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## Investment in Human Capital: Reply

I am surprised and pleased that under the restraints of a presidential address to the American Economic Association, enough could be said to warrant so careful and valuable a comment. Harry G. Shaffer discusses some of the minor difficulties that arise in practice in distinguishing between consumption and investment expenditures in the formation of human capital and then examines in considerable detail, and in my judgment correctly, some major difficulties in identifying and measuring the earnings (return) that are associated with a particular investment in man. Shaffer does not object to the concepts of investment in man and human capital; on the contrary, he explicitly accepts the underlying theory. He is, also, careful to disassociate himself from those who believe that it is morally wrong to apply the concepts of investment and capital to people. However, if any new knowledge were attainable by the use of these concepts, despite the empirical difficulties, Shaffer appears to believe that such knowledge would be grossly misused—by implication, more so than other economic knowledge—in making policy decisions. This view of the relation between economic analysis and policy seems unreal and irrelevant.

Shaffer's first point is addressed to the question: When are educational expenditures consumption and when are they investment? This question deserves careful investigation because so much depends upon the correctness of the answer. To follow the conventional procedure of treating all such costs as serving only current consumption will not do. But to allocate all of these costs to investment in future earnings, is fully as extreme and unwarranted. Although the economic logic for allocating the costs of education is clear and compelling, no one has as yet developed a wholly satisfactory empirical procedure for identifying and measuring the particular resources that enter into each of these components. Faced with this difficulty, any allocation that one makes, based on such clues as seem relevant, must in all honesty be labeled "arbitrary." There is little intellectual comfort in the fact that a similar brand of arbitrariness characterizes other areas of analysis, for example, in the way expenditures for electricity and for automobiles used by farmers are divided and distributed between household and farm expenses, or the way a part of the costs of some private residences used for offices, libraries or studies are treated as business expenses.

In discussing the central question of allocating resources between consumption and investment, Shaffer emphasizes two facts, namely that most students attend public schools, and that up to a certain age school attendance is compulsory. But neither of these facts is relevant to a logical basis for distinguishing between consumption and investments. If education were altogether free, a person would presumably consume of it until he were satiated and "invest" in it until it would no longer increase his future earnings. If a part of the education expenditures were borne on public account, the direct private costs of education would of course be less than the total costs of education, and to the extent that such education increased the future earnings of the student, his private rate of return to what he spent on education would be higher than the rate of return to total educational expenditures entering into this part of his education. Thus, private incentives to consume and to invest in education are affected by public educational expenditures, but the fact that there are such public expenditures has no bearing on the question whether education is consumption or investment. The fact that some schooling is compulsory is also irrelevant to the question at hand. To argue that it applies is analogous to saying that a city ordinance which requires private owners of houses to install plumbing and sewage disposal facilities is a factor in determining whether such facilities are a consumer or producer durable. Clearly, the compulsory city ordinance does not provide a logical basis for distinguishing between these two types of durables.

Although Shaffer is clear in seeing the positive effects of education upon the future earnings of students, he believes that the economic motivations of students and parents to invest in education is weak or even nonexistent. They are, in Shaffer's view, strongly motivated as consumers of education but only weakly or not motivated at all as investors in education. Such a dichotomy with respect to economic motivations is far from convincing. It is undoubtedly true, as Shaffer points out, that some education is wholly for consumption, and obviously in that case there would be no investment opportunity, hence no bases for an investment motivation. But are there no economic motivations in the case of students who attend our medical schools, schools for dentists, lawyers and engineers to invest in each of these particular skills with an eye to increases in future earnings? I am sure that the prospects of larger future earnings play a strong motivating role in these situations. Let me observe again, however, that private incentives either to consume education or to invest in it are affected by the amount and the nature of public expenditures for education. It is of course true that any attempt to explain total behavior with regard to the allocation of all public and private resources entering into education, takes one beyond the scope of the conventional private economic calculus of people. In studying the responses of private individuals to whatever investment opportunities education affords, it should be borne in mind: (1) that where the capital market does serve human investment it is subject to more imperfections than in financing physical capital; (2) that most investment in people, notably in the case of education, is in a long-period capacity, for it has a relatively long life and it is thus subject to the additional uncertainties which this implies; (3) that many individuals face serious uncertainty in assessing their innate talents when it comes to investing in themselves; and (4) that our laws discriminate against human investments [3]. These factors affect the observed responses, and their adverse effects may be confused with the real economic response, other things equal, to a given rate of return which is then thought to be weak or nonexistent.

Let me do no more than restate the effects of education upon consumption and earnings. The consumption component of education is either for current consumption, satisfying consumer well-being in the present, like food, or for future consumption, like houses. Education can also improve the capabilities of people and thus enhance their future earnings. The investment formed by education is, therefore, of two parts: a future consumption component and a future earnings component.

In "Education and Economic Growth" [4], in examining education for consumption, I emphasized the current consumption component. It is now clear to me that most education that satisfies consumer preferences is for future consumption and that this component has substantial durability and it is, therefore, to the extent that it serves consumption, mainly an *enduring* consumer component, even more so than other consumer durables. As an enduring consumer component, it is the source of future utilities (and thus this component, also, contributes to future real income) which in no way enters into *measured* national income.[1] This component accordingly is like investment in houses, automobiles, refrigerators and the like. Thus we have the following: (1) education for current consumption (which, it seems to me, is of minor importance); (2) education for long-period future consumption, making it an investment in an enduring consumer component, which is undoubtedly of considerable importance; and (3) education for skills and knowledge useful in economic endeavor and, thus, an investment in future earnings [5].

Shaffer's second point, which presents a number of the real difficulties that arise when one attempts to identify and measure the increase in earnings that are associated with education, is well founded. Differences in innate abilities, race, employment, mortality, and family connections all enter and must be faced. It should not distract from the merits of his presentation to observe that these several difficulties are very much in the forefront in the work of economists who to my knowledge are engaged in studying this set of problems. The forthcoming study by Becker [1] will be a landmark on this score as well as on other relevant theoretical and empirical issues. A major new study by Denison [2] is both bold and original in bringing aggregate analysis to bear on the *sources* of economic growth in the United States. He finds education to be one of the major sources of economic growth after adjusting for differences in innate abilities and associated characteristics that affect earnings independently of education. Shaffer introduces a concept which he calls "maintenance costs" which in terms of the studies available to him has been neglected. But Weisbrod [6] in his paper "The Valuation of Human Capital," builds on "the proposition that the value of a person to others is measured by any excess of his contribution to production over what he consumes from production—this difference being the amount by which everyone else benefits from his productivity." Weisbrod then proceeds to estimate the relevant consumption, or

[1] Immediately following my presidential address, "Investment in Human Capital," Abba Lerner pointed out to me in conversation the role of future utilities from education and that this part of education also represented an investment. His logical and precise mind helped to clarify my thinking on this point and I am much indebted to him.

if you please, "maintenance costs" thus conceived, and subtracts such costs from gross earnings to obtain net earnings to be capitalized.

I am reluctant to tread upon the boulders Shaffer has collected in his comments on policy. I suspect, however, from what he says about them that they are conglomerates of compressed sand and at best weak materials for his conclusions. To have started off by lecturing "liberals" on their rationalization of federal aid to education, is not conducive to a calm and reasoned discussion of the policy implications of expenditures for education. If the argument were that the knowledge now available about the increases in earnings from education is still too fragmentary to be of any use whatsoever in making policy decisions, it would deserve careful consideration. If the argument were that knowledge about the effects of education upon future earnings will be misused by people and therefore any efforts to acquire such knowledge should be very much discouraged, this conclusion from such an argument would be patently false.

The principal source of Shaffer's confusion in discussing policy arises from his belief that, if it were to become known that particular forms of education pay in terms of increases in future earnings, policy decisions which took this fact into account would necessarily no longer take into account any of the other important contributions of education. People, including those who make policy decisions, are simply not that monolithic in their evaluation of education. Shaffer's implied apprehension that society will proceed to deny advanced education to women merely because most of them do not enter the labor market is a pure illusion. If Shaffer only means that knowledge about economic returns accruing from investment in human capital, in terms of future earnings, *should not* be the exclusive basis for public policy decisions in making expenditures for education, we are in full agreement. My view on this issue can be stated very simply: It is altogether proper that people should prize highly the cultural contributions of education and they will continue to do exactly that; but it is very short-sighted of us not to see its economic contributions. Education has become a major source of economic growth [5] in winning the abundance that is to be had by developing a modern agriculture and industry. It simply would not be possible to have this abundance if our people were predominantly illiterate and unskilled. Education, therefore, in addition to having high cultural values, is presently also an investment in people to the extent that it improves their capabilities and thereby increases the future earnings of people.

Shaffer says that there are specific studies which "clearly show . . . the income differential correlated with additional education is considerably higher for whites than for Negroes," and suggests the inference that less rather than more should therefore be spent on education for Negroes, provided this were the sole criterion. The specific studies in this case are based on national averages, making no adjustments for the effects of city size, different rates of unemployment, regions, and the quality of education. Nor is any account taken of the differences in the cost of education, including income foregone by the students, which is fully half of the total cost of college education. Furthermore, should there still remain a differential, as is to be expected because of discrimination, the relevant figure is not this income differential but the absolute difference between the Negro who has, let us say, a college education and one who had only a high school education. The increase in earnings represented by this absolute difference is the reward to which one would turn in estimating the return on this investment. Zeman's [7] study, it seems to me, strongly supports the inference that differences in education are the major explanatory variable for the very large white-nonwhite income differentials in the United States.

Despite my serious misgivings about Shaffer's attempt to relate economic analysis and policy, I am, as I said at the outset, grateful to him for his most valuable comment.

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## The Differential Effects of Tight Money: Comment

In "The Differential Effects of Tight Money,"[1] Bach and Huizenga analyze several widely-held notions concerning the discriminatory impact of stringent monetary policy. The hypothesis receiving most of their attention, and the one to which this comment is addressed, is "that tight money led banks [in the period 1955-57] to discriminate against small borrowers in lending to businesses" (p. 59). They conclude that "widespread criticisms of tight money as unfairly discriminating against small borrowers, both in availability of loans and interest costs, are not supported by the data" (p. 79).

The purposes of this comment are to (1) question certain interpretations which the authors give to their data, (2) raise a question concerning the validity of their test of discrimination, and (3) examine the major assumption that underlies their analysis. These points are raised, not because my waning

[1] This *Review,* March 1961, *51,* 52-80.