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THE CONCEPT OF REPLACEMENT RATIOS UNDER SOCIAL SECURITY

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Purpose and Scope

The purpose of this note is to discuss various problems associated with developing practical definitions of "replacement ratios" for use in judging the general level of benefits under social security.1/ The intent is not to suggest that there are simple solutions to these problems, but rather to stimulate discussion and to propose criteria that may be helpful in formulating acceptable solutions. Replacement ratios for uses other than judging the general level of benefits under social security are not considered.

Background

One of the objectives of social security is to replace, in part, any loss of covered earnings suffered by a family because of the death, disability, or retirement of the insured worker. It would seem relatively simple then to define the social security replacement ratio as that part of the lost earnings replaced by social security. Unfortunately this definition leaves the specifics undetermined. For one, how should the "lost earnings" be measured? For another, what amount of "earnings replaced" should be used? Before addressing these questions, it is appropriate to consider the role of replacement ratios in formulating and evaluating social security policies.

Both policymakers and program technicians are keenly interested in replacement ratios, but their perspectives are different. Policymakers are interested in replacement ratios: (1) as a means of communicating to prospective beneficiaries approximately how much they can expect to receive from social security, relative to their earnings; and (2) as a means of deciding if and how the social security program should be changed to meet the needs and desires of the public (within the constraint of maintaining a tolerable program cost). Thus policymakers are principally interested in the level of current and future replacement ratios, rather than in how those replacement ratios are defined. Technicians, on the other hand, should be principally interested in defining replacement ratios and in measuring them rather than in deciding whether their levels are appropriate. Because of this difference in roles it is important that technicians communicate to policymakers the limitations and ramifications of whatever definition of replacement ratio is being used. Otherwise, the advice given by technicians may be misleading, and the resulting decisions made by policymakers may produce unintended effects. With this background, we can more profitably consider the unanswered questions entailed in defining replacement ratios.

1/ In this context, social security refers to the Old-Age, Survivors, and Disability Insurance program.

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Measurement of the Lost Earnings

There are several criteria to guide us in answering the question "How should a family's lost earnings be measured?" One criterion, which we call recency, is that the measure of lost earnings should reflect amounts earned near the time of initial receipt of benefits. Otherwise the replacement ratio will be only of theoretical value and will not reflect the actual loss. Another criterion, stability, is that the measure of lost earnings should be relatively insensitive to minor fluctuations in the insured worker's earnings history. Otherwise the replacement ratio may not reflect the "normal" earnings level. Still another criterion is that the measure of lost earnings be unbiased in the statistical sense. Otherwise policymakers may be led to erroneous conclusions about how the program is meeting the needs of its beneficiaries. An acceptable measure of lost earnings is one that rates well against these criteria of recency, stability, and unbiasedness.

Measurement of the Earnings Replaced

There are also some criteria to guide us in answering the question "How should the amount of earnings replaced be measured?" One criterion, immediacy, is that the amount of earnings replaced should measure benefits payable immediately after the loss of earnings. Otherwise the replacement ratio will be distorted by benefit adjustments effective since initial entitlement. Another criterion, uniformity, is that the measure of the amount of earnings replaced should not reflect options exercised by the beneficiaries (for example, early or delayed retirement 2/). If this criterion is not satisfied the replacement ratio will be partly dependent upon individual preference, rather than upon only the general benefit structure (which is what the replacement ratio is being used to judge). In connection with retirement benefits, a single reference point at which to measure benefits uniformly is essential, and we believe that under current circumstances the best such point is age 65. An acceptable measure of earnings replaced is one that rates well against these criteria of immediacy and uniformity.

Comparison of the Earnings Replaced to the Lost Earnings

To produce a meaningful comparison, it is important that the measures of lost earnings and earnings replaced be consistent with one another. For example, tax-free benefits should be compared to after-tax earnings. Or, alternatively, tax-free benefits should be inflated to an estimated equivalent taxable benefit when compared to pre-tax earnings. If not, the replacement ratio will not be a true measure of how well the lost earnings are replaced.3/ Further, a worker's benefit should be compared to his own earnings, while a family's benefit should be compared to the combined earnings of all insured workers who have suffered lost earnings. Otherwise the replacement ratio will not properly relate benefits to all lost

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2/ The various levels of benefits associated with individual choices of retirement age is a separate policy issue from the general level of benefits and should be analyzed separately.

3/ Ideally, there should also be an adjustment for work-related expenses such as transportation, uniforms, and meals purchased at the workplace, but this would be very difficult to estimate in practice.

earnings. Moreover, social security benefits alone should not be compared to earnings in excess of the contribution and benefit base, because the program is not intended to replace such earnings.4/ An acceptable definition of replacement ratio is one that compares an acceptable measure of earnings replaced to an acceptable measure of lost earnings in a manner which satisfies this criterion of consistency.

Examples Illustrating the Criteria

To illustrate the criteria we have discussed, let us examine some examples of definitions of replacement ratios for retirement benefits. These examples are not intended to be suggestions for actual use.

Retired-Worker Benefit In-Current-Payment Compared to After-Tax Earnings in Last Year Before Retirement

Recency: Satisfied.

Stability: Not satisfied because some workers have unusually high or low earnings in the last year before retirement.

Unbiasedness: Satisfied.

Immediacy: Not satisfied because some workers' benefits have been adjusted by benefit increases since initial entitlement.

Uniformity: Not satisfied because some workers exercise the option of early or delayed retirement.

Consistency: Not satisfied because some workers have after-tax earnings above the contribution and benefit base (which are not covered by social security).

Awarded Primary Insurance Amount Compared to Average of Last 20 Years' Covered Earnings Before Retirement

Recency: Not satisfied because earnings as remote as 20 years before retirement are used.

Stability: Satisfied.

Unbiasedness: Not satisfied because earnings early in the period have not been indexed to take into account increases in average wages through time.

Immediacy: Satisfied.

Uniformity: Satisfied.

Consistency: Not satisfied because the Primary Insurance Amount is tax-free, while covered earnings are not.

4/ The contribution and benefit base is a separate policy issue from the general level of benefits and should be analyzed separately.

Awarded Primary Insurance Amount Compared to Average of the Highest Four Years' Wage-Indexed Earnings in the Last Ten Years Before Retirement

Recency: Partially satisfied.

Stability: Partially satisfied.

Unbiasedness: Not satisfied because the highest four of ten is a biased estimator of the average.

Immediacy: Satisfied.

Uniformity: Satisfied.

Consistency: Not satisfied because of the reasons cited in the previous examples.

Total Awarded Family Benefit Compared to Average of the Six Years' Combined (Husband and Wife) Wage-Indexed Earnings After Deletion of the High Two and Low Two Years from the Last Ten Years Before Retirement

Recency: Partially satisfied.

Stability: Partially satisfied.

Unbiasedness: Satisfied.

Immediacy: Satisfied.

Uniformity: Not satisfied because some workers exercise the option of early or delayed retirement.

Consistency: Not satisfied because both spouses may not have retired, and also because of the reasons cited in the previous examples.

Total Awarded Family Benefit Before Adjustments for Early or Late Retirement Compared to Average of the Last Ten Years' Combined After-Tax Wage-Indexed Earnings of all Retirees

Recency: Partially satisfied.

Stability: Partially satisfied.

Unbiasedness: Satisfied.

Immediacy: Satisfied.

Uniformity: Satisfied.

Consistency: Satisfied.

Application of Definitions of Replacement Ratios

Having examined some examples, we realize that there may very well be no definition that is optimal with respect to all the criteria listed. In fact, improving a definition relative to one criterion may lessen its satisfaction of another (for example, recency vs. stability, which is particularly troublesome in analyzing disability cases which may have gradual onsets of disability). It is important then to choose a definition of replacement ratio which satisfies the criteria as well as possible, recognizing that certain trade-offs must be made.

Whatever trade-offs are made, we must be careful that the definition we choose is useful for the particular purpose at hand. For instance, the definition of replacement ratio in the last example satisfied our criteria reasonably well, but it would not be appropriate to use this definition to analyze the retired-worker benefit structure (whereas it would be useful for analyzing the family benefit structure). Hence, there is an overriding criterion of applicability in choosing a definition -- the definition should be linked to its intended use.

It is also important that the definition we choose be readily understandable to non-technicians. A definition which has many good characteristics, yet is incomprehensible to those who will use its results, may well be less helpful than one which involves a few simplifying approximations. To be most useful, a definition of replacement ratio should satisfy this criterion of simplicity as well as possible within the constraint that the essence of the concept of replacement ratio be preserved.

Once a definition of replacement ratio has been chosen for a specific purpose, care should be taken in how it is applied. For example, calculating replacement ratios of a sample without first examining the sample is not prudent. The essential characteristics of the sample should be matched against those of the population represented by the sample, and adjustments should be made to correct any significant discrepancies. Also, any special cases which are not representative of general experience, or which are not relevant to the particular analysis being performed should be removed, taking care to preserve the essential characteristics of the sample.

Conclusions

We believe that replacement ratios that take into account the criteria of recency, stability, unbiasedness, immediacy, uniformity, consistency, applicability, and simplicity will be good measures of how well social security is meeting its objective of replacing, in part, covered earnings lost to individuals and families due to death, disability, or retirement of the workers. However, we also believe that those replacement ratios will generally show that some beneficiaries receive very much while others receive very little, relative to the measure of lost earnings. This is because measures of lost earnings used in defining replacement ratios will usually be different from the measure of earnings used to compute benefits.5/

5/ The measure of lost earnings used in defining a replacement ratio will vary because it should depend upon the intended use of the replacement ratio, while the measure of earnings used to compute benefits will be constant because it must be specified in law.

Hence we must reconcile ourselves to the fact that in actual practice social security replacement ratios will be very high in some cases and very low in others.

In closing we would like to remind both policymakers and technicians that a high replacement ratio does not necessarily mean a high benefit, just as a low replacement ratio does not necessarily mean a low benefit. In fact, depending on how the lost earnings are measured, a fixed benefit can be shown to correspond to a replacement ratio of arbitrary size. As a corollary, the belief that benefits based on the average of a few high years' earnings are intrinsically higher than those based on career average earnings is only an illusion. In fact the measure of earnings upon which the benefit is based determines not the overall absolute level of benefits, but rather which individuals get higher or lower benefits than the general average. The reality is that the general level of benefits under social security is determined by how much our society is willing to pay for this program.