Session 4B: Mortality Measurement and Prediction
Discussant: Elizabeth Arias

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Paper Presented:

Typology and Review of Measures of Human Aging, Longevity and Superlongevity, with Applications to U.S. Data and Some Implications for U.S. Public Programs
Jacob S. Siegel

Mortality Measurement at Advanced Ages: A Study of the Social Security Administration Death Master File
Leonid A. Gavrilov and Natalia S. Gavrilova

Typology and Review of Measures of Human Aging, Longevity and Superlongevity, with Applications to U.S. Data and Some Implications for U.S. Public Programs
by Jacob S. Siegel

I found this to be a very good paper. The author identifies, describes and organizes the numerous measures that have been developed to describe and analyze human aging and longevity. This paper will be especially helpful to students of demography in general and population aging in particular. It provides one succinct source for much valuable information.

The author begins by defining the concepts of aging and longevity and then proceeds to discuss in detail the various measures developed to describe and analyze these two concepts. The author organizes these measures into a three-level typology that reflects the varying degrees of directness of the measures and the sources of data used to estimate them. Level one encompasses direct measures of population aging that also serve as indirect measures of longevity and are based exclusively on population data. Level two consists of indirect measures of population aging that also serve as direct measures of longevity and are based on vital statistics data and life table functions. The third level includes a miscellaneous group of measures that mainly reflect indirect measures of longevity and are mainly derived from life table functions. The author then

applies the measures to U.S. data and discusses the implications of his findings for U.S. public programs.

Although I found this to be an excellent exposition of the numerous measures the author identified, I believe the paper could be improved by making its main focus the typology the author proposes. This can be done by refining and elaborating the typology and eliminating the last section of the paper.

It appears to me that the typology the author creates reflects more than just the "directness" and data sources of the measures. It also reflects the methodological complexity of the measures and their fluidity across the two main concepts they describe (aging and longevity). I would recommend that the author redefine the typology as one encompassing three dimensions (data source, directness of measures and complexity of method) and elaborate on how each level is related to the next level. This more refined definition of the typology could be presented along with a diagram showing these three dimensions and the relationship between or fluidity across levels. One very interesting aspect of the fluidity across the levels is the property of the measures where, for example, a "direct" measure of population aging is also an "indirect" measure of longevity and vice versa. The remaining presentation of the paper should then reflect the paper's main object of analysis. Thus, the typology should be presented more explicitly throughout the paper. For example, "Level I" should be used as the title of the section currently titled "Direct Measures of Population Aging," with the same pattern followed throughout.

Finally, the last section of the paper, "Applications to U.S. Programs," should be eliminated. While it provides some interesting information, it detracts from the main contribution of the paper, which I believe to be the typology the author creates and his wonderful description and definition of each of the measures it encompasses. The final section of the paper could be a separate piece.

Mortality Measurement at Advanced Ages: A Study of the Social Security Administration Death Master File

by Leonid A. Gavrilov and Natalia S. Gavrilova

I found this to be a very interesting paper. The authors present the problem of mortality measurement at very old ages succinctly and provide a valuable evaluation of the components of the problem. These include the effects of cohort heterogeneity, invalid estimation assumptions and age misreporting. The authors also provide a useful review of previous research on this topic. Finally, while outside my area of expertise, I found the methodology the authors propose to be convincing.

The one issue that I have with this paper is the authors' assumption that the Social Security Administration Death Master File is as flawless as they assume. This data set contains a non-insignificant number of "immortal" or "phantom" records that are a result of persons being registered more than once or because deaths are not reported to the Social Security Administration. The presence of these records in the data set leads to underestimates of mortality at the very advanced ages. The paper would benefit by a fuller discussion of these data limitations and how the authors deal with them.