**A Sociological Study of Growth in the Economic, Health Fitness and Education Improvement**

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**ABSTRACT:**

This paper reviews recent research on the relationship between education and health fitness in poor countries. Across generations, the health fitness and education of parents—particularly mothers-boost both outcomes in their children. Multiple causal pathways link the two domains, across different phases of an individual’s lifecycle and across generations in a family. Within an individual, childhood health fitness enhances schooling outcomes, longevity incentivizes human capital investment, and education improves adult health fitness.

**KEYWORDS:** Social development, economic, health fitness, education development,childhood, human, parents, children.

**INTRODUCTION:**

This paper gives an overview of the current state of knowledge on the relationships linking health fitness and education in developing countries. To emphasize the dynamic aspects of these relationships, the paper will trace them out first within a generation, between childhood and adulthood, and then across generations, from parents to children. It will focus on reduced form evidence of these effects rather than efforts to precisely pin down mechanisms, for two reasons. First, the existing literature especially that on developing countries has simply generated more evidence on these reduced-form relationships [3]. Mechanisms have received some attention, but the evidence comes primarily from wealthy countries, and even that evidence remains sparse.

Associations between health fitness and education are not new, but with such tangled causal pathways, these associations sometimes prove to be uninformative. The recent literature in economics has made its main contribution in causal inference. Analyses of natural experiments and prospective trials have shed new light on long-standing hypotheses. They have also improved our ability to interpret careful associational studies, which are in many cases more generalizable than experimental studies but less internally valid. These advances have been key to identifying both the direction and the timing of effects in the causal system linking education and health fitness. With this better understanding of what matters and when, policymakers will be better equipped to identify opportunities for well-targeted policies [4].

In the course of development, few processes are as intertwined with economic growth as human capital accumulation. Schooling makes workers more productive, speeds the development of new technologies, and better equips parents to raise skilled children, all of which promote economic growth. Growth, in turn, incentivizes investment in human capital. Causal links point in every direction, traversing phases of the lifecycle as well as generations [1]. The entangled role of human capital is not limited to aggregate income growth, however. Education exhibits complex dynamic relationships with several components of wellbeing, including health fitness. For example, education affects health fitness in adulthood; life expectancy affects educational investment in childhood; and the health fitness and education of parents particularly mothers affect both outcomes in their children [2]. Just as with income, these relationships are likely to be especially important in developing countries, where levels of both schooling and health fitness are low but have risen rapidly over the past half-century.

**ECONOMIC RESOURCES AND HUMAN CAPITAL:**

According to the Human Development Approach (HDA), economic resources are important only if people are finally able to convert them into something valuable by itself. “People value commodities not in their own right but for their characteristics and for the needs they meet”. These authors criticize the vision of development for being purely economic, readdress it as a process of enlarging people’s choice to live a life they value), through an increase of valuable human freedoms [12]. In this context, income and other economic resources are an “intermediate goal” and important instruments to promote development, but they are neither necessary nor sufficient to enlarge people’s freedoms. Therefore, new ends of development should be identified: among others, the supporters of the HDA focus on having a long and health fitnessy life, being adequately nourished, and being educated.

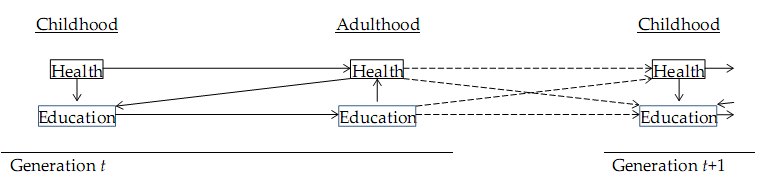
The second type of criticism strictly connected to the first, concerns the value attributed to education within the human capital framework. Based on Sen.’s work, I argue that education has a double role for development. First, a “direct” (or intrinsic) one because being educated allows people to have directly a better quality of life by enjoying, for instance, cultural events. Second, an “indirect” (or instrumental) one realized through “economic production”, and through “social change”. This definition outlines the limits of the human capital theory, which just looks at one of a broader range of “life- skills” provided by education.

The implicit assumption behind the human capital theory is that the achievement of economic resources (total or per capita), or economic development in a dynamic version, is the final goal and that education is an input that, together with physical (and social) capital, contributes to the increase of these resources. Heterodox critics, founded on principles wider than strictly economic ones, challenge this theoretical construction.

Albeit different, human capital and life-skills are mutually dependent. The three human capital categories suggested by Lanzi: basic skills (reading, writing), professional competencies (applied knowledge, technical skills), and complex functionalities (problem solving ability, self-learning skills) affect human freedoms, and vice versa. For instance, professional competencies increase human capital determining, ceteris paribus, higher productivity and income, but it has also a capacity to enlarge human freedom because obtaining a better job can raise the level of personal satisfaction, which determines a better quality of life.

**RELATIONSHIP BETWEEN HEALTH FITNESS AND EDUCATION:**

Both health fitness and education persist from childhood to adulthood, at which point education boosts health fitness. But adults are also parents, so their circumstance in middle age spills over onto the next generation. Health mothers have fitness children and more educated children. Conversely, parental education promotes both the health fitness and the education of the next generation. At this stage, the causal system repeats in the next generation. In the remainder of the paper, I will focus on the subset of the arrows in Figure 1that connect health fitness and education. With its numerous pathways, the causal system linking education and health fitness may seem convoluted. However, one can represent it in a simple but informative diagram. Traces out the links between education and health fitness, first over the lifecycle and then across generations.



**Figure 1: Relationship between Health fitness and Education**

Each arrow represents a causal link that has empirical support in the literature. The solid lines signify intergenerational links in other words, causal links that operate within a single person while the dashed lines correspond to links that work across generations within a family [5]. The system lays out a roadmap for the rest of the paper. In childhood, good health fitness improves educational outcomes. Additionally, the expectation of good adult health fitness increases schooling investments in childhood.

**INFLUENCE OF CHILDHOOD HEALTH FITNESS ON EDUCATIONAL RESULTS:**

**Educational Results in Adulthood:** The fact that education is relatively fixed by adulthood facilitates the study of its relationship with health fitness. Coupled with retrospective measures of child health fitness, data on adult educational attainment can shed light on the effect of health fitness on education in childhood. For example, just as height and schooling outcomes are associated in children, so too are they related in adults. In adulthood, too, the results of natural experiments and randomized controlled trials suggest that the associations partly represent an effect of health fitness on education. One noteworthy finding comes from long-term follow-up of deworming experiment in Kenya. In young adulthood, individuals in the treatment group had stayed enrolled in school longer and performed better on a battery of tests than their counterparts in the control group. On the other hand, long-term follow-up of [8] study of hookworm in the U.S. South gives different results. To modify his research design to study outcomes in adulthood, bleakly compares birth cohorts born too early to be exposed to eradication to those born later, across areas with differing baseline worm infection prevalence. The results imply significantly positive effects on literacy but not years of schooling.

**Effect of Education on Health fitness in Adulthood:** A long-standing literature reports positive associations between education and health fitness in adults in wealthy countries. [9] Note in their survey paper on the topic, the mechanisms linking the two variables are not fully known. To the extent that the association reflects an effect of education on health fitness, important mediators of this effect may include income, working conditions, health fitness-related knowledge, cognitive ability, patience, attitudes towards risk, and cultural capital (especially in interactions with health fitness providers). Similar associations are evident in data from developing countries, although studies are rarer.

However, longitudinal follow-up of the recent spate of education-related randomized controlled trials in developing countries has begun to yield useful results on health fitness behavior in young adulthood. In one study, [10] analyze a program in the Dominican Republic that gave teenage boys information about the return to schooling. The information led the boys to stay in school longer, to delay the onset of heavy drinking, and to reduce smoking at age 18. Across the Atlantic in Africa, estimate the effects of a program that sought to provide adolescent girls with both vocational training and information about risky health fitness behaviors. HIV-related knowledge and condom use both increased. Less promising results have emerged from a Kenyan study on the medium-run impacts of a school subsidy program [11]. Although the program increased schooling for both boys and girls, follow-up data show at best weak impacts on sexual behavior and STD infection. Together, these studies suggest that keeping boys ‘off the streets’ and equipping girls with health fitness information may be key to any effect of education on health fitness in young adulthood.

**Educational Results in Childhood:** We begin in childhood, where abundant evidence suggests that health fitness affects school enrollment and academic achievement. Health fitness enables children to travel to school, concentrate, and think clearly, all of which may improve educational outcomes. Until recently, the evidence has primarily taken the form of cross-sectional associations between children’s health fitness and their educational outcomes. Behrman (1996) surveys several such studies from the 1980s and 1990s, which show strong positive relationships between anthropometric measures of child health fitness such as height and schooling outcomes in a wide range of settings. But Behrman ultimately critiques these studies for inadequately addressing issues of causality and omitted variables. A few analyses published at the same time or after Behrman’s critique make some headway on these issues by focusing on within-family variation. [6] Estimate models with family fixed effects, finding that shorter siblings start school later than their taller brothers and sisters. More recently, [7] analyze twin pairs and sibling sets in Chile, showing that twins or siblings born at higher birth weight perform better on exams. Within-family comparisons of this type eliminate concerns about family-level omitted variables, although they leave some concern about how parents allocate scarce resources among children with observably different health fitness.

**CONCLUSION:**

The existing literature for one, the distinction between aggregate and individual educational attainment has received little consideration but is almost certainly relevant for health fitness systems in developing countries. How important is a country’s education system in producing health fitness professionals to support its health fitness system? Additionally, the potential for the backwards intergenerational transmission of health fitness information from children to parents remains underexplored. Such information transmission could prove useful in combatting the rise of smoking and obesity in poor countries. Concerning intergenerational dynamics in the other direction, from parents to children, the literature would benefit from more focus on how parental behavior reinforces or compensates for exogenous changes in the health fitness environment or educational opportunity. This last line of inquiry would place behavior back in the center of economic research on health fitness and education.

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