1987, when Robert Solow was awarded Nobel Prize in Economics for his contributions to the theory of long-term economic growth, it was already clear that his model of long-term economic growth had certain shortcomings in its description of reality. On the one hand, this is by no means unexpected, as all economic models suffer from a similar syndrome to a certain degree. On the other hand, the causes of the empirical problems surrounding Solow's model are very inspiring from our point of view. The whole issue revolves around determining to what extent long-term economic growth is aided by human labour and capital measured as the sum of all previous investments that are still in use. In practical calculations, the contribution of human labour is always simplified as the ratio of wages paid to output. This ratio is about two-thirds for the developed world. Therefore, two-thirds of output in developed countries are used to remunerate labour and the remaining one-third to remunerate capital. Problems occur if the contributions of human labour and capital calculated in this way are applied to two countries at a different level of development. In such cases, there is a significant degree of divergence between the characteristics of these economies observed in reality and predicted by the model.

It had been clear for a relatively long time that if the share of human labour in output was only one-third, Solow's model would provide a very good picture of reality in international comparison. To overcome this inconsistency, however, it was necessary to come up with the idea of introducing a new variable in the model that would represent human capital. Although this may seem obvious today – as such things always seem to be as soon as someone else thinks of them – it was a novelty in the late 1980s. It was another Nobel Prize Laureate in economics Robert Lucas who divided human labour into a part reflecting people's general capacity for work, and the contribution of human capital that was a result of previous investment in education.

What Lucas did was very simple from today's point of view. Using the extensive structure of US economic data, he chose the average wage of people with basic education as a basic remuneration of people's capacity for work. Then he gradually added the average wage of other people after each finished year of education. The results showed that every additional year of education up to the level of a bachelor's degree increases the wage by 8% on average. In the United States, if you finish high school and obtain a bachelor's degree, which means you invest eight years in education, you can look forward to a wage two-thirds higher than the wage you would get if you only finished basic education.

Although Lucas's calculations didn't include subsequent stages of education, as the bachelor's degree was sufficient to reduce the share of basic human labour in output and improve Solow's original concept, it's clear that things don't stop at the bachelor's degree. On the contrary, one could say, it seems that a simple linear relationship ceases to be valid here, and every additional year brings an even higher wage increase compared to the previous years.

Regardless of the size of the increase, investment in education is by no means an empty slogan. I wish you that you all become a living proof of this.