
**VOCATIONAL
ECONOMICS,
INC.**

This document was downloaded from Vocational Economics Inc. (www.vocecon.com). For more information on this document, visit: www.vocecon.com//technical/Bibliography/wlbibnwt.htm.

Vocational Economic Analyses¹

A Response to Staller, Sullivan, & Friedman

by: David S. Gibson and Andrew L. Gluck²

Introduction

To determine lifetime lost earnings in cases of permanent disability, attorneys historically turned to two different professions for expert opinions: vocational experts for definition of the impact of disability on the plaintiff's earning capacity and economic experts for quantification of the lifetime loss. Over the past ten to twenty years, many experts have emerged that glean the relevant bodies of knowledge from the two professions into a single expert – a Vocational Economic Analyst.

Before beginning any analysis of lost earnings, three basic questions must be answered:

- Is there an impairment?
- Is the impairment permanent?
- Does the impairment result in occupational disability?

If the answer to these questions is yes, the analysis proceeds. Although the tools, databases, and methodologies vary widely from expert to expert, each analysis implicitly examines five components:

1. Determination of pre-injury annual earning capacity
2. Determination of pre-injury worklife expectancy
3. Determination of post-injury annual earning capacity
4. Determination of post-injury worklife expectancy
5. Present value calculation of the loss

“Vocational Economic Assessments Have Neither a Vocational nor an Economic Basis” by Jerome Staller, Ph.D., Brian Sullivan, Ph.D., and Edward Friedman, Ph.D. (hereinafter SSF) reviews and criticizes the steps taken by Vocational Economic Analysts in several categories:

¹ Paper delivered to the 26th Annual Conference of the Eastern Economic Association, Washington, DC, March 25, 2000.

² David Gibson is the Chief Operating Officer and Consulting Economist for Vocational Economics, Inc. in Louisville, KY. Andrew Gluck is a Senior Vocational Economic Analyst in the New York office of Vocational Economics, Inc.

- They define the role of a vocational expert and contend that a VEA is a vocational expert who has overstepped this defined role.
- They question the validity of tools used to determine earning capacity.
- They criticize the use and derivation of The New Worklife Expectancy Tables, which they assume to be a tool of only Vocational Economic Analysts.

This paper responds to these criticisms. Before we address the criticisms, allow us to point out that all of the criticisms are unsubstantiated hypotheses. SSF offer no statistics, studies, citations, or any other evidence in support of their claims.

Basic Errors

Much of the SSF paper deals with hypotheses posed by the authors as to why various tools or studies used by a Vocational Economic Analyst are unsound. These hypotheses are debated in subsequent sections of this paper. However, two major assertions by SSF are blatantly in error and must first be defused.

Definition of Work Disability

The New Worklife Expectancy Tables from Vocational Econometrics employ an LPE approach, relying upon rates of participation and employment derived from the Current Population Survey. These rates are segregated by age, gender, education, and disability status. Contrary to the allegations in the paper by Drs. Staller, Sullivan, and Friedman (SSF), the definition of disability status was not created by Dr. Gamboa, the author of the tables. The U.S. Department of Commerce, Bureau of the Census, developed the definition for use in the Current Population Survey and began using it in the March Supplement survey in 1981. As early as 1983, the Bureau of the Census began publishing data based on this definition. This publication, Labor Force Status and Other Characteristics of Persons With a Work Disability, was updated in a 1989 publication of the same name (U.S. Bureau of the Census, 1983, 1989).

In 1994, Vocational Econometrics asked the Bureau of the Census to tabulate the CPS for the years that had passed since its 1989 publication, using the same definitions and methodologies they had previously used. This special tabulation resulted in the rates of participation and employment used by Vocational Econometrics in its 1995 version of the worklife tables. Beginning with data from the 1995 survey, the Bureau of the Census has continued this tabulation and published the data on its web site.³ Vocational Econometrics released a 1998 version of its tables, relying upon the data from the Census web site. Thus, Dr. Gamboa played no role in the disability status definition. He has simply utilized government data that continues to be tabulated using the government's original definition.

³ <http://www.census.gov/hhes/www/disable/disabcps.html>

The SSF article also contains an error in the definition of severe work disability. The authors identified the receipt of disability benefits from the Veterans Administration as part of the definition of severe disability. This is incorrect, though receipt of VA disability benefits is part of the definition for non-severe work disability.

Also, to clarify the definition further, persons receiving either Medicare or Supplemental Security Income must also be under the age of 65 to qualify as a person with a work disability. This distinction was omitted from the definitions reported by SSF.

Worker Characteristics

In Section XIV of the SSF paper, the authors question whether two key Worker Characteristics, aptitude and specific vocational preparation (SVP), meet with scientific acceptance. These characteristics are part of the Dictionary of Occupational Titles (DOT) published by the U.S. Department of Labor (1991a, c). The DOT is a publication that identifies over 12,000 jobs that exist in the U.S. labor market. The U.S. Department of Labor has defined levels of Worker Characteristics, including aptitudes, SVP, physical demands, and others, that are required for successful performance in these jobs (U.S. Department of Labor, 1991b).

The DOT and its Worker Characteristics are very widely used and accepted. Vocational and rehabilitation counselors use these to determine the abilities of an individual for placing them in a job. Dr. Everett Dillman (1988) discussed the use of Worker Characteristics in forensic settings in the second issue of the Journal of Forensic Economics more than ten years ago.

Role of the Vocational Expert

In Section I of their paper, SSF seem to limit forensic vocational experts to definition of post-injury annual earning capacity, having no role in any of the other four steps identified earlier. The fact that SSF are economists may be the reason for the apparent confusion of the various roles of a vocational expert, but one must wonder if three economists have the authority or knowledge to define the role of a vocational expert. In determining what the vocational expert needs to do for a given case, it is important to distinguish between the placement activities of a *vocational or rehabilitation counselor* and the analysis activities of a *forensic vocational expert*.

Lifetime Capacity

In a forensic setting, it is necessary to assess the *lifetime* capacity of the individual, pre-injury and post-injury, not just the jobs that he or she could perform immediately. A forensic assessment that considers only jobs currently open or held is very limited in scope. For a vocational counselor trying to place an individual, however, an identification of current job openings is obviously essential.

An economist well versed in age-earnings profiles can statistically extrapolate the plaintiff's current earnings over his or her remaining worklife. However, this certainly is

not within the exclusive domain of economics. Indeed, a vocational expert can do the same as well as determine whether the current earnings are truly indicative of the appropriate age-earnings track.

Vocational Testing

SSF assert that testing is a standard tool of a forensic vocational expert. In assessing capacity, vocational testing can sometimes be valuable, but is not always necessary (Dillman, 1988). For a person at or approaching middle age, for instance, education level and past work experience can usually provide a complete picture of work skills. For a younger person, school records and associated standardized testing results can provide valuable information.

Pre-injury Capacity

By exclusion of pre-injury capacity from the definition of a forensic vocational expert's role, SSF imply this to be beyond the expertise of the vocational expert. Often, an expert determines pre-injury capacity merely by examination of actual earnings. Obviously, it does not take a specialized degree – economic or vocational – for this examination. However, what if there are complications? Perhaps the plaintiff is a child not yet in the workforce, or the plaintiff is in an entry-level position that is not indicative of the long-term expected career path. Is an economist really better qualified than a vocational expert to determine the appropriate proxy? Vocational experts are trained in career theory and experienced in placing persons of all backgrounds in the workforce. Surely, this expertise is more germane to the issues at hand.

Worklife Expectancy

As with annual earning capacity, economic experts may be qualified to determine worklife expectancy in most situations. However, is the ability to understand and apply the statistics behind the computation of worklife expectancy truly the exclusive domain of economists? Is the economist truly better qualified to opine on the impact of disability on the plaintiff's worklife expectancy? Moreover, what if the plaintiff had a pre-existing disability? Again, there is nothing that prevents this understanding and application by other disciplines, most notably vocational experts.

In assessing earning capacity and worklife – both pre- and post-injury – a vocational economic expert will typically consider a person's age, education, work experience, and any work-related impairments, and review available medical and/or psychological records. The fact that they are familiar with career theory, the world of work, jobs and job requirements, and what jobs pay makes them particularly qualified.

Residual Capacity

SSF imply that once jobs have been identified that match the person's physical restrictions, there is no loss of worklife expectancy. This defies logic and statistical data and ignores the many known facts regarding persons with disability. These people are less likely to be employed than people without disability (Hale, et al., 1998; Risher and

Amorosi, 1998; Stoddard, et al., 1998). This is due in part to the fact that they are still subject to bias and are less competitive in the workplace. The simple fact that there are fewer jobs available for them to perform post-injury will also make it harder for them to find a job, even without the bias against them (Dillman, 1988).

This disability effect holds for persons at all skill levels. Even college graduates are affected by physical impairment, despite having more access to sedentary and light work than people with lower skill or education have. One key indicator of the effect of disability on work capacity is labor market access. Consider two people, one at a low skill level and one at a high skill level. When restricted to sedentary work post-injury, access figures for the national labor market are as follows (National Crosswalk Service Center, 1993; U.S. Department of Labor, 1998; U.S. Department of Labor, 1991c).

	Low skill level (SVP<4)	High skill level (SVP 7-8)
Pre-injury access	23.3%	42.9%
Post-injury access	2.4%	14.7%
Relative loss of access	90%	66%

As can be seen, while persons at a higher skill level are not affected as strongly by a restriction to sedentary work, they still lose 2/3 of their labor market access, making it harder for them to find employment than before injury.

If SSF recognize this phenomenon then they assume that once persons with a disability are placed in a position, they remain there for a natural, nondisabled worklife. This again flies in the face of evidence. Even if persons with disability return to a previous job or find alternate employment, they have more difficulty on average in maintaining that employment than persons without disability.

The SSF assumption might hold more weight in the job markets of yesterday when both employer and employee looked at their relationship as a permanent family union. This obviously is no longer true. However, even if it were, the SSF assumption would ignore the fact that the plaintiff would most likely be in a dead-end position, limited in advancement by his or her disabilities – resulting in further deterioration of real future earnings.

The field of rehabilitation exists solely because of the difficulties experienced by persons with disability. Organization of the rehabilitation movement began after World War I when private and governmental forces joined in an effort to help those wounded during the war. At that time, the focus was on vocational training for those with injury-related disabilities. Since then, the field has expanded, and rehabilitation counselors now assist persons with other physical and mental conditions (Berkowitz, et al., 1975).

Defining Earning Capacity

In conducting an assessment for lost earnings in a personal injury case, the issue in most courts is earning capacity (Horner and Slesnick, 1999). Earning capacity can be defined as the ability of a person to earn money, and it is usually considered to be what a person was likely to have earned as opposed to what he actually earned in some prior time period.

Though actual earnings are part of the picture to be considered in determining capacity, actual earnings are not the same thing as earning capacity and are not always an appropriate measure of capacity. It is important to consider all aspects affecting the person's ability to work. It may be more appropriate, for instance, to use a proxy for earning capacity by using earnings based on educational level or Worker Characteristics. Proxies are widely used and are accepted by forensic experts as a valid and necessary part of conducting analyses for personal injury cases (Horner and Slesnick, 1999).

Since earning capacity in tort cases is an issue affecting a lifetime, it is important to look at it as a lifetime capacity. Whatever method the expert chooses to assess this capacity, it must be applied consistently to pre-injury and post-injury assessments (Albrecht, 1991; Horner and Slesnick, 1999).

One assertion by SSF is that post-injury earning capacity should be maximized. The paper criticizes use of an average of the plaintiff's potential jobs after injury, stating that the duty to mitigate damages requires use of the maximum – rather than the mean or median – earnings. In assessing a person's earning capacity in the open labor market, however, it is shortsighted to consider only those jobs on the higher-paying end of the scale. This paints an unrealistic picture of a person's earning capacity, because it implies that all workers are able to obtain the highest paying jobs given their level of human capital. If this were true, it would be difficult, if not impossible, to fill lower paying positions requiring similar human capital. This is also terribly unfair if the same approach is not used in determining pre-injury capacity.

Finally, SSF use as an example of VEA error an actual case analyzed by Vocational Economics, Inc. In this case, SSF object to the use of a proxy for earning capacity, stating that the analyst should have used the plaintiff's meager \$2,000 actual earnings pre-injury. What SSF fail to mention is that the plaintiff had started his own business in that period, subjecting himself to the same start-up cycle of any entrepreneur. Do SSF honestly contend that the fair measure of earning *capacity* is the sub-minimum wage?

The Current Population Survey

The Current Population Survey (CPS) is a monthly survey of about 50,000 households conducted by the Bureau of the Census for the Bureau of Labor Statistics. It is the primary source of information on the labor force characteristics of the US population. Data from the monthly surveys, for instance, provide the unemployment statistics used by numerous government and private entities as published in the media. In addition, every

March, a supplemental survey is conducted that gathers detailed information on income and work experience and identifies persons with a work disability.

Definition of Work Disability

As defined by the US Bureau of the Census, a person is considered to have a work disability if one or more of the following conditions are met:

1. Identified by the March Supplement question “Does anyone in this household have a health problem or disability which prevents them from working or which limits the kind or amount of work they can do?”
2. Identified by the March Supplement question “Is there anyone in this household who ever retired or left a job for health reasons?”
3. Received VA disability income in previous year.
4. Identified by the core questionnaire as currently not in the labor force because of a disability.
5. Identified by the March Supplement as a person who did not work at all in the previous year because of illness or disability.
6. Under 65 years old and covered by Medicare in previous year.
7. Under 65 years old and received Supplemental Security Income (SSI) in previous year.

A person who answers yes to any of the questions numbered 4 through 7 is considered to have a severe disability (U.S. Bureau of the Census, 1983, 1989; McNeil, 1997).

Self-Reporting

SSF note that the items just mentioned are self-reported and that when asked the person “naturally thinks about the job he has performed in the past and now has problems with. He will not typically think about rating his abilities and potential earnings on another job which he might be able to perform, or even be competent to make such an assessment.” The implication here is that the person with a work disability is somehow made whole by the existence of a residual capacity. Contrary to the implication, the existence of a residual capacity does not mean that the person is not disabled. It is not a matter of total disability versus no disability, but of the effect of the disability on the person’s capacity to perform work and earn money.

SSF offer an absurd example of a carpenter who can no longer return to his previous trade, but may be capable of performing other work. In their example, they assume that he loved carpentry so much that he opts to “sit home rather than work at some other line of work.” Do SSF truly believe that the typical American becomes lazy with disability and no longer has a need to earn an income? Alternatively, perhaps they assume that the carpenter is on “Easy Street,” drawing disability insurance.

The implication that persons receiving disability pay should be looking for work is another example of shortsightedness and insensitivity to the plight of disabled persons on the part of SSF. Disability pay is not easy to get and would not be given to persons with an immediate ability to work. Vocational experts are familiar with this fact.

Temporary Disability

SSF further imply that the data are skewed by the presence of persons with temporary disabilities. For this to be relevant, persons with temporary disabilities would have to be significantly different in their attachment to the labor force from persons with permanent disability. In addition, if the presence in the CPS of persons with temporary disability were notable, we would expect the prevalence statistics associated with the CPS to be higher than prevalence statistics from other surveys measuring disability. This is not the case. The key surveys measure work disability as follows:

Survey	Period	Age Group	Disabled %
Survey of Income and Program Participation	1994-95	21-64	13.6%
Current Population Survey	1994-95	21-64	10.5%
National Health Interview Survey	1992	18-64	10.5%
Current Population Survey	1992	18-64	9.5%

(SIPP: U.S. Bureau of the Census, 2000; CPS 1994-95: U.S. Bureau of the Census, 1995, 1997; NHIS: Stoddard, et al., 1998; CPS 1992: U.S. Bureau of the Census, undated)

Source of Disability

SSF are further concerned about the comparability of plaintiffs in personal injury cases to the CPS population of persons with a work disability. When looked at from a vocational perspective, many different types of conditions can result in identical work-related impairments (e.g., restriction to sedentary work). Impairments from non-injury related causes still result in work disability of varying degrees, with minimal to maximum effects. What is relevant is the effect the impairment has on a person’s capacity to work and earn money. The distinction here is between *physical* disability and *occupational* disability – a distinction best made by vocational experts.

SSF state that tort victims, generally speaking, “are more likely to seek and find employment following a disabling injury than those whose disabling condition has existed indefinitely.” Again, they make this statement with no evidence offered as support. Even if their hypothesis is true, however, this does not mean that the person seeking employment will be successful, long-term or short-term. It may be difficult for economists to understand the placement problems of persons with disability.

An example is persons who have sustained traumatic brain injury. Persons with this impairment are not always realistic regarding their limitations and tend to have poorer decision-making skills than persons without brain injury. Despite their difficulties, they may present well to prospective employers, enabling them to be hired. Once on the jobs,

however, their impairments can prevent them from performing as well as necessary, resulting in job failure or dismissal.

No statistics have ever been produced to show that the data from the CPS are distorted by the factors discussed in this section. The data from the CPS are consistent with the experiences of many vocational and rehabilitation professionals.

The New Worklife Expectancy Tables

Medical Input

SSF criticize The New Worklife Expectancy Tables for not being created with medical input. This is neither necessary nor possible. Doctors are certainly qualified to give physical or cognitive limitations upon which the vocational expert relies in developing an opinion. Doctors are not qualified, however, to give worklife expectancy opinions, for they have no training or experience in dealing with the breadth of the world of work nor experience in placing persons with disabilities on jobs.

Averaging

SSF further dispute the fact “that the disabled can be lumped together as a group to come up with an average joint probability of being in the labor force and working.” This lumping together as a group is precisely what is done by economists, actuaries, insurance companies, gambling establishments, and all those who make rational bets on human outcomes. The basic intuition is that in the absence of more specific and precise information, the best predictors of outcomes are statistical averages or relative frequencies. It is not true that “for such averages to have any degree of reliability or meaning, there would have to be disaggregation by factors as type of disability, severity of disability, duration or years since onset of disability.”

Let us look at a simple example. Assume that we know that a 25-year-old American man will walk in the door, and we are asked to estimate his height and life expectancy but are given no additional information about him. Is it really true that use of life charts or average heights for American males would lack “any degree of reliability or meaning”? On the contrary, in the absence of disaggregated data this is the best that we can do. In fact, SSF admit “no medical doctor, psychologist, vocational consultant, or economist has ever produced viable disaggregated data of this sort.”

Even if the disaggregated data desired by SSF existed, it would be of limited use. Persons with the same diagnosis and the same length of time since injury can have dramatically different experiences in terms of their experience in the workplace. Add education level to this, and the differences in effect can be even greater. Consider an example of two men with identical hand injuries resulting in reduced grip strength and limited range of motion. This injury would have an enormous impact on a carpenter, who would likely need to leave his employment. For an English professor, however, the effect may be minimal.

In addition, similar injuries can have varying effects for reasons that cannot be contained in a diagnosis or impairment rating (Horner and Slesnick, 1999). The vocational expert considers these factors, which might include employment in civil service or a particularly viable family business, special difficulties in transportation to a particular occupational setting, and impairments that reduce functional capacity versus those that produce non-exertional pain.

What the SSF criticism does point to, however, is the fact that worklife expectancy statistics of all sorts must be used responsibly and applied by persons familiar with the world of work and career theory. For persons with disability, the user must be familiar with the effects of impairment on ability to work and earn money as well as the experiences of disabled persons in the labor market.

Finally, SSF contradict themselves. While they state that the groupings used in The New Worklife Tables do not segregate by severity of disability, they dismiss as “trivial” the segregation of the “severely disabled” from the “not severely disabled” in the tables since they hypothesize the severely as totally disabled. If this is true, how can the segregation be trivial? If they recognize this segregation, how can they claim that it does not exist?

Conclusion

The claims of Drs. Staller, Sullivan, and Friedman are all unproven hypotheses; no research or statistics are offered in support of any of their claims. We have attempted to supply data and references in support of our cross-assertions. The original purpose of the SSF paper and our response was to offer an academic examination of The New Worklife Expectancy Tables. Unfortunately, SSF offered mostly “red herring” attacks on a competitor. The fields of forensic vocational and economic testimony would both have been better served had the papers focused on improved usage of available data and opportunities for improving the interrelationships of the two disciplines.

SSF note that the most desired type of survey, one based on a professional, objective evaluation, is an impossible one. Where they err is in implying that because we do not have ideal statistics, we can use no statistics at all. Why should useful data be thrown out just because the ideal does not exist? One of the reasons that the field of statistics exists at all is because ideal data (detailed data on an entire population) do not exist.

The presence of a disability is widely known to affect both earnings and worklife expectancy. This finding is documented in results from various surveys, including the Current Population Survey, the Survey of Income and Program Participation (another survey from the Bureau of the Census), the National Health Interview Survey from the National Center for Health Statistics, and the 1998 N.O.D./Harris Survey of Americans With Disabilities. The disability effect is the cause of such events as the passage of the well-known Americans with Disabilities Act, the existence of the President’s Committee on Employment of People with Disabilities, and the practice of rehabilitation counseling, just to name a few. If disability has such a minimal impact on earnings and worklife as implied by SSF, would all of these exist?

The effect of disability on ability to work and earn money cannot be denied. Any personal injury evaluation, therefore, must consider the effect of disability in order to be relevant. Expert witnesses exist in order to aid the court, precisely because some facts are difficult or impossible to know with absolute certainty. The U.S. Supreme Court supports this in a 1983 decision:

“By its very nature the calculation of an award for lost earnings must be a rough approximation. Because the lost stream can never be predicted with complete confidence, any lump sum represents only a “rough and ready” effort to put the plaintiff in the position he would have been in had he not been injured.” (Jones and Laughlin Steel, 1983)

Expert witnesses are allowed to have opinions, and opposing experts are allowed to have differing opinions.

“Cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof, rather than wholesale exclusion under an uncompromising ‘general acceptance’ standard, is the appropriate means by which evidence based on valid principles may be challenged.” (William Daubert, 1993)

Until such a time as the ‘ideal’ exists, it is necessary to use the data that are available to us to perform the task assigned. Data must be used responsibly by persons who understand the principles on which they are based and the population to which they are applied. Anything less would be a disservice to the courts we are intended to serve.

References

Albrecht, Gary. “Forecasting the Earnings of a Partially Disabled Individual,” Journal of Legal Economics, 1(2), 1991, p. 50-57.

Berkowitz, Monroe, Valerie Englander, Jeffrey Rubin, and John D. Worrall. An Evaluation of Policy-Related Rehabilitation Research. New York: Praeger Publishers, 1975.

Dillman, Everett G. “Interfacing the Economic and Vocational in Personal Injury Cases,” Journal of Forensic Economics, 1(2), 1988, p. 55-76.

Hale, Thomas W., Howard V. Hayghe, and John M. McNeil. “Persons with Disabilities: Labor Market Activity, 1994,” Monthly Labor Review, September 1998, p. 3-12.

Horner, Stephen M. and Frank Slesnick. “The Valuation of Earning Capacity Definition, Measurement and Evidence,” Journal of Forensic Economics, 12(1), 1999, p. 13-32.

Jones and Laughlin Steel Corporation, etc., Petitioner v. Howard E. Pfeifer 462 U.S. 523 (1983).

McNeil, Jack (U.S. Bureau of the Census, Housing and Household Economic Statistics Division) in a fax to Dave Gibson (Vocational Economics, Inc.), May 1, 1997.

National Crosswalk Service Center, NOICC Master Crosswalk Data Base. Des Moines, Iowa: Iowa SOICC, March 1993.

Risher, Peter and Stacey Amorosi. The 1998 NOD/Harris Survey of Americans with Disabilities. New York: Louis Harris & Associates, Inc., 1998.

Stoddard, Susan, Lita Jans, Joan M. Ripple, and Lewis Kraus. Chartbook on Work and Disability in the United States. Washington, DC: National Institute on Disability and Rehabilitation Research, 1998.

U.S. Bureau of the Census web site, Americans with Disabilities: 1994-95 - Table 9 – Employment Status of Persons 21 to 64 Years Old: 1994-95 Data from the Survey of Income and Program Participation, accessed March 14, 2000.

U.S. Bureau of the Census, Current Population Survey: Annual Demographic File, March 1995. Washington, DC: Administrative and Customer Services Division, 1997. (CD-ROM)

U.S. Bureau of the Census, Current Population Survey: March 1991, 1992, 1993 Annual Demographic Files. Washington, DC: Administrative and Customer Services Division, undated. (CD-ROM)

U.S. Bureau of the Census, Income and Poverty: 1993, Current Population Survey, March 1994. Washington, DC: Administrative and Customer Services Division, 1995. (CD-ROM)

U.S. Bureau of the Census, Current Population Reports, Series P-23, No. 127, Labor Force Status and Other Characteristics of Persons With a Work Disability: 1982, Washington, DC: U.S. Government Printing Office, 1983.

U.S. Bureau of the Census, Current Population Reports, Series P-23, No. 160, Labor Force Status and Other Characteristics of Persons With a Work Disability: 1981 to 1988, Washington, DC: U.S. Government Printing Office, 1989.

U.S. Department of Labor, Bureau of Labor Statistics, Usual Weekly Earnings of Wage and Salary Workers Who Usually Work Full-time by Detailed (3-digit Census Code) Occupation and Sex. Unpublished Tabulations from the Current Population Survey: 1998 Annual Averages.

U.S. Department of Labor, Employment and Training Administration, Dictionary of Occupational Titles, Fourth Edition, Revised. U.S. Employment Service, 1991a.

U.S. Department of Labor, Employment and Training Administration, The Revised Handbook for Analyzing Jobs. Indianapolis: JIST Works, Inc., 1991b. (Print version)

U.S. Department of Labor, North Carolina Occupational Analysis Field Center, Dictionary of Occupational Titles. U.S. Employment Service, 1991c. (Electronic version with complete Worker Characteristics)

William Daubert, et ux., etc., et al., Petitioners v. Merrell Dow Pharmaceuticals, Inc. 590 U.S. 579 (1993)