

Dear Fellow Tech Panel Members,

After reading Actuarial Note 155, past Trustees Reports, the Biggs testimony, the Blahous paper and a few other sources, here are my thoughts on the replacement rate controversy.

There seems to be general agreement on the conceptual definition of a replacement rate as the ratio of Social Security retirement benefits (numerator) to a measure of pre-retirement earnings (denominator.)

In order to implement this idea, however, there are five questions that must be answered:

1. Whose earnings should be used?
2. Which earnings years should be included (and how should we treat zero earning years)?
3. How should earnings be indexed?
4. At what age should the replacement rate be calculated?
5. For whom should these calculations be done?

It appears that all of the disagreement between the actuaries and their critics comes down to different views about the most appropriate way to answer these five questions. My own view is that there is no single “right” answer. Rather, different approaches answer different questions – so it depends on how the rate is portrayed, interpreted or used.

Here is a brief overview of the choices:

1. Whose earnings should be used?
  - a. The individual’s earnings
  - b. Average earnings of workers in the population

For “personal finance” purposes, the answer seems obvious that one would want to use the earnings of the individual in question. This may also be the best answer for many policy questions. However, one can also calculate the RR by dividing by average earnings in the population. This would be of interest only if you are trying to evaluate the generosity of the SS system by comparing it to wages of average workers.

2. Which earnings years should be included (and how should we treat zero earning years)?
  - a. All lifetime earnings
  - b. All lifetime earnings only including positive years
  - c. Earnings in X years prior to retirement
  - d. Earnings from years Y to X before retirement (e.g., 6-10)
  - e. Earnings in top Z earnings years

In a standard life-cycle model from economics, we might think that we want to compare it to the average of all lifetime earnings, possibly including zero years. On the other hand, many financial planners seem to think in terms of the years prior to retirement. A reason to go back to, say, 6-10 years prior is to avoid contaminating with people who phased into retirement working part-time.

3. How should earnings be indexed?
  - a. Inflation
  - b. Wages

As an economist, I think of the natural starting point being a life-cycle model in which an individual smooths real consumption over the years. This would call for indexing to inflation.

However, one could imagine an “external habit” or “keeping up with the Jones” model in which one cares about adequacy relative to wage indexed earnings (this is related to point 1 above). Given that AIME is calculated this way, it is natural to understand why SSA has used it. But it is almost surely *not* what most financial planners or individuals have in mind.

4. At what age should the replacement rate be calculated?
  - a. 62
  - b. 65
  - c. FRA/NRA
  - d. Actual retirement age

Arguments can be made for each of these, depending on how the RR is being used.

5. For whom should these calculations be done?
  - a. Stylized workers
  - b. Empirical distribution of workers

The actuaries have chosen “a,” but “b” is arguably more interesting given the tremendous heterogeneity in replacement rates across the population.

#### Other observations

1. It is also worth noting that the actuaries changed their definition of stylized workers in the early 2000s. Actuarial memo 155 states that in making this change, *the career-average earnings level of the hypothetical worker was retained so that the resulting benefit replacement rate would be the same as for steady earners. This suggests that the current parameters were chosen to maintain a smooth history of reported replacement rates (an understandable goal for some purposes), rather than because the current approach is necessarily considered the “theoretically ideal” set of assumptions.*
2. Actuarial memo 155 calculates RR several ways, finding a narrow range of results comparable to those previously reported in the Trustees Report. However, it is not an apples-to-apples comparison because it changes multiple parameters at a time (e.g., using a lower retirement age and price indexing have offsetting effects that partially cancel.) It would be nice to see RR calculated changing one assumption at a time.

### Initial Recommendations

1. Assuming it is feasible for OCACT to do it, I would like to see Steve create calculations for us that vary one parameter at a time. We do not need all possible permutations but I do want to make sure we have enough to isolate the effect of one variable at a time.
2. Given that different definitions answer different questions, we may want to suggest that the Trustees report multiple measures.
3. Conditional on a chosen method, there is tremendous heterogeneity in the population. It seems to me that it would be much more informative (although probably also more work for the actuaries) to report statistics about the full distribution. This can be done using a sample of beneficiaries similar to that used for the calculations in Actuarial Note 155.