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Reply by C. Richard Waits* and Edward M. Mc Nertney*

We want to express our appreciation to William D. Manson and Gene E. Mumy for the thoughtful remarks on our article (Waits & McNertney, 1980). We intend to center our reply in two areas:

(1) a clarification of the objectives of our paper
(2) a discussion of some of the issues raised in the comment.

It was our intention to offer a procedure for doing two things. First, we intended to show that a portion of one's retirement income which is often confused with transfers is, in fact, a property income. We proposed that one's human capital remains in use by persons still in the active labor force and that the investor might legitimately regard a portion of his/her income as payment for the use of his/her property.

Secondly, we intended to propose the use of human capital as a basis for defining an appropriate level of retirement income and for dividing this income into three parts. One part is pension benefits that accrue to a person in the manner described in the literature cited by Manson and Mumy as property income in the conventional sense. The second part is a social payment for the continued use of the retiree's human capital (including the recovery of his/her cumulated investments). The third part consists of pure transfers. We still insist that the second part generally tends to be underestimated while the third part is typically over-estimated.

Our use of the word "appropriate" in that context seems to have caused confusion. We intended to define a retirement income level based upon an individual's lifetime contribution to the productive capacity of the economy. It was not our intention to focus on the process by which optimum investments in human capital are determined by individuals. We took these decisions as given and concentrated on the nature of the asset and the size of the lifetime income accruing to the investor for a given amount of human capital. The optimizing procedure referred to in the commentary is useful in determining the portion of retirement income accruing to a person as property income in the conventional sense.

The literature cited in the commentary rationalizes pension benefits by using choice models regarding optimum wage-benefit levels and also rationalizes transfer payments on "... normative grounds of merit goods and efficiency." The former would rationalize the first portion of retirement income as stated above and the latter rationalizes the pure transfer portion. Our technique intends to rationalize the second portion. Thus, it would no longer be necessary to rely on weak arguments for "earnings replacements" or "need" as indicated in Schulz (1976).

We are also concerned with the fact that certain pension benefits and Social Security payments are treated as transfer payments in

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the National Income Accounts and that there is a lack of differentiation between Social Security benefits and transfer payments in the listing of expenditure categories in the Federal Government budgets. It is on this mistreatment of benefits as transfer payments that we hoped our analysis would shed light.

We disagree with the contention that our argument is based on the concept that "... an individual's human capital is not completely depreciated at retirement and, in fact, continues to be used." What we said was that "... the lifespan of human capital extends beyond that of the generation of workers which invested in that human capital. While it is clear that one person does not apply his/her own capital without being in the active labor force, it must also be recognized that the person's human capital is still being used to maintain the productivity of the employed labor force." Thus, as we state later on, this "... accumulated human capital has been translated into the retirement asset which is equal in value to the accumulated investments in human capital and still represents ownership of (the retiree's) human capital which is now being used by the current labor force." That is, the entire human capital asset has been transferred to other persons who are in the current work-force and whose productivitiy is enhanced in exchange for a retirement asset of equal value.

There seems to be some difficulty with the concept of depreciation when it is carried over from physical capital to human capital. We understand that depreciation is a procedure for maintaining the *value* of total assets without respect to the particular instruments being depreciated. If a machine is likely to become technologically obsolete, it will be lost to the enterprise at some point. However, the write-off against current income will have enabled its replacement with a machine that is technologically current. Analogously, we are thinking about a procedure by which an individual may *maintain* the value of his/her total assets by exchanging his/her human capital for another asset, which we call the Retirement Asset.

Manson and Mumy take issue with our contention that A_t, the earnings of a person with only the basic, community skills, is an increasing function of the total stock of human capital at time t. Their argument is based on the assertion that this "... is a *non sequiter* (sic) if a retired person's human capital has been completely depreciated and $H_{it} = 0$. . . ." We are in agreement that $H_{it} = 0$ at retirement. That is, individual i's human capital becomes zero when he/she removes him/herself from the workplace. However, we insist that the retiree's income claim against current output remains intact because of his/her holdings of the Retirement Asset. As H_{it} diminishes, the value of the Retirement Asset increases by an equal amount. But, because of the depreciation procedure discussed above, the human capital asset is still intact and becomes a portion of the basic community skill level. Each generation's human capital investment leaves the community with a higher level of basic community skills needed to survive in the workplace. If this were not the case, then the basic skills needed to survive in an advanced industrialized community would be no higher than those needed to survive in a primitive community.

Manson and Mumy claim that A_t does depend on the past investments of now retired individuals because of positive externalities, thus, "... it may be socially optimal for individuals to invest more but they don't because they cannot appropriate the external benefits." These "benefits" are exactly what we are trying to capture for the investor. We have argued for a framework in which the individual could appropriate such "external benefits" and thus might be induced to invest more.

In conclusion, it seems that we are trying to reach the same result, namely, that retirement

income is earned income rather than a transfer payment. The approaches differ because we are analyzing different portions of retirement income. Our concern is with that portion of retirement income which is a social payment for the continued use of the retiree's human capital. Manson and Mumy are concerned with property income in the conventional sense. Presumably the two approaches can be integrated so that we can all proceed to further fruitful endeavors on the subject.