

Why the Gamboa-Gibson Disability Work-Life Expectancy Tables Are Without Merit

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I. Introduction

This is a brief explanation for why the disability work-life expectancy tables produced by Anthony M. Gamboa and David S. Gibson are generally regarded to be without merit in the field of forensic economics. The most recent version of those tables was published by Vocational Econometrics, Inc., in 2006. Previous versions were published in 1987, 1991, 1995, 1998, and 2002. Vocational Econometrics, Inc., is a corporation owned by Anthony M. Gamboa and John Tierney, so publication of these tables is an in-house publication. None of the editions of these tables has been regarded as being reliable sources of information. This short statement is intended to be a short explanation of the problems with these tables. It is not intended to be an exhaustive analysis.

The basic problems can be stated as follows:

- (1) The government sources from which the numbers are calculated are not reliable sources for measuring the prevalence of permanent disabilities and were not designed for the purposes of measuring the prevalence of permanent disabilities.
- (2) The LPE method used by Gamboa and Gibson for deriving disability work-life tables from underlying government sources is not a valid methodology for doing so.
- (3) Even if the underlying government sources were reliable for the purpose of measuring disability and the method used to derive disability work-life tables was a valid methodology, the data itself would be for a wide variety of disabilities and not applicable to an

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individual with a particular disability.

In short, they used the wrong method with the wrong data and produced results that would not be applicable to a person with a specific disability even if the results were accurate in general. Each basic problem will be considered in turn.

II. Problems with Data Sources Used to Measure Disability

Editions of the tables until 2002 relied upon the Annual March Supplements of the Current Population Survey. That survey was not intended to or designed to measure disability, but has some questions in which individuals are asked if they have disabilities. Those answers to those questions are not reconfirmed by later questions as would be with surveys intended to measure disability. The answers are based on self determinations without instruction to survey participants. The Bureau of the Census and the Bureau of Labor Statistics, which jointly produce CPS data, both have statements at their web sites indicating that CPS data should not be used for measurement of disability. See Bureau of the Census Statement (undated), Bureau of Labor Statistics Statement (undated), Ciecka, Rodgers & Skoog 2002, Hale 2001, Hale 2008, Ireland 2002, Jones 2005. Similar problems exist with the American Community Survey, which was also employed by Gamboa and Gibson in the 2006 publication of the tables.

III. Problems with LPE Method When Used with Disability Status

Most work-life expectancy tables used by forensic economists are based on “Increment-Decrement” Markov process models. Workers are initially classified as “active” or “inactive.” “Active” is defined as either currently employed or actively seeking employment in the labor market.” “Inactive” is defined as not currently employed and not actively seeking employment. Initial models used to measure work-life expectancy by the Bureau of Labor Statistics produced “non transitional” data that did not account for the fact that inactive workers might “transition” from “inactive” status to “active” status. Later work by the BLS used a Markov process model to develop transition rates between the active and

inactive status so that workers who are currently inactive are assumed to have a known probability for making the transition from the inactive status to the active status, and vice versa. The LPE method is similar to the original BLS approach of assuming that “active” workers remain active only until they leave the labor market and that “inactive” workers could be ignored.

The LPE method as explained in Michael Brookshire’s 1987 book *Economic Damages* consists of measuring for each worker for each year (L) the average probability that the worker will survive during that year, (P) the average probability that a worker will be a participant in the labor market during that year, and (E) the probability that a worker will be employed in that year. The problem with this method is that it does not take into account whether the worker was a participant in the labor market or employed in the immediately preceding year in determining participation (P) and employment (E) probabilities. Each individual in a given demographic category is assumed to be equally likely to be a participant and employed in any given year. However, a number of variables other than L, P, and E are taken into account in an LPE model. An individual’s age, sex, and education are all considered and individual LPE tables are constructed by age for each sex and education category. Age is included directly in an LPE table because (L) is a function of a person’s age and also determines the appropriate age for determining the participation (P) and employment (E) rates.

The modification introduced by Gamboa originally and more recently Gamboa and Gibson was to add disability status as an additional identification factor for the tables. In the Gamboa-Gibson tables, the same LPE probabilities are used, but with disability status now included along with sex and education as “fixed” factors. (Status by race is also used as a variable in some tables, but not used by qualified forensic economists.) In other words, the Gamboa-Gibson modification was to add “not disabled,” “not severely disabled” and “severely disabled” as a third fixed category along with sex and education. The problem with doing so is that a worker who may not be disabled in year 0 may become disabled later in life. Indeed, future disability is one of the main factors limiting work-life expectancy. A worker who identifies himself as “not severely disabled” in period 0 may become either “non disabled” or “severely disabled” later in life. A worker, for example, who has a broken arm in time period 0 might identify himself as either “not severely disabled” or “severely disabled” depending on his occupation and ability to adapt, but would identify himself as “not disabled” after his

broken arm healed. “Fixed factors” can sometimes change. A very small number of people have sex change operations. Some persons go back to school and get more education, but the numbers after a certain age are relatively small. The same is not true with self-identified disability status. This is a major shortcoming of the Gamboa-Gibson approach. It has the effect of exaggerating work-life expectancy of non-disabled individuals because they are assumed never to become disabled. It understates the work-life expectancy for both “not severely disabled” and “severely disabled” individuals because it assumes none of them will ever recover from their disabilities. See Brookshire 1987, Ciecka, Rodgers and Skoog 2002, and Ireland 2002.

IV. Problems with Applying General Disability Status to a Specific Disability

Even if disability work-life tables were derived from a survey designed to measure work-life and even if Markov process models that accurately showed transitions from non disabled to “not severely disabled” to “severely disabled” status, the tables would not be relevant to a person with a specific disability. For example, a person with a knee injury such that he or she could not work in many occupations may have no shortening of his or her work-life expectancy in an occupation in which the knee injury is only a minor problem. A knee injury may result in permanent limitations without in any way reducing the length of time an individual can work. Another example is that the loss of a little finger is a disability that would prevent a concert pianist from continuing in his or her occupation, but would have almost no effect on a policeman. As an analogy, we would not consider applying an average black work-life expectancy to a black person with a Ph.D. If one treats “blackness” as a disability in finding employment and so forth, one is capturing many other effects, among which is less education than is average for the population. Knowing that a given individual is self-identified as “not severely disabled” but knowing nothing else about that individual, there is no way to know whether or not that individual’s unknown disability will or will not have any effect on his or her work-life expectancy. See Ciecka, Rodgers and Skoog 2002 and Ireland 2002.

References

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Document is at www.census.gov/hhes/www/disability/cps/cpstablexplanation.pdf
- Bureau of Labor Statistics (Undated). www.bls.gov/cps/cpsdisability_faq.htm, stating that "Given this research and the relatively small sample size of the CPS, data users are advised to avoid using the CPS for the purpose of identifying persons with specific disabilities." This was in response to a frequently asked question: "Does each of the questions identify a group with a specific disability?" Section I.
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