

Decadal estimates of human capital at replacement cost: a panel dataset 1960-1999

Introduction

The dataset is obtained from:

Bas van Leeuwen and Péter Földvári, 'How much human capital does Eastern Europe have? Measurement methods and results,' *Post-Communist Economies*, (2008, forthcoming).

The data obtained are of government expenditure from the UNESCO statistical yearbooks and from the Dataset of Barro and Lee (2001).

Construction

The construction of the dataset

Following Judson's (2002) cost-based method, we use expenditure on education to capture the quality of education. This allows us to estimate the human capital stock expressed in 1990 international USD, which makes it directly comparable to physical capital and GDP. Judson calculates the stock of human capital stock based on replacement costs with the following formula:

$$h_{it} = \sum_j d_{ijt} a_{ijt} \quad (1)$$

, where d_{ijt} is the public expenditure on education per level of education j in country i in year t , and a_{ijt} denotes the share of the labour force in year t with a certain level of education. h_{it} is the average per worker human capital stock. If one wishes to arrive at the total human capital stock, h_{it} must be multiplied with the labour force (L_{it}):

$$H_{it} = h_{it} L_{it} \quad (2)$$

This method has, however, a problem. Judson's method uses d_{ijt} , the expenditure per level of education for year t and weighs this with the shares of primary, secondary,

and higher educated in the working population. Hence, even after multiplying with the total working population she arrives at the replacement value of *a single year of education* instead of the total accumulated stock of human capital. As such, the human capital stock by the original method of Judson is very likely to underestimate the value of the stock of human capital. This can, however, easily be corrected for by multiplying equation (2) with *average years of education*. The corrected stock of human capital is denoted by H^* :

$$H_{it}^* = H_{it} * Educ_{it} \quad (3)$$

References

- Barro, R.J., Lee, J.-W., 2001. International Data on Educational Attainment: Updates and Implications. *Oxford Economic Papers* 53 (3), 541-563.
- Judson, R., 2002, Measuring Human Capital Like Physical Capital: What Does It Tell Us? *Bulletin of Economic Research*, **54**, pp. 209-31.