**Technical Exercise – Part II**

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**Response to Colleague’s Email**

In this email, the colleague commented about the age of deceased retirees in the World Bank. By calculating the mean age of the 919 deceased retirees from World Bank in the past 6 years, the colleague tried to compare the mean with the mean life expectancy of the US with people reaching 65 today. The colleague made several claims in this email, which however, are not well founded.

First, the colleague made the direct comparison of two means and drew a conclusion without considering the variance of the means or the size and distribution of the underlying samples. The claim that the mean of 81 years compared to “84.4” or “86.6” is “impressive” is flawed in several ways:

1. The definition of “impressive” is not meaningful. It does not imply the mean to be high or low. A better expression may be “lower than expected”.
2. A statistical comparison between two means using for example, Student-t test, requires the assessment of the variance. Without this information, the comparison is not meaningful.
3. The comparison is based on a sample of 919 people vs a US average life expectancy, which may be drawn from a much larger sample with a different distribution. Without evaluation of the samples’ size and distribution, it is hard to perform statistical tests.

Second, the life expectancy from the two populations (World Bank retirees vs. US) cannot be compared. Life expectancy from different birth years can vary significantly. From the age distribution of the World Bank’s deceased retirees over the past 6 years, the birth years of the deceased may vary over 50 years, so the life expectancy among the deceased can vary greatly. In addition, life expectancy generally increases with birth year, so the people who died at a much older ages (who were born much earlier) actually lived beyond the odds of their life expectancy, and *vice versa*. As a result, the mean age of death of the deceased retirees cannot reflect their life expectancy, and cannot be compared with the US average life expectancy. In addition, the group being compared with has age of 65 as of today, which are considerably younger than the deceased, so their life expectancy is naturally longer.

Thirdly, the colleague’s life expectancy comparison between World Bank retirees and the US population is unreasonable. The World Bank employees have a much higher diversity of country origins than the US population. Besides, the Bank employees work and live in many regions in the world, where the social and economic environment is different from the US. As is obvious, the life expectancy of people also depends on their countries of origin and their living environment. A comparison between those two very distinct population groups are not meaningful.

In conclusion, the claims in the colleague’s email are flawed in several ways and the conclusions based on the age of the deceased World Bank retirees are not founded.