Taking Account...

Study: An updated look at human capital estimates

Human capital remains a lively topic for national economic statisticians.

In a recent paper, Michael S. Christian—former economist at the Bureau of Economic Analysis (BEA), now with Education Analytics of Madison, Wisconsin—continues his research to measure human capital stocks and investment in the United States.

Using data from the Current Population Survey, Christian updated and extended human capital estimates developed in his previous studies. The new statistics, which cover the 39 years between 1975 and 2013, include market and nonmarket components as well as nominal and real measures. This new series makes it possible to identify longer term trends in human capital that cover multiple generations.

Christian's study features statistics calculated according to the Jorgenson-Fraumeni lifetime income approach. This approach requires data on population, average earnings, and school enrollment rates by age, sex, and education as well as data on survival rates by age and sex. The lifetime income approach also requires specifying an income growth rate to project average earnings into the future, and a discount rate to combine current and projected future earnings into a single present discounted value of lifetime income.

His paper finds that the stock of human capital rose at an annual rate of 1.0 percent between 1977 and 2013, with population growth as the primary driver of human capital growth. Per capita human capital remained much the same over this period, as the effects of higher levels of education were offset by the effects of an aging population.

While net investment in education rose annually 1.0 percent a year, net investment in human capital as a whole declined at an annual rate of 0.1 percent between 1977 and 2013, with depreciation from aging increasing substantially over this period.

The series includes both a market component based on lifetime market earnings as well as a nonmarket component based on lifetime nonmarket production. It also separates "active" human capital, which includes people of working age and older, from "nascent" human capital, which includes children younger than working age.

In addition to the lifetime income method, Christian's paper also discusses a cost-based method, describing the steps necessary to produce such a complementary series for human capital. The paper compares income-based and cost-based estimates of investment in education, noting that the former estimates are typically about three times greater than the latter estimates.

Interestingly, when GDP is measured using income-based measures of investment in education as an alternative to the cost-based consumption measures used in the official GDP estimates, the extent of the decline in GDP in the Great Recession is mitigated modestly.

Christian concludes by noting some areas of potential fruitful research. A natural extension of his work would be to use the cost method of measuring human capital to provide alternative series of human capital stock and investment.

Ideally, cost-based measures and income-based measures of human capital would complement each other. Extending both to before 1975 using historical data will yield a longer term picture of the evolution of human capital in the United States.

The paper also suggests using the same data to produce results that are consistent with international efforts in human capital measurement. A good test of the robustness of human capital estimates would be to compare the estimates with estimates generated from alternative approaches suggested by the Organisation for Economic Co-operation and Development and the United Nations task force on human capital.

(This summary was prepared by the Survey of Current Business *staff in conjunction with the paper author. The paper is available on the BEA Web site.)*