

Developing a Skills-based Agenda for “New Human Capital” Research

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Recent research points to a need for expanding the research agenda related to the production and the impact of human capital. The central element of this is expanding analysis to identify and to incorporate different dimensions of skills – including new study into underlying measurement issues. Newly available data and newly minted researchers make this a propitious research investment.

1. How would an expanded and refined “new human capital” concept improve our understanding of economic and social outcomes?

For the last half century, the concept of human capital has become thoroughly integrated into theoretical and empirical studies in economics and other social sciences – so much so that policy makers routinely pick up on it and infuse discussions into a wide variety of policies with this terminology. At the same time, much of the discussion both in research and in its public incarnations has been reduced to very simplistic shells of the underlying ideas. In empirical work, for example, human capital is frequently taken as synonymous with school attainment, requiring no discussion or explanation. In other cases, investment in human capital is measured simply by spending on schools or other training activities. This simplification to spending is perhaps even more prevalent in theoretical work. These narrowed perspectives have resulted largely from efforts to develop testable hypotheses, and they represent clever and powerful adaptations to available data. But, there is now substantial reason to believe that many of our models and perspectives have been seriously distorted in the process.

Understanding the role of schools in society and the economy needs little justification. The \$1.1 trillion annual spending on formal schooling (\$660 billion for K-12) represents 7 ½ percent of GDP. But more than that, it represents the largest component of state and local budgets, reflecting the belief in the central role of schooling for the future of society and our economy.

The current state of research on schools and human capital does not, however, reflect either its importance or the possibilities that currently exist for a much deeper and useful research program.

A number of factors point to the productivity of a new initiative that would take the research and analysis into new lines of research related to the skills of individuals.

- First, recent research has highlighted the importance of both cognitive and noncognitive skills for individual earnings and careers.¹ While measurement issues remain, the existing analyses show clearly how expanded measures of human capital, ones that indicate more reliably the

¹ Heckman, Stixrud, and Urzua (2006), Hanushek and Woessmann (2008)

variations in skills across individuals, vastly improve our ability to understand the underlying economic outcomes and processes. This improvement in explanation holds for individual income and employment determination, for consideration of the distribution of incomes, and for aggregate productivity and economic growth.

- Second, once the focus turns to the analysis of more refined skills, other research becomes relevant and suggests a modified direction for much analysis. Specifically, work on the determinants of achievement and cognitive skills (often labeled educational production functions) suggest that skills come from a range of inputs including families and neighborhoods in addition to schools. And, because these factors are correlated, simple analyses of schooling, say in the context of income determination, cannot generally yield unbiased estimates of the impacts of schools.
- Third, recent advances in understanding the analysis of causal effects provide relevant approaches to refining our understanding of the role of human capital in determining outcomes and in how skills are produced. The recent, and warranted, skepticism about the interpretation of many past statistical analyses indicate that much of what we “know” should be revisited. This work also shows various paths to refining our knowledge.
- Fourth, the potential availability of extensive administrative data on schools, public support programs, labor market outcomes, incarceration, military service, and the like indicates a dramatic expansion in the detailed information that is relevant for consideration of human capital issues.
- Fifth, the considerable increase in study of education issues, particularly among economics PhD students, indicates a vast group of bright, energetic, and well-trained scholars who can take a new research agenda in human capital forward.

The “new human capital” agenda would pursue a rich view of the measurement and range of skills that are important. It would consider both the variety of factors that influences the success of investments in these skills and how these skills affect lifetime outcomes.

2. The foundation elements for a new and exciting initiative around the “new Human capital” now exist. Such an initiative would serve to develop the intellectual roots of much of the current policy discussion, and it would contribute quite directly to governmental policy making at all levels. It would capitalize on the growth in well-trained new researchers and on the new data that are becoming available.

There are two complementary lines of research that are important – one looks at how skills are produced while the other looks at the effects of skills on individual and societal outcomes. Central to both, however, is an overarching third question of basic measurement that will fit into both fundamental lines of research.

The measurement issues reflect the fact that most empirical research into either cognitive or noncognitive skills has been opportunistic. It has relied on the measures currently available – such as measures from math or science tests used in school accountability or survey indicators of personality factors in the noncognitive domain. It has not involved much comparison of alternative measures. Nor has it followed a purposeful program of development based on the external validity of any measures.

With the intensive efforts currently under way to develop measures of achievement at the K-12 level and the nascent efforts for higher education, a program that focused on the external validity of any measures could be extraordinarily productive. It could capitalize on these other development efforts – ones that emphasize internal validity and common standards developed almost entirely within existing schools – while adding a useful dimension to thinking in those developments.

The fact that school histories of specific schooling experiences and measured outcomes are now routinely included in administrative data bases at both K-12 and higher education levels suggests a variety of opportunities. These school histories are beginning to cover the full length of schooling experiences for individuals, allowing researchers to follow individuals as they progress through school including moves across schools and programs. Related to this, many states now make it possible to link to experiences out of school such as unemployment insurance records, Medicaid usage, juvenile justice involvement, military records, and more.

One element of this is much larger and more accurate data on human capital development and outcomes than previously available. But, more than that, because of a variety of exogenous factors that impinge on individual schooling and career paths, it becomes much more feasible to identify causal influences on individual outcomes. These greatly expanded data dovetail nicely with the recent appreciation for the potential biases from incomplete identification of statistical models.

The recent explosion of work on the determinants of achievement – i.e., educational production functions – has followed the wider availability of state administrative databases, particularly in Florida, New York, North Carolina, and Texas. The movement toward developing longitudinal educational records across the nation and making them available to researchers has been proceeding rapidly. The U.S. Department of Education has already given \$500 million in grants to states to develop their capacity. It is important that researchers become involved early in these state developments, because they will still be malleable for a number of years. Each existing database has some common elements of following students and their achievement over time but then also has a variety of special elements and advantages. A concerted effort to develop the capacity for interstate comparisons and analyses could provide considerable new evidence about the operations and effectiveness of schools.

An additional element of developing analyses of the new human capital is the international dimension. There has been an effort to assess student achievement across countries particularly in math and science since the mid-1960s, but this effort has now picked up in terms of numbers of participating countries, frequency of the testing cycle, and quality of the assessments. The two major assessments – PISA and TIMSS – now cover all OECD countries and a large number of developing

countries. These assessments routinely include survey information of students and their schools. A natural extension of any U.S. based research program would be to incorporate the international analyses and comparisons made possible by these. This cross-country analysis, for example, offers the possibility of investigating issues such as national institutions that cannot be assessed within a single country or of how labor markets in different countries demand and reward skills.² It also fits naturally in terms of understanding the importance of STEM education for economic growth and development.

The recent evolution of understanding the impacts of different skills have been led largely by economists. The work on educational production functions and the analysis of specific policies, such as the impacts of accountability or of charter schools, have been carried out by economists and by a broader social science community including sociologists and political scientists, although the largest expansion of new PhD's in the area has been in economics.

There are of course a series of challenges in this area. One that is apparent now is the need to maintain confidentiality of individual data. Currently much of the administrative data from schools is covered by federal law (the Family Education Rights and Privacy Act, or FERPA). It will be increasingly important to develop research procedures and protocols that satisfy FERPA (and the underlying ideals). The concerns about confidentiality of data become particularly acute when one considers merging the administrative records with other survey and programmatic information. These issues will require separate attention.

Summary

The paradigm of individuals investing in skills that falls under the heading of human capital has proved to be very useful across theoretical and empirical research endeavors. But it has also developed in a constrained way, driven by data availability and by a longstanding set of research questions. Recent analyses have suggested that expanding research to investigate both the production and the impacts of a range of individual skills would yield large dividends. The availability of new, much richer longitudinal databases have attracted large numbers of new PhD's into the study of schooling and other aspects of skill production. As a result, the area is poised for dramatic expansion that could in part provide extraordinarily valuable research that supports a range of crucial policy issues facing the U.S.

² The majority of such international studies has been produced within the last decade, and the flow of such work has now increased significantly. Much of this international research is currently being conducted by researchers outside of the U.S. See Hanushek and Woessmann (2010).

References

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Abstract

Recent research establishes the need for a new research agenda related to the production and impact of human capital. Driven largely by data availability, analysis focused on human capital investments is frequently reduced to the study of school attainment. The central element of an expanded agenda is the identification and incorporation of different dimensions of skills – including new study into underlying measurement issues surrounding cognitive and noncognitive skills. Investigations of individual and aggregate outcomes now show that the measurement issues surrounding skills are very important. Moreover, these findings implicitly open questions about the integration of studies of the determinants of skills with those of the impacts of skills, because skill formation is known to involve more than just time in schools. Modern research also suggests a necessity of revisiting a variety of analyses in terms of causal claims and the implications of findings for policy issues. Newly available administrative data provide a means of tracing the development of skills through entire school careers and into later outcomes. And the upsurge of newly minted researchers in the area makes this a propitious research investment.