

Use of ACS to Estimate Lifetime Loss of Earning Capacity as a Result of Disability

David S. Gibson¹

Introduction

Persons who sustain injuries that result in permanent functional limitations often find that these limitations reduce employment opportunities or the efficiency with which they perform their job functions. When somebody else wrongfully causes the injuries, the law usually allows the injured party to recover future lost earning capacity as a plaintiff in a civil suit. If the plaintiff retains some residual capacity for employment, quantification of his diminution in future earning capacity becomes more complicated. Thus, attorneys frequently retain the services of rehabilitation and economic experts to quantify the damages. These experts have the inexact task of predicting the future for the plaintiff – both expected employment given the recently added functional limitations, and what those expectations would have been without the limitations.

As promulgated in the Americans with Disabilities Act and incorporated in modern surveys, disability is defined by how it limits one's abilities. Thus, the potential forms of disability are many and diverse. Further, the presence of a disability does not necessarily indicate *inability*, but often *reduced* ability. The American Community Survey (ACS) contains six questions on disability that, when cross-tabulated with other questions, provide a scientific foundation to quantify the impact of disability on expected earnings and employment. This paper details methodologies to extract earnings and probabilities of employment by functional disability from the ACS Public Use Microdata Samples (PUMS). It then presents and analyzes the results using data from the 2009 – 2013 PUMS.

The first section reviews the disability questions contained in the ACS since 2008. It summarizes their use by governmental agencies and disability researchers and categorizes them for use in the remainder of the paper. Of the six available questions, we select four distinct functional disabilities for measurement in the remaining sections.

Next, the earnings section discusses extraction of full-time earnings for those with and without disabilities. We present and analyze earnings by level of education for persons between 25 and 64. Then we derive age-earnings profiles, demonstrating how experience, education, and age combine with disability.

In the employment section, we define probability of employment and its extraction methodology. We then examine probabilities by age, education, and disability. Finally, we use these probabilities to construct *worklife expectancies*, to provide a measure of the statistically expected number of years of employment.

¹ David S. Gibson, MBA, CPA, MRC, is a Senior Analyst for Vocational Economics, Inc. in Chicago, Illinois.

The final section rolls all the analyses together, presenting measurement of the impact of disability on lifetime projected earnings. Included is a discussion of the use of the data in the adversarial litigation arena.

ACS Disability Questions

For the express purpose of producing disability statistics, the U. S. Census Bureau includes the following questions in the ACS (American Community Survey Handbook of Questions and Current Federal Uses 2014, 87):

Figure 1 ACS Disability Questions

# ²	Question	Class.
17a	Is this person deaf or does he/she have serious difficulty hearing?	Hearing
17b	Is this person blind or does he/she have serious difficulty seeing even when wearing glasses?	Vision
18a	Because of a physical, mental, or emotional condition, does this person have serious difficulty concentrating, remembering, or making decisions?	Cognitive
18b	Does this person have serious difficulty walking or climbing stairs?	Mobility
18c	Does this person have difficulty dressing or bathing?	Self-care
19	Because of a physical, mental, or emotional condition, does this person have difficulty doing errands alone such as visiting a doctor's office or shopping?	Go-out

The classifications shown in Figure 1 were assigned by the author for easy reference. A review of the questions reveals that the first four are clearly functional limitations commonly found in the community of persons with disabilities. The last two are more easily viewed as compound limitations that likely stem from one or more basic functional limitations. For example, a person with a mobility limitation from restriction to a wheelchair will likely have limitations in self-care or going outside the home. To narrow our focus, the data analyzed in this paper will center on the core limitations of hearing, vision, cognitive, and mobility. We will use the self-care and go-out limitations to identify the severity of the base functional limitations.

² Question number in the 2014 ACS questionnaire.

Census tested these questions to confirm their reliability and validity (Brault, Stern and Raglin 2007). This testing considered each question individually, as well as collectively, and confirmed reliable self-report by the respondents.

Observe that the questions do not address specific *injuries*. Rather, they focus on common *limitations* that may result from a myriad of injuries. The ACS limitation-based definitions are not only consistent with other modern definitions of disability,³ but are important for studying the employment impact of a disability. For instance, consider the mobility limitation. Multiple permanent injuries could cause such a limitation, including injuries to a foot, leg, lumbar spine, and many others. However, the important consideration for measuring how limitations impact a person's ability to perform a specific job task (prolonged walking) is how the injury affects functional abilities (mobility).

Thus, the ACS definitions are appropriate for our analyses. There are certainly other functional limitations we and other researchers would be happy to add to the survey. However, given the limited space Census is able to allot to disability among competing demands in the ACS questionnaire, the questions in Figure 1 cover a large percentage of cases encountered in the litigation arena.

Use by Others

The ACS disability questions appear to be the most widely used source for studying the impact of disability in the modern United States economy. A simple Google search of "American Community Survey Disability" yields over 5.4 million results. Through its American FactFinder site, Census provides 215 distinct cross-tabulations of the disability questions with other ACS data from the 2013 survey alone (American FactFinder 2015).

The recent content review conducted by Census indicates that all six of the disability questions enjoy wide usage, either individually or combined as one measure. The study documents 75 applications within federal agencies alone, 11 of which focus specifically on the impact of disability on employment and earnings (American Community Survey Handbook of Questions and Current Federal Uses 2014, 87-96).

The U. S. Bureau of Labor Statistics (BLS) adopted the impairment-based definitions in the ACS to use in the monthly Current Population Survey for purposes of tracking the employment outcomes of persons with disabilities (U. S. Bureau of Labor Statistics 2010). BLS uses these data to publish regular comparisons of the employment rates for persons with and without disabilities (Table A-6 2015). The U. S. Department of Labor's Office of Disability Employment policy also uses the data from the CPS as well as the much larger ACS to track and project the employment impact of disability (Disability Employment Statistics 2014).

³ The Americans with Disabilities Act (ADA) also relies upon functional limitations, defining a disability as a physical or mental impairment that substantially limits one or more major life activities.

Extensive research on the employment impact of disability has been developed by Rehabilitation Research and Training Centers (RRTCs) funded by the National Institute on Disability and Rehabilitation Research division of the U. S. Department of Education. RRTCs at University of New Hampshire and Cornell University have generated multiple valuable studies and resources in this area. These include the following resources that all draw heavily from the ACS disability data:

- Annual Disability Statistics Compendia (Houtenville, Brucker and Lauer 2014)
- The DisabilityStatistics.org internet resource (Cornell University 2014)
- Annual Disability Status Reports (Erickson, Lee and von Schrader 2014)

Thus, the ACS disability questions and the wealth of data they provide through cross-tabulation with other ACS questions have broad usage and support among government and academic researchers.

Earnings

Forensic experts measuring loss of lifetime earnings due to disability need to measure the plaintiff's future annual earnings from two standpoints: the earnings expected had the disabling event not occurred (pre-injury), and the earnings expected given the plaintiff's permanent limitations from injury (post-injury). Most courts recognize the concept of *earning capacity* to derive these values, recognizing that proper measurement may need to look beyond the plaintiff's historical earnings to his potential. No single definition of earning capacity exists. However, as discussed by Horner and Slesnick (1999), it is generally recognized as the level of earnings the plaintiff is or was most likely to earn⁴ given past experience, training, and abilities. That is, it considers the plaintiff's human capital.

Pre-injury, one might assume that the expert can easily measure a mature plaintiff's earnings merely by observing what he⁵ earned in the past. Unfortunately, this is often not the case. What if the plaintiff were young and not yet established in the labor market? Even if employed at the time, what if he were still in the early stages of career growth with significant increases in earnings reasonably expected in future years? Post-injury, the task is often murkier. Because of the injury and its resulting limitations, the plaintiff is often either out of work or struggling to reestablish himself in the labor market at the time of the analysis.

Thus, the forensic expert must often look to alternative measures, or *proxies*, to develop a projection of pre- or post-injury annual earning capacity. This section of the paper demonstrates use of the ACS to develop multiple potential proxies, delineated by education, gender, age, and disability status.

⁴ By introducing language like "most likely," one might expect a discussion of probabilities. The "Employment" section later in this paper will address probabilities when measuring the number of years over which to project these earnings.

⁵ Rather than deal with awkward he/she and his/her references throughout this paper, we adopt masculine pronouns for convenience only.

Selection Criteria

We will focus on typical earnings for those employed full-time (at least 35 hours/week) and year-round (at least 50 weeks/year), or *FTYR* for short. Use of *FTYR* earnings offers the following advantages:

- *FTYR* earnings for persons with disabilities are likely for those persons with less severe limitations since they exclude those whose limitations are so severe as to preclude employment or limit them to part-time work. Since the value is to be used as a measure for those with disabilities that maintain a reasonable likelihood of employment, this measure is appropriately suited.
- The earnings for those with and without disabilities are directly comparable by using a common level of employment.
- A subsequent section of this paper computes lifetime earnings by weighting the annual earnings with the probable number of years of employment (worklife expectancy). Since this weighting will adjust for probable periods of non-employment, it would usually be incorrect to adjust also the earnings here for persons not fully employed.

Appendix A presents the full criteria used to extract earnings from the 2009–2013 ACS PUMS files for our analyses. Noted below are some of the key factors:

- We derive annual earnings from the *PERNP* variable. This combines earnings from employment and from self-employment.
- The sample is limited to civilian workers.
- We exclude those living in group quarters. Similar to the use of *FTYR* earnings, this helps to assure comparability of the earnings for those with and without disabilities.
- We state all values as medians using the *PWGTP* variable for weighting.
- We state all values in terms of 2015 dollars. The “Earnings Restatement to Current Dollars” section of the appendix describes the conversion from the respective values in 2009–2013 to 2015.

Throughout the earnings sections, we provide earnings segregated by gender and disability status. The disability statuses considered are

- No disability – respondents answering negatively to all six questions in Figure 1.
- Mobility, Cognitive, Hearing, Vision – respondents answering positively to the respective question from Figure 1.

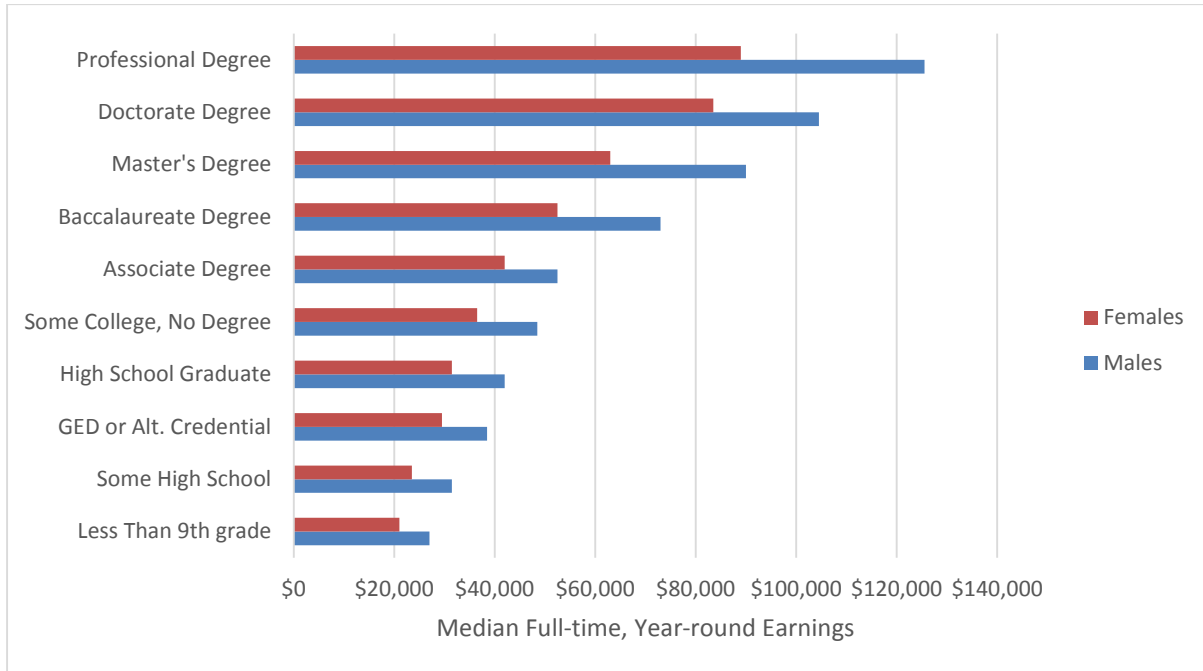
Finally, most of the values in the following sections are limited to the primary working ages of 25 to 64. The noted exception comes with the earnings in the “Age-Earnings Profiles” section.

Earnings by Education

Without repeating the myriad of research and publications that document a high correlation between earnings and education, we note that introduction of disability status does not change

the trend. Figure 21 and Figure 22 in Appendix B provide detailed results of our extraction by disability status, as we discuss later in this section. First, we summarize the earnings for persons without disabilities in Figure 2 below.

Figure 2 Annual Earnings for Persons without Disabilities



Before reviewing the education-specific values for the earnings of those with disabilities documented in Appendix B, we note what may appear obvious to some: persons with disabilities earn less than do those with no disabilities. As documented in Appendix B, this is true when controlled for gender, level of education, and full employment.

Figure 3 depicts the reduction by gender for each of the four functional disabilities, regardless of the level of education. Recall that the source earnings are for full-time, year-round employment. Thus, they will exclude most persons with severe disabilities. For example, the earnings for vision disability will exclude most persons who are legally blind. Thus, the comparative decrease from the earnings for those with no disabilities are likely less than what might be expected.

However, the earnings decrement in Figure 3 blurs the impact of disability from two separate factors: reduced earning capacity at each level of education and the likelihood of attaining higher levels of education. Appendix B contains two tables (Figure 23 and Figure 24) which provide the distribution of full-time, year-round earners by level of education. As summarized in Figure 4, persons with disabilities are significantly less likely to have higher levels of education. For all types of disability, a person is much more likely to have a highest level of education of high school or below, and much less likely to have one at the baccalaureate level or above. Thus, the decrements shown in Figure 3 are magnified by the lower average level of education for those with disabilities.

Figure 3 Reduction in FTYR Earnings from No Disability

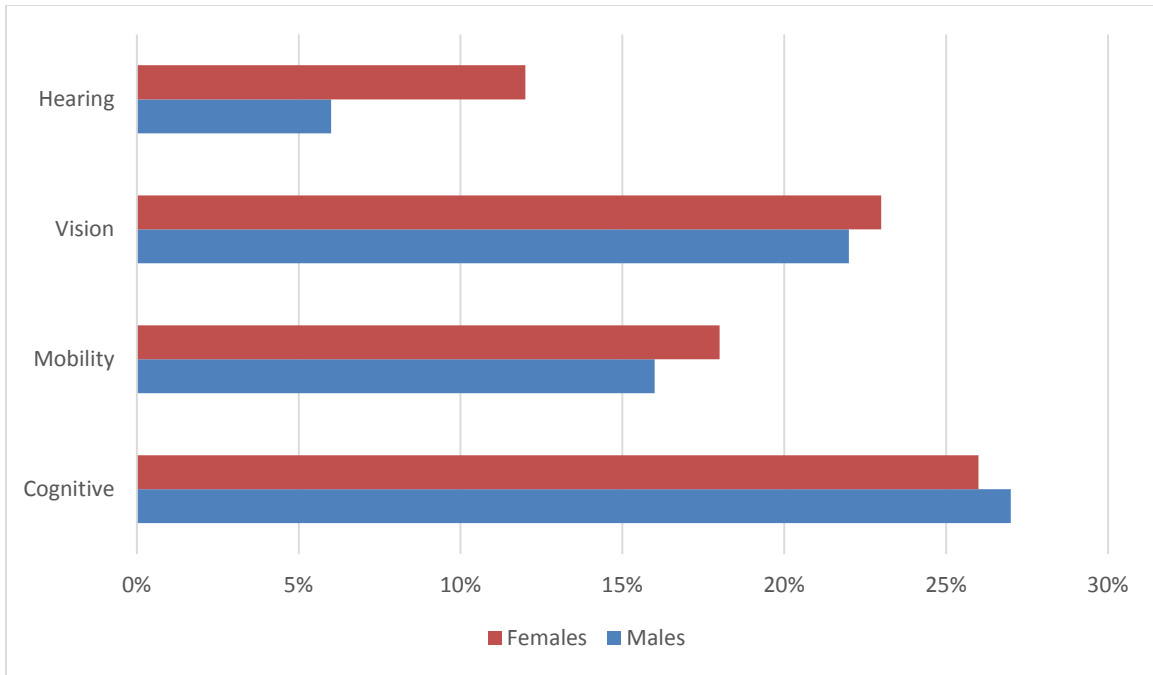
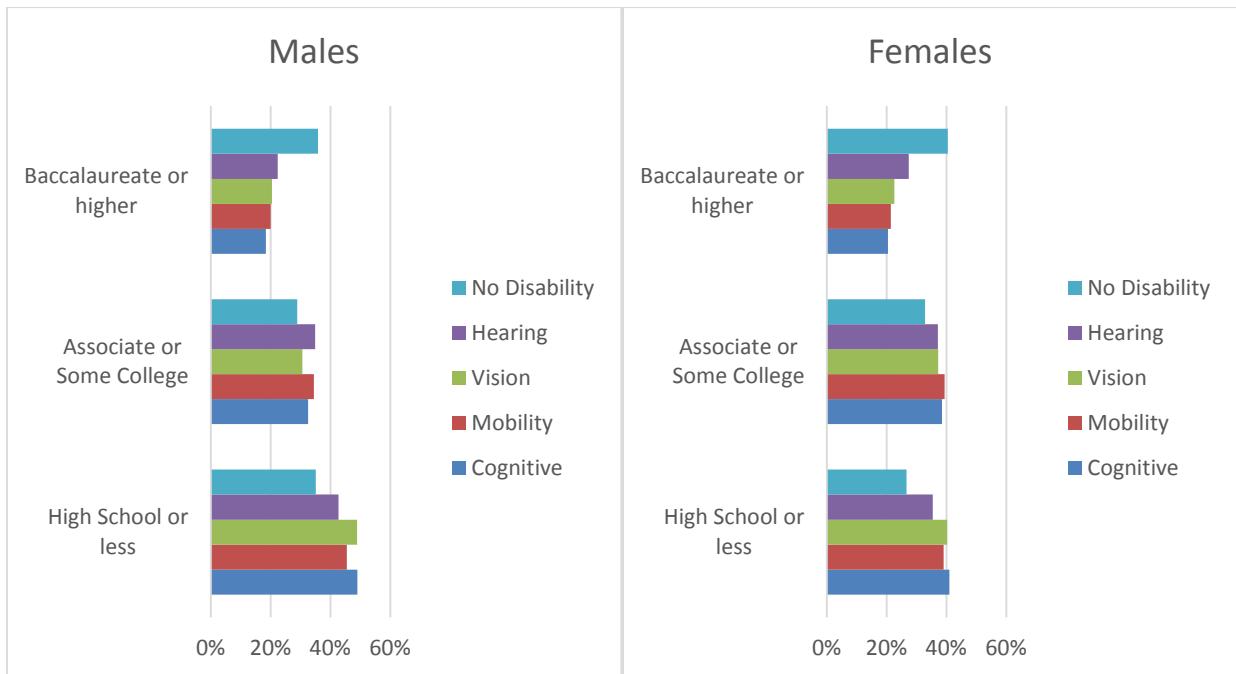


Figure 4 Education Distribution by Disability Status



When delineating the earnings for those with disabilities by level of education, we would observe a similar progression to that shown in Figure 2. However, of more import for the purposes of this paper is the relationship of the earnings for those with disabilities to the value for those without. Figure 5 and Figure 6 repeat the analysis of the comparative earnings decrement shown in Figure 3, but provide a breakout by education level.

These figures, thus, eliminate the distribution impact of disability and provide direct comparisons based upon the same levels of education. One might ask why there is still a reduction. Ignoring the potential for discrimination against those with disabilities, the most likely cause for a decrement would stem from the productivity of the worker. Despite maintaining capacity for full-time year-round employment, a person with limitations will likely not be as productive as would his counterparts with no limitations. Thus raises and earnings growth are likely to be lower. Further, as discussed later in the “Employment” section, persons with disabilities are likely to work fewer years. As a result, they accumulate less experience or lower human capital, further diminishing their earnings.

In addition, the distribution of jobs sought and maintained by those with disabilities is likely to be different. Compared to a person with no disability, a high school graduate with a mobility disability is less likely to pursue employment as an ironworker and more likely to pursue sedentary employment. Although beyond the scope of this paper, data from the ACS also demonstrate general reductions in earnings for persons of the same education level in the same occupation.

Consistent with Figure 3, the decrements shown in Figure 5 and Figure 6 tend to be highest for cognitive disability and lowest for hearing disability. These charts show that the decrement generally becomes greater as education increases. However, they also show what at first may appear to be anomalous observations: the decrease for those at the lowest levels of education is often 0 or negative. (The earnings actually are higher for those with disabilities than without.) How can this be? There are a number of factors to consider.

- This is not an anomalous result from a single year’s survey. We observed the general trend in all years of the ACS since adoption of the current disability definitions in 2008.
- Our comparison of full-time, year-round earnings does not consider the likelihood that a person with disabilities will be able to find such employment. We only present the median earnings for those who were successfully employed. In a subsequent section (Employment), we explore the probabilities of employment. There, we will demonstrate that with limited education, a nonsevere disability dramatically reduces the likelihood of any employment. Thus, our earnings comparison is only good for the limited subpopulation that does attain full-time, year-round employment, ignoring no earnings or part-time earnings for the remaining population of those with disabilities.
- Finally, we need to consider sample selection. Those with disabilities that remain capable of FTYR employment at the lowest education levels are likely the employees best qualified for higher-paying occupations. Sedentary employment generally requires higher skill, and

Figure 5 Cognitive & Mobility % Decrease from No Disability

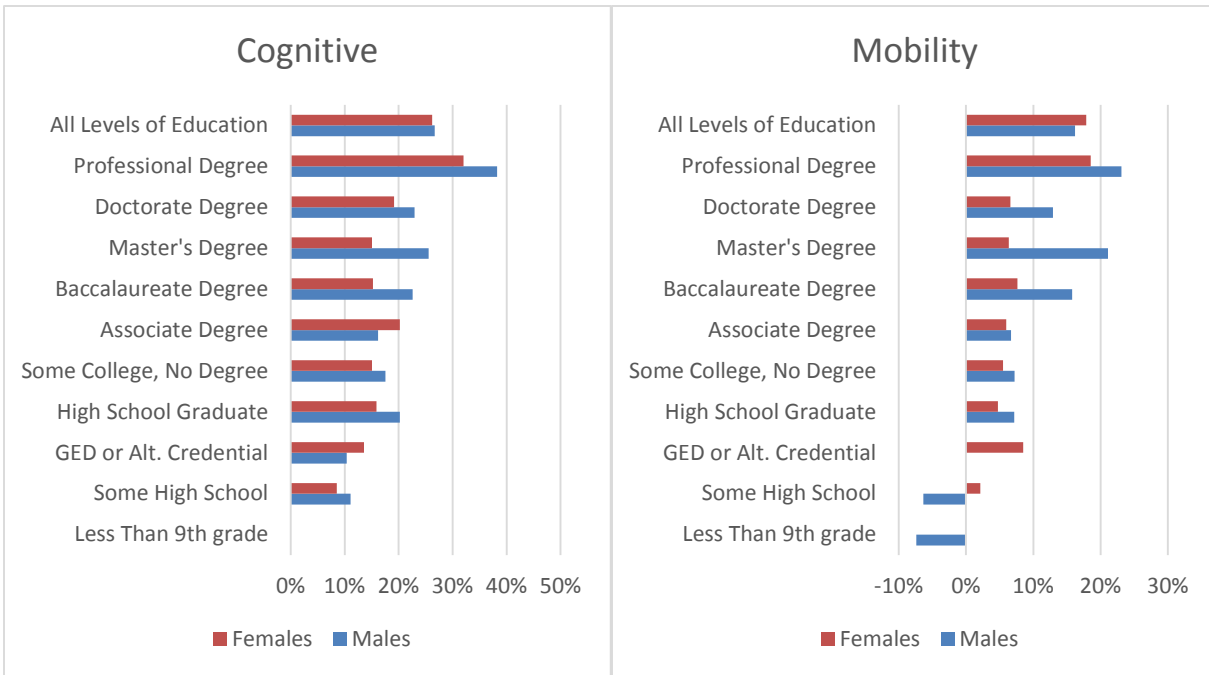
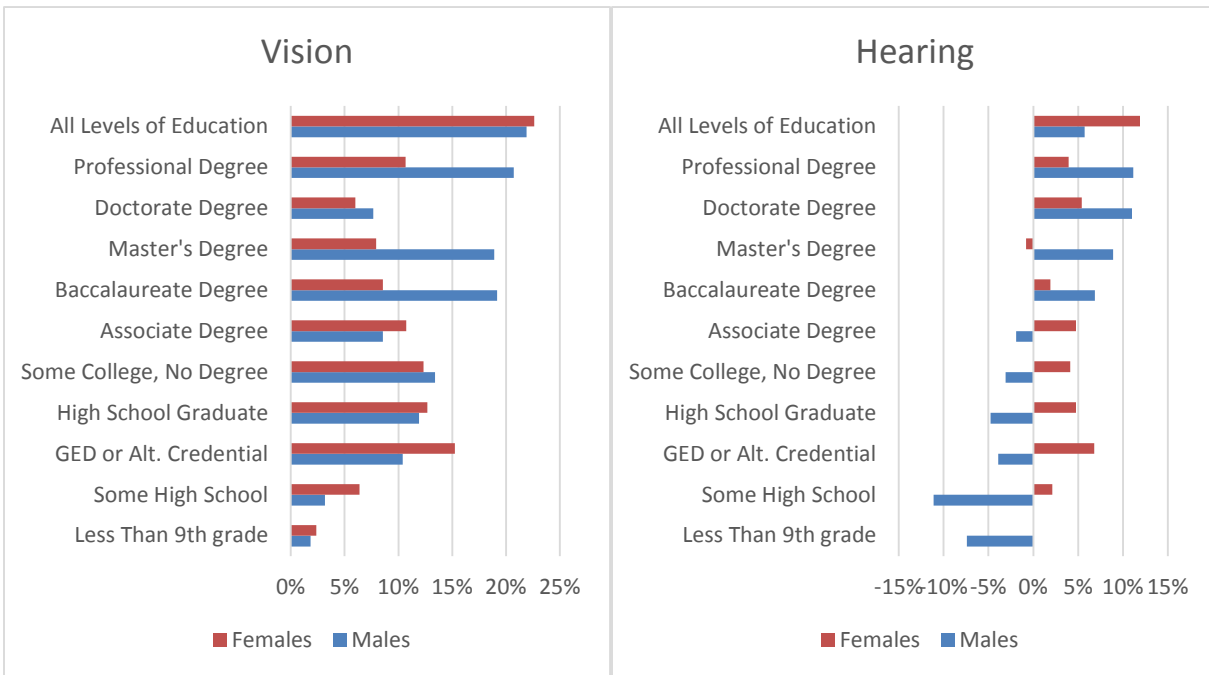


Figure 6 Vision and Hearing % Decrease from No Disability



therefore pays more. Thus, this skewed occupational distribution is not directly comparable to the distribution for those without disabilities.

The above discussion focused on national earnings. Of course, the ACS provides a means to generate similar analyses on a more localized basis. The PUMS files identify the state and Public

Use Microdata Area (PUMA) for the respondents, and this information can be used to group observations by metropolitan area. Such an analysis is beyond the scope of this paper due to the volumes of cross-tabulations it would entail. However, the author routinely generates cross-tabulations for metropolitan areas using the MABLE Geographic Correspondence Engine (Missouri Census Data Center 2012) to map the PUMAs to the appropriate metropolitan area. Given the smaller sample size, earnings by disability and education are not always available. However, when they are, the comparisons of disability-specific earnings to those with no disability are similar to those presented above.

Age-Earnings Profiles

Career development theorists and economists have long recognized that workers enhance their human capital, and therefore their value in the competitive labor market, with experience in the workforce. The quantification of this progression through age-earnings profiles (AEP) has been well documented in economic literature for more than forty years. Mincer (1974) and Heckman (1976) were two of the early economic authorities to quantify the relationship in publications still considered authoritative. Through its large sample size, the ACS offers an opportunity to enhance AEP cross-tabulations by gender, education, and disability status.

Given the ten education levels we explored in the previous section plus five disability types, two genders, and age-specific earnings, we could easily dedicate one hundred pages to this analysis. Appendix C provides age-earnings profiles for all ten education levels identified in Figure 19 of Appendix A, as well as all disability types. However, to simplify the following discussion, we make two abbreviations:

- We limit the education levels explored to four representative levels: high school graduate, associate degree, baccalaureate degree, and master's degree.
- We limit the disability types explored to no disability, cognitive disability, and mobility disability.

The graphs shown in Figure 7⁶ depict AEP trends generally consistent with prior research. However, these graphs are distinguished from trends noted by other researchers in that they are specific to FTYR earnings and to persons with no disabilities.

- For all of the trends, we note steep slopes in the early years as the workers attach to the labor market and gain their initial years of experience.
- The earnings flatten out in the 40s and 50s, with declines as the workers near retirement age.

⁶ Note that the graphs presented in the section utilize age-earnings data for each specific age, a luxury allowed by the large ACS sample size. However, the profiles provided in Appendix C are abbreviated to every 5th year. Full detail for the profiles is available from the author.

- The trends for baccalaureate and master's degrees demonstrate much steeper slopes in the early years of experience, leading to large differences in earnings over those with lower levels of education throughout the primary earnings period.

Given the above observations for persons without disabilities, we now focus on how disability influences the AEPs. Ideally, we would summarize the impact using charts similar to what we used for all persons between 25 and 64 (Figure 5 and Figure 6). However, the addition of age-specific data makes such a comparison overly voluminous and confusing. Instead, we offer Figure 8, which provides example comparisons focusing on cognitive and mobility disabilities and the education levels of high school graduate and baccalaureate. Through review of these charts, we note the following observations, which generally also hold for the disability types and education levels not included in the example.

- Given smaller sample sizes, the trajectory of the disability AEPs are not as stable as we see in Figure 7. However, they support extension of our observed decreased earnings from disability (from the "Earnings by Education" section) throughout a person's career.
- In the early years of a person's career, the earnings of those with disabilities show minimal differences from those of persons without disabilities. However, the disability profiles show lower slopes during the primary years of earnings growth. This results in significantly lower earnings during the prime earning years.
- The reduced slope for disability AEPs is even more pronounced at the baccalaureate level, consistent with our earlier observation that the disability decrement for earnings increases with education.

Figure 7 Median Age-Earnings Profiles by Education: No Disability

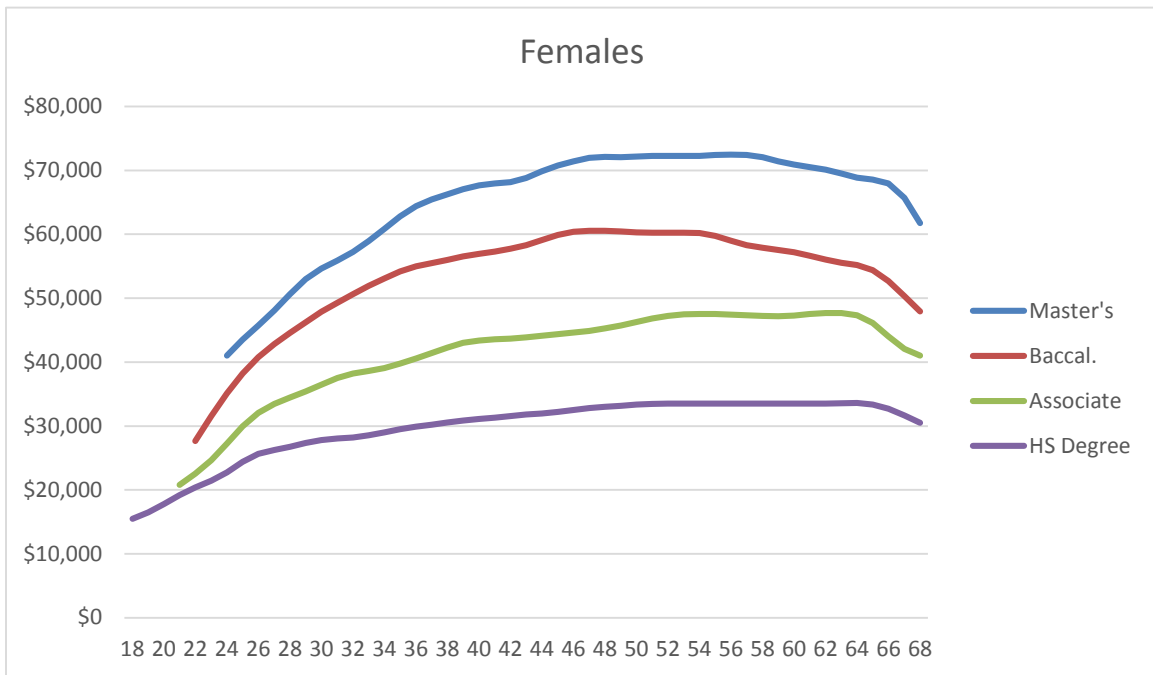
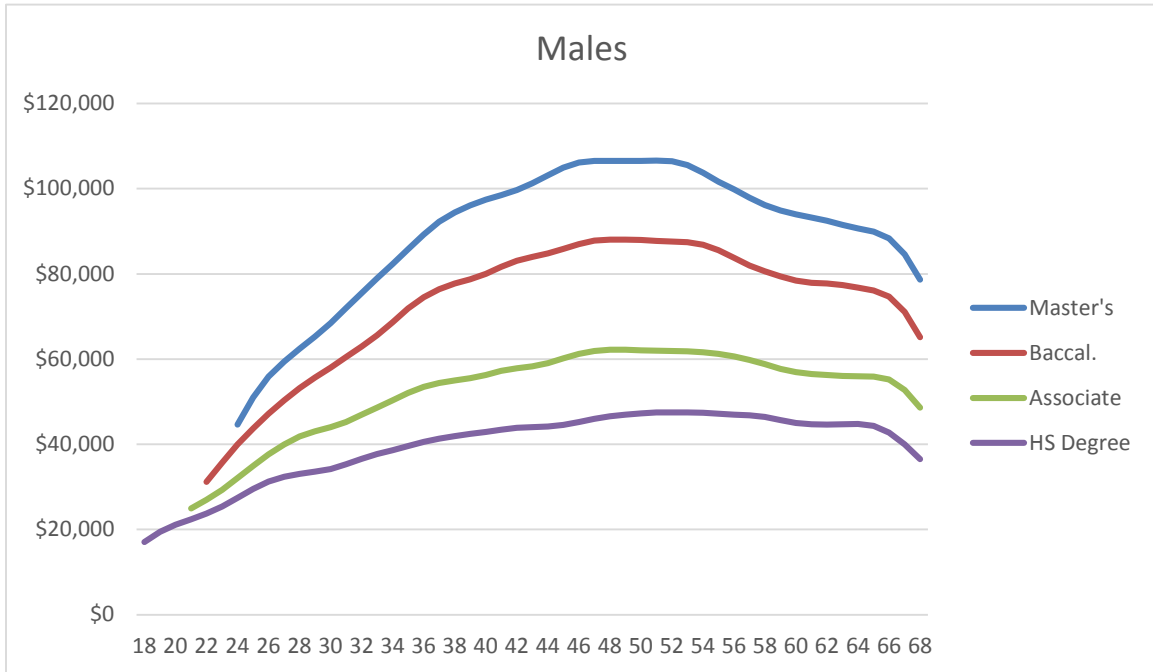


Figure 8 Sample Disability Impact on Age-Earnings



Employment

Our focus to this point has been exclusively on *how much* we expect a person to earn on an annual basis with or without a disability. Since the goal of a projection of lost earnings deals with lifetime earnings, we must also explore *how long* the plaintiff would work. *Worklife*⁷ expectancy is the term used mostly in forensic circles for the quantity of years we expect the plaintiff to work in the competitive labor market.

A layperson will often assume that worklife expectancy is simply equal to the number of years until a target retirement date (e.g., 67 for full Social Security). This assumed worklife allows no chance of absences from the workforce before that age or a decision to work past then. Although this may be an accurate prediction in some cases, a statistically determined worklife expectancy usually differs significantly. As summarized in *Life and Worklife Expectancies* (Richards and Donaldson 2010), there are several models to compute a statistical worklife. For purposes of this paper, we will use the Life-Participation-Employment (LPE) model (Brookshire and Cobb 1983).⁸

The LPE method combines three probabilities:

- The probability of life (L) measuring the likelihood a person will be alive at a given age,
- The probability he would be participating (P) in the competitive labor market,
- The probability he would be employed (E) if participating.

The sum of these joint probabilities over the person's remaining life provides the statistically projected number of years of employment, or worklife expectancy.

For our analysis of the impact of disability on worklife, we assume that the probability of life is constant for persons with and without disability. We compute this using the United States Life Tables (Arias 2014) as detailed in Appendix D.

Thus, our primary focus for worklife expectancies is how disability affects the probabilities of participation and employment, or PE. We measure these jointly using the ACS by extracting the ratio of employed persons by gender, education, disability status, and age, as described in Appendix E. We will refer to these joint probabilities as *employment rates*⁹ in the remainder of this section.

⁷ There is no standard spelling of worklife in the related literature. Some authors use it as two separate words (work life), and some hyphenate the term (work-life).

⁸ Rather than belabor the rationale behind our decision to use the LPE model, we refer the reader to *Gamboa Gibson Worklife Tables* (Gamboa and Gibson 2010, 7-11).

⁹ These employment rates should not be confused with the probability of employment (E) in the LPE model since they are the combination of the P and E components.

Employment Rates

In the “Earnings” section, we relied upon FTYR employment for those with disabilities to indicate a nonsevere disability. Because our employment rates must necessarily include persons who are not working, our identification of the severity of a disability is different in this section, and we compute employment rates and worklife expectancies for those with nonsevere and severe disabilities.

- The definition of no disability continues to be those persons who responded negatively to all six disability questions.
- A nonsevere disability is identified where the person responds positively to the functional limitation being measured (cognitive, mobility, hearing, or vision) and negatively to all of the other five.
- A severe disability exists where the person responds positively to the measured limitation and positively to either the self-care or go-out limitation. As we will see, inclusion of either of these latter two limitations causes a further substantial drop in employment rates from those with nonsevere disabilities.

Appendix E documents the methodology to extract the employment rates, and Appendix F provides the detail of all employment rates computed for this paper. Before reviewing the impact of disability on these rates, note Figure 9, which charts the trend in employment rates by age for the four sample levels of education we used in the “Age-Earnings Profiles” section. We note the following observations:

- The likelihood of employment generally increases with each successive increase in education. (However, note that the rates for female associate and baccalaureate degrees tend to merge.) The male trends have much less variance between the highest and lowest levels of education.
- Rates for males plateau at peak levels early (at around 35) and maintain this level for several years. Rates for females do not peak until after primary childbearing years (45-50).

With these trends for the population with no disabilities as our backdrop, we turn now to the impact of disability on employment rates. Figure 10 provides age-specific trends for those with nonsevere cognitive disabilities for the same sample levels of education we reviewed in Figure 9. These trends show the percentage decrement in the employment rates from those persons with no disabilities.

- The decrement generally becomes larger with age during the primary working years (up until age 65). Once we reach this age, there is no discernible trend.
- Education partially mitigates the decrement. That is, the decrement is least at the highest level of education and vice versa. This is the opposite of our findings in the “Earnings by Education” section. Thus, we will find the impact on probabilities of employment more

than offset the minimal impact of disability on FTYR earnings for the lowest levels of education.

We present graphs for only nonsevere cognitive limitations as representative. Generally, severe disability would show similar trends, but with much larger decrements. Further, the impact of the other functional limitations will share the same age-related trends, but vary in the overall comparison to no disability.

That said, the cumulative lifetime impact of a disability is difficult to discern from these graphs. The same may be said of the overall comparative impact of the various disability types and levels of severity. To make these analyses we need a statistic that accumulates the impact of disability over all the person's likely years of employment. Worklife expectancies provide just that measure.

Figure 9 Employment Rates for No Disability

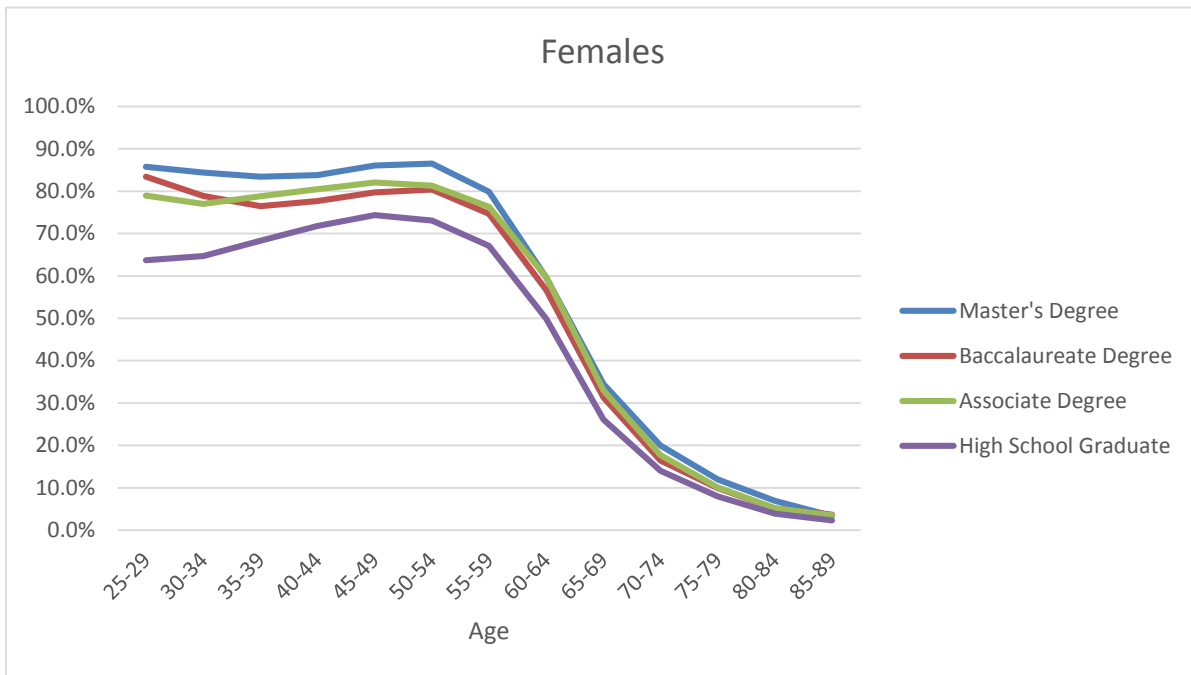
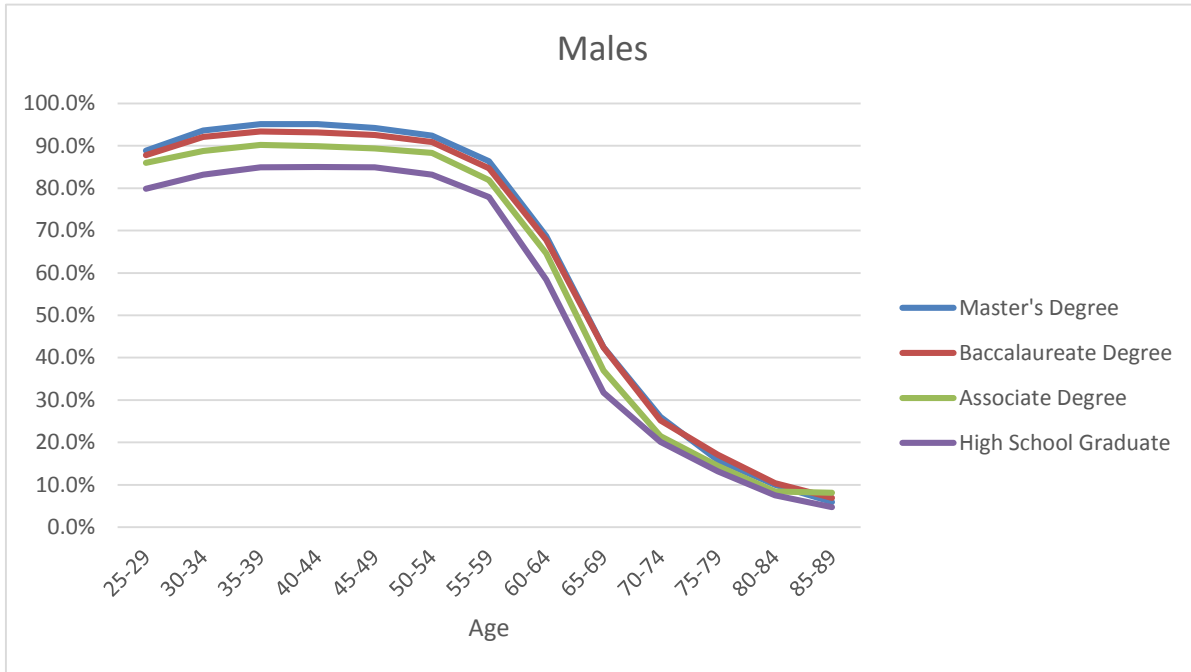
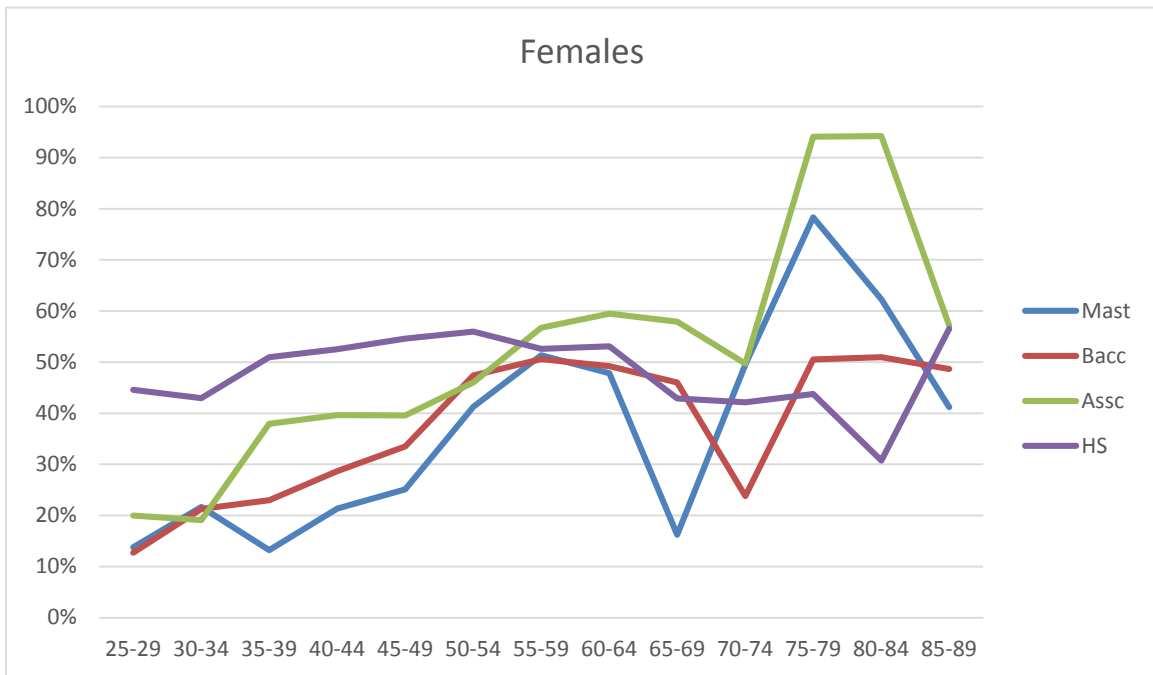
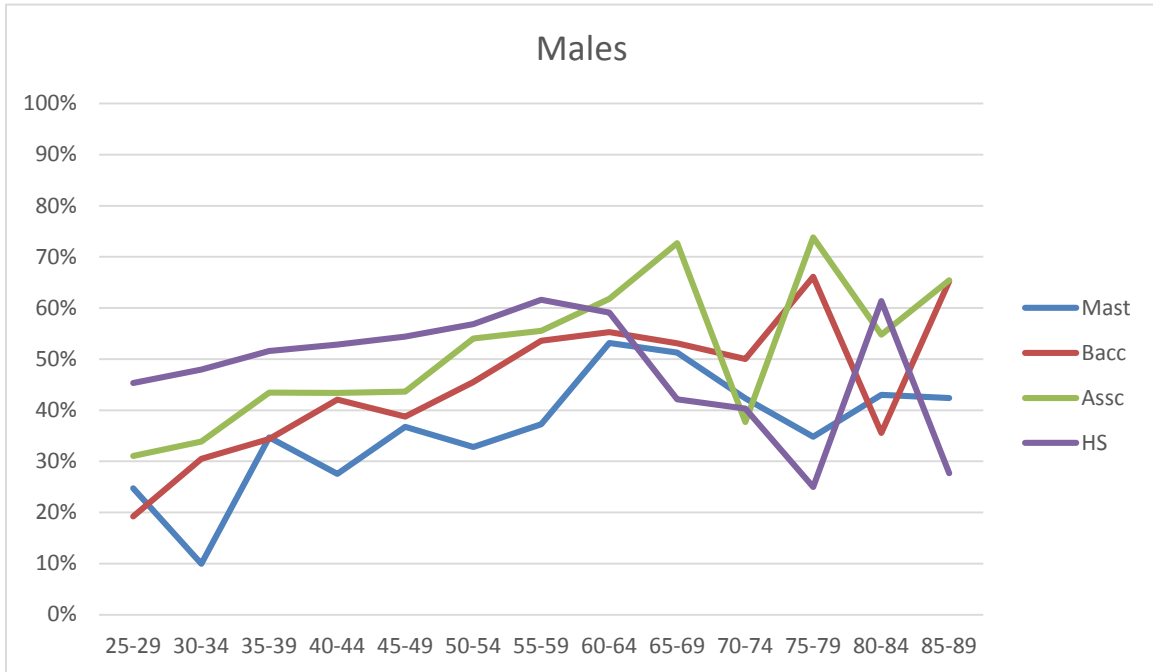


Figure 10 Nonsevere Cognitive Disability Percentage Decrement by Age



Worklife Expectancies

Using the employment rates detailed in Appendix F and analyzed above, we computed worklife expectancies presented in Appendix G for the following categories:

- Each gender,
- All 10 detailed education levels identified in Figure 19 of Appendix A,
- Persons with no disabilities and with each of the four core disability types, which are further segregated for severe and nonsevere disabilities, and
- Beginning measurement ages at 5-year intervals between 25 and 60.

As we should expect, based upon our earlier discussion of the correlation of education and employment, worklife expectancy also increases with each increased level of education. Figure 11 presents the worklife expectancies at the age 25 for persons with no disability.

- Note the general trend of increasing worklife at each higher level of education.
- Females consistently have lower worklife expectancies than males, although the gap becomes less as education increases.¹⁰
- These statistically computed measures of years of employment might be less than what a layperson may assume. That is, if one were to assume employment until full Social Security retirement at 67, a 25-year-old would have a worklife expectancy of 42 years. Here, only males with a professional degree approach that value.¹¹

Figure 12 repeats this presentation, but focuses on persons that are 50-years-old. Other than obviously lower worklife expectancies, the above observations generally hold true. However, with fewer years to adjust for statistically expected absences from employment and a higher probability of living to advanced ages, some of the values would take the person past the age of 67.

¹⁰ Use of female worklife expectancies is a matter requiring expert judgment in the litigation arena. The average female worklife blends two dichotomous populations: those females that are career-driven and those that opt not to work outside of the home. Employment statistics classify the latter group as not employed, thus resulting in an employment rate of 0%. However, surveys such as the ACS lend no mechanism to identify those likely to remain homemakers. Thus, when analyzing a career-focused female, many experts will use male worklife expectancies to avoid this bias.

¹¹ This type of comparison is offered merely for illustrative purposes. As defined earlier, our worklife statistics are not projected years of continuous employment, but the sum of the future years the person will work after adjusting for gaps in employment.

Figure 11 Worklife Expectancies for 25-year-olds with no Disability

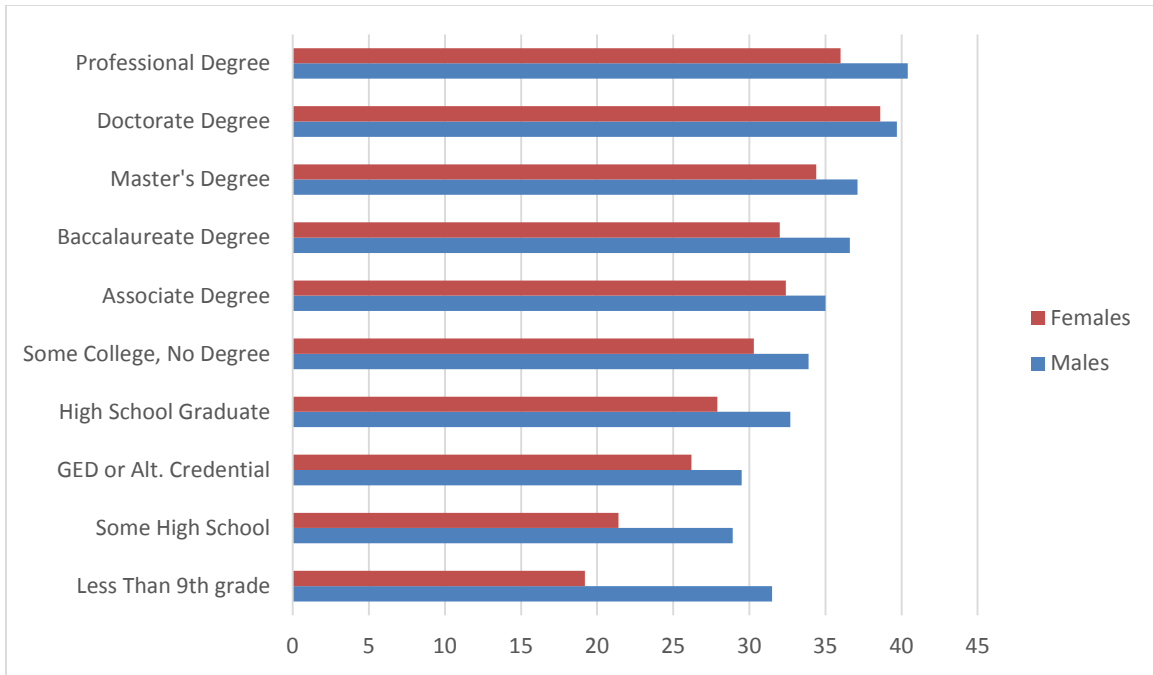
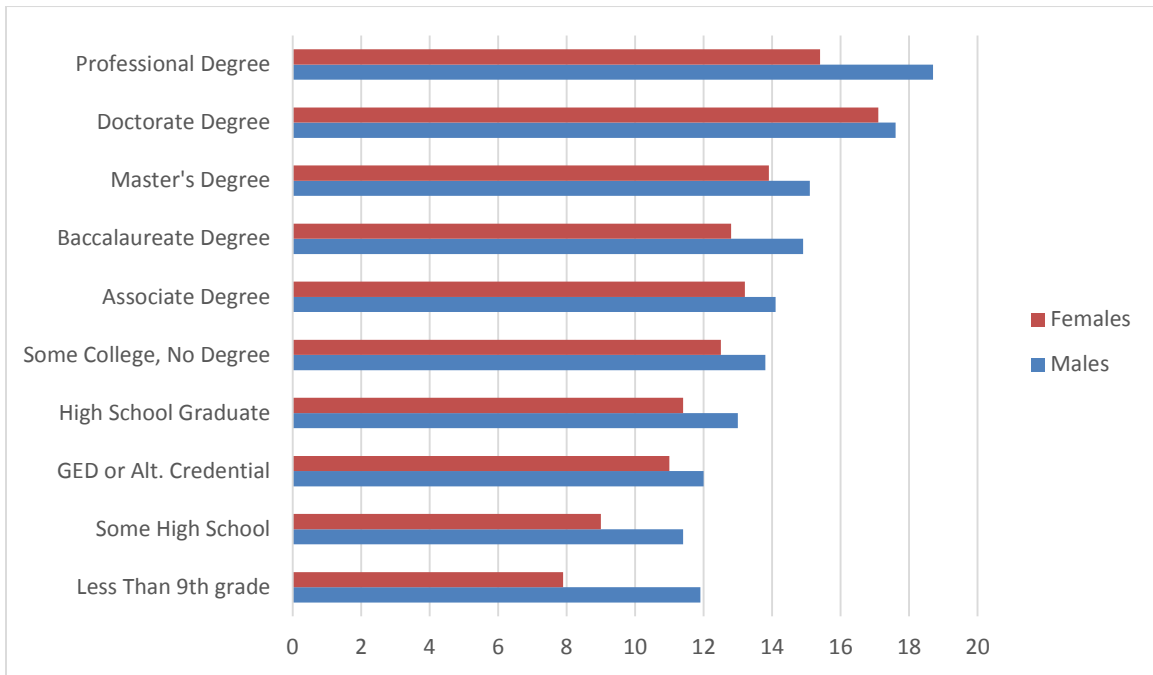


Figure 12 Worklife Expectancies for 50-year-olds with no Disability



The next logical area of discussion then is how disability affects worklife expectancy. Given the decrease in employment rates discussed earlier, worklife expectancies must necessarily be less for persons with disabilities. Figure 13 depicts the percentage decrement at age 25 for all eight

levels of disabilities.¹² To simplify the illustration, the exhibit is limited to the four education levels we used in our review of employment rates (Figure 9 and Figure 10). From these, we offer the following observations:

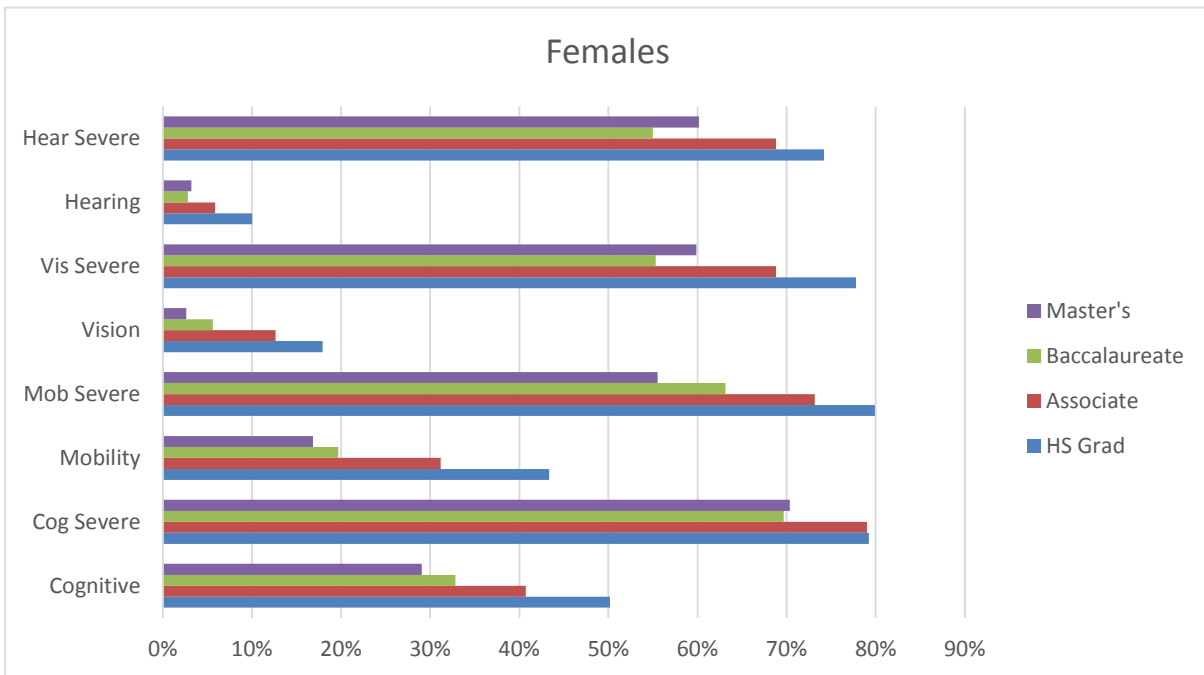
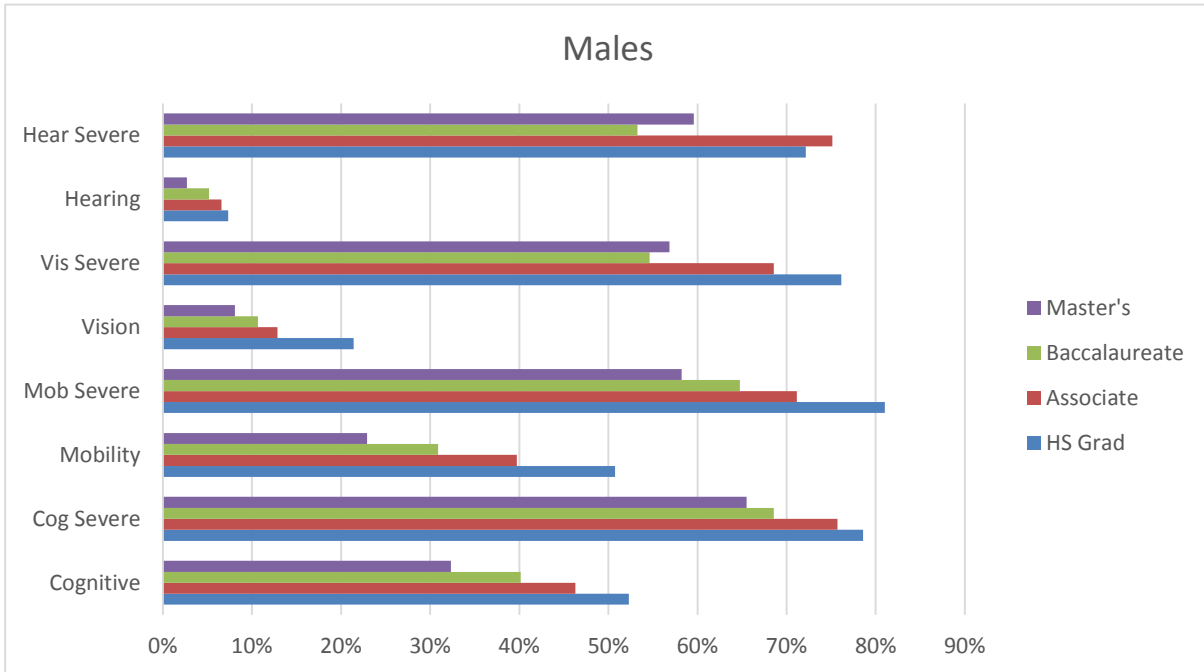
- The reduction in worklife generally lessens with each increase in education. Again, this is the opposite of what we observed with FTYR earnings, such as we discussed in conjunction with Figure 5 and Figure 6 in the “Earnings by Education” section.
- Of the nonsevere disability measurements, cognitive and mobility limitations are the most detrimental, with reductions of approximately 50% for high school graduates and 20% to 30% for persons with a master’s degree.
- A nonsevere hearing disability results in the least reduction.
- Regardless of the functional limitation, severe disabilities consistently reduce worklife expectancy by 70% to 80% for high school graduates and at least 50% for those with baccalaureate or higher degrees.¹³

Were we to repeat Figure 13 for persons at the age of 50, it would be quite similar to the results at 25. The general distinction would be slightly higher decrements across the board, consistent with an exacerbation of the aging process brought on by disability.

¹² There are four basic functional limitations with measurements for both nonsevere and severe disabilities.

¹³ Recall that a severe disability is measured when the respondent has limitations in self-care or going outside of the home in addition to the base functional limitation.

Figure 13 Worklife Decrement from Disability: 25-year-olds



Putting it All Together

Our previous sections demonstrated that persons with disabilities will, on average, earn less when working and work fewer years than persons with no disabilities. This is true when controlled for nonsevere disabilities, regardless of gender, education, or form of disability. A key observation here is that disability typically affects *both how much* is earned annually and *how long* a person is employed.

Lifetime Loss

We projected lifetime earnings using the four summary education levels we employed in the “Age-Earnings Profiles” and “Employment Rates” sections for persons with no disabilities at the age of 25 and for similar persons with nonsevere disabilities. These computations entailed the following:

- We computed the joint probability of life (Appendix D) and employment (Appendix F) for each age from 25 through 89.
- We multiplied these joint probabilities by the age-earnings profiles from Appendix C to arrive at weighted expected earnings by age.¹⁴
- The sum of the weighted earnings provides lifetime expected earnings.¹⁵

Figure 14 and Figure 15 present the results. For each education level, we present a row for the five disability types: no disability, cognitive, mobility, vision, and hearing. Within each row are the following values:

- Weighted average earnings presents the average values of the age-earnings profiles weighted by the probabilities of life and employment.
- Worklife expectancy is consistent with the values in Appendix G, and implicit in the sum of the probabilities used in these computations.
- Lifetime earnings shows the sum of the weighted earnings.
- Loss is the difference between the lifetime earnings for each of the functional disabilities and the lifetime earnings for no disability.

Appendix H presents losses for all of the detailed levels of education and all severe and nonsevere disability types at both the ages of 25 and 50.

¹⁴ Note that the computation of future earnings neither adjusts for potential wage inflation from now until the age in question nor discounts those future cash flows to present value. These values are all stated in current terms.

¹⁵ Note also, that these lifetime earnings are wages only. Our discussion has not addressed employer-provided fringe benefits. If considered, statistics from the U. S. Bureau of Labor Statistics indicate average lifetime earnings would increase by more than 25% (Employer Costs for Employee Compensation 2015)

Figure 14 Nonsevere Disability Lifetime Loss: Males at 25

	Disability	Wtd. Avg. Earnings	Worklife Expectancy	Lifetime Earnings	Loss
High School	No Disability	\$42,000	32.7	\$1,367,000	
	Cognitive	\$33,000	15.6	\$524,000	\$843,000
	Mobility	\$36,000	16.1	\$583,000	\$784,000
	Vision	\$36,000	25.7	\$932,000	\$435,000
	Hearing	\$41,000	30.3	\$1,238,000	\$129,000
Associate	No Disability	\$54,000	35.0	\$1,901,000	
	Cognitive	\$43,000	18.8	\$817,000	\$1,084,000
	Mobility	\$47,000	21.1	\$986,000	\$915,000
	Vision	\$47,000	30.5	\$1,436,000	\$465,000
	Hearing	\$50,000	32.7	\$1,647,000	\$254,000
Baccal.	No Disability	\$75,000	36.6	\$2,742,000	
	Cognitive	\$58,000	21.9	\$1,272,000	\$1,470,000
	Mobility	\$56,000	25.3	\$1,417,000	\$1,325,000
	Vision	\$58,000	32.7	\$1,884,000	\$858,000
	Hearing	\$65,000	34.7	\$2,251,000	\$491,000
Masters	No Disability	\$90,000	37.1	\$3,344,000	
	Cognitive	\$67,000	25.1	\$1,694,000	\$1,650,000
	Mobility	\$64,000	28.6	\$1,839,000	\$1,505,000
	Vision	\$70,000	34.1	\$2,398,000	\$946,000
	Hearing	\$75,000	36.1	\$2,724,000	\$620,000

Figure 15 Nonsevere Disability Lifetime Loss: Females at 25

	Disability	Wtd. Avg. Earnings	Worklife Expectancy	Lifetime Earnings	Loss
High School	No Disability	\$31,000	27.9	\$870,000	
	Cognitive	\$26,000	13.9	\$361,000	\$509,000
	Mobility	\$28,000	15.8	\$439,000	\$431,000
	Vision	\$28,000	22.9	\$630,000	\$240,000
	Hearing	\$29,000	25.1	\$729,000	\$141,000
Associate	No Disability	\$43,000	32.4	\$1,384,000	
	Cognitive	\$33,000	19.2	\$627,000	\$757,000
	Mobility	\$37,000	22.3	\$820,000	\$564,000
	Vision	\$37,000	28.3	\$1,060,000	\$324,000
	Hearing	\$40,000	30.5	\$1,205,000	\$179,000
Baccal.	No Disability	\$55,000	32.0	\$1,748,000	
	Cognitive	\$45,000	21.5	\$960,000	\$788,000
	Mobility	\$46,000	25.7	\$1,192,000	\$556,000
	Vision	\$49,000	30.2	\$1,473,000	\$275,000
	Hearing	\$51,000	31.1	\$1,572,000	\$176,000
Masters	No Disability	\$65,000	34.4	\$2,246,000	
	Cognitive	\$51,000	24.4	\$1,238,000	\$1,008,000
	Mobility	\$56,000	28.6	\$1,594,000	\$652,000
	Vision	\$56,000	33.5	\$1,883,000	\$363,000
	Hearing	\$61,000	33.3	\$2,040,000	\$206,000

As shown by these tables, the combined impact of reduced annual earnings and reduced worklife expectancy makes a profound impact on lifetime earnings. We note some significant observations:

- For both genders and all levels of education, nonsevere cognitive limitations make the largest impact and nonsevere hearing limitations the least.
- The total dollar loss (not relative, as computed below) increases with each level of education.

These observations hold true beyond the sample levels of education examined in these tables. Figure 16 graphs the trend by increasing level of education through master's degree.¹⁶

We then look at Figure 17, which graphs the relative losses as a percentage of the lifetime earnings for persons with no disabilities. Considering these trends, we make additional notes:

- The relative impact generally decreases with increased education. Thus, the low impact of disability on earnings for the lowest levels of education which we noted in the "Earnings by Education" section was swamped by the high impact of disability on worklife expectancy noted in the "Worklife Expectancies" section.
- Males with nonsevere hearing limitations are a noted exception of the above, where the relative impact increases with education.
- Although the relative impact for mobility limitations does decrease with education, it remains at approximately 30% - 45% at the master's degree level. This is quite significant when considering that employment at this level is more likely to be sedentary in nature.

Repetition of these graphs for persons at the age of 50 would provide similar overall trends. Repetition for persons with severe disability would also demonstrate similar trends, but the relative losses would be much higher and much closer together since they all involve added limitations of self-care or going outside the home.

¹⁶ Since sample size limitations precluded computation of losses for many of the doctorate and professional degree disabilities, we exclude these levels here.

Figure 16 Nonsevere Disability Lifetime Loss at 25

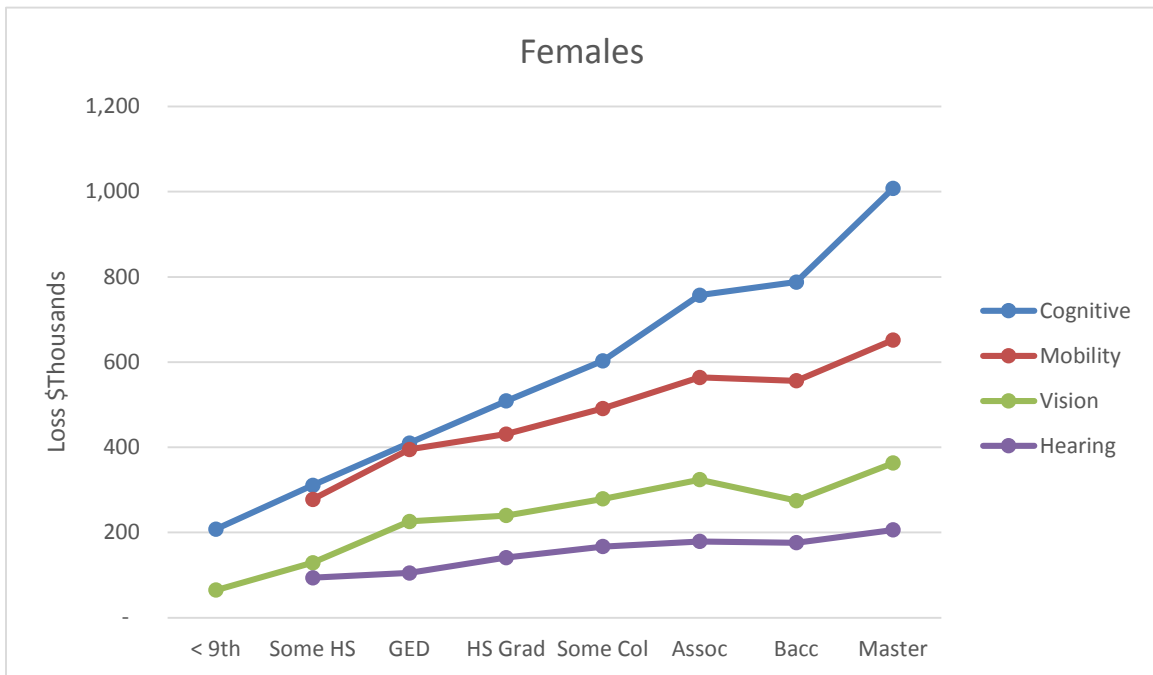
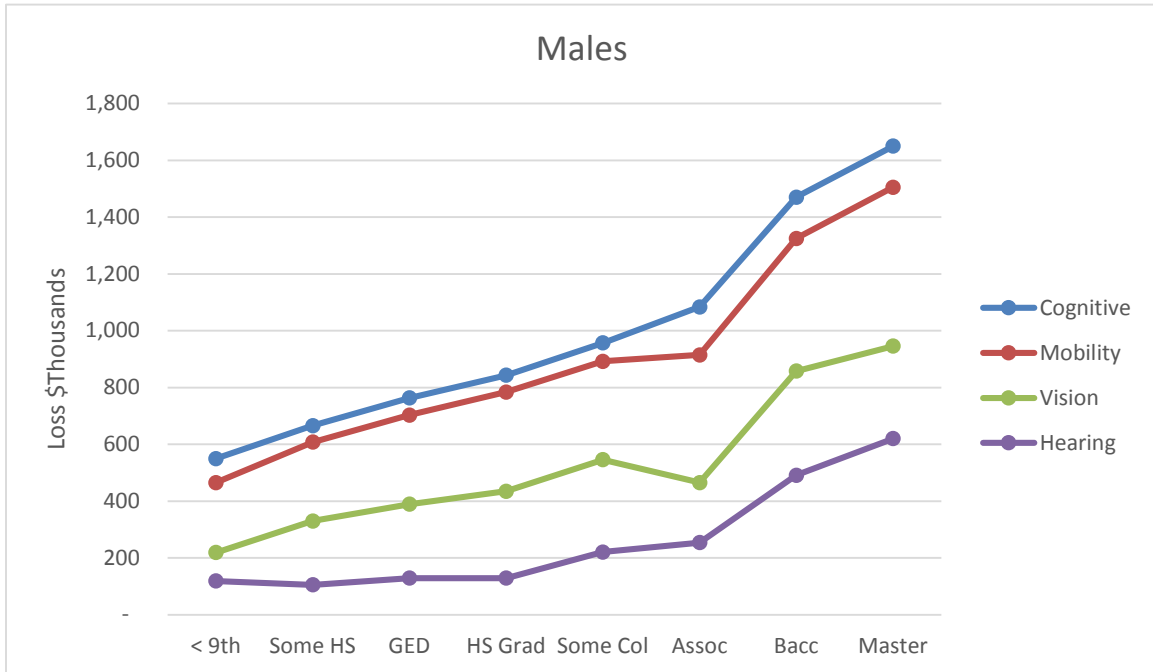
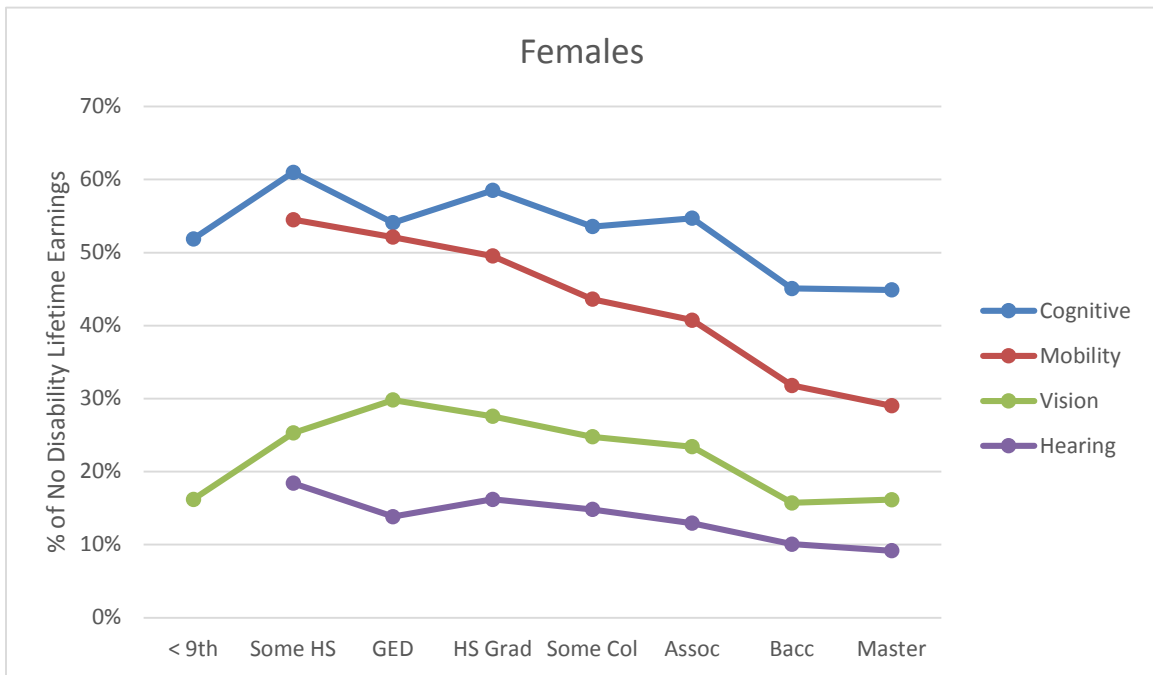
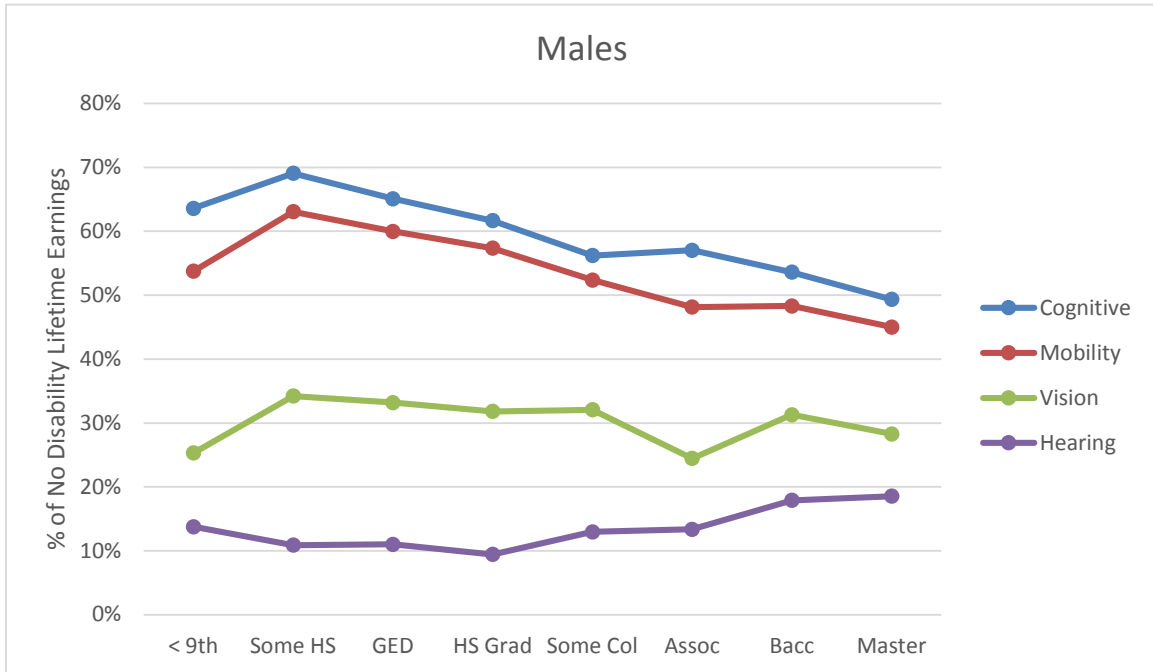


Figure 17 Nonsevere Disability Lifetime Loss at 25 as % No Disability



Realities of Litigation

As we noted earlier, experts in the litigation arena are charged with the inexact science of predicting future earnings and employment for the plaintiff – both given the acquired disability and how the plaintiff would have fared had the disabling event not occurred. This paper offers a tool for those projections, founded in the rich statistical offerings of the American Community Survey.

Of course, the values presented measure the median earnings and average worklife expectancies for the no disability, nonsevere disability, and severe disability groupings we examined. Each individual may under- or over-perform his respective group. However, these values stand to demonstrate the impact on each of the groups as a whole and provide a quantifiable starting point for an expert evaluating the impact of a disability for a given plaintiff. As an expert, he will need to determine which statistic best applies to the case at hand.

Users of these data for litigation purposes should expect questions from the opposing side on the data's merits. This is natural for any data source used in our society's adversarial litigation setting. However, as discussed in the "ACS Disability Questions" section earlier, use of these data for such a purpose is consistent with their use among disability researchers and government agencies charged with monitoring the inclusion of persons with disabilities in our society, including the employment arena. Thus, the data enjoy widespread use by researchers with no litigation-related bias. Indeed, given the wide usage, tested reliability, and compelling results discussed by this paper, one might question the validity of an analysis of lost earnings due to disability that does *not* consider the ACS measures.

Appendix A Earnings Extraction Criteria

Figure 18 identifies the variables from the 2009 – 2013 PUMS files and the related values used to extract the earnings summarized in this paper.

Figure 18 Earnings Extraction Criteria

Variable	Description	Use
AGEP	Age	25-64 for all tabulations except age-earnings profiles, which are age-specific
SCHL	Educational attainment	See Figure 19 below
ESR	Employment status	Civilians: use 1, 2, 3, or 6
SEX	Gender	1 for males, 2 for females
PWGTP	Weight	Use weight to determine median
DPHY	Mobility disability (1 for yes, 2 for no)	1 when measuring mobility, 2 for no disability, 1 or 2 otherwise
DREM	Cognitive disability (1 for yes, 2 for no)	1 when measuring cognitive, 2 for no disability, 1 or 2 otherwise
DEYE	Vision disability (1 for yes, 2 for no)	1 when measuring vision, 2 for no disability, 1 or 2 otherwise
DEAR	Hearing disability (1 for yes, 2 for no)	1 when measuring hearing, 2 for no disability, 1 or 2 otherwise
WKHP	Usual hours worked per week in past 12 months	>= 35 for full-time
WKW	Weeks worked in past 12 months	>= 50 for year-round
ADJINC	Seasonal adjustment factor	Multiplied by PERNP
PERNP	Total earnings (wage & self-employment)	Use as earnings value, multiplied by ADJINC and adjusted to current year as discussed on page 30.
TYPE	Household variable to indicate type of house	1 to exclude group quarters

Figure 19 Education Level Classification¹⁷

SCHL Values	Education Level
0 – 11	Less than 9 th grade
12-15	Some high school
16	High school graduate
17	GED or alternative
18-19	Some college, no degree
20	Associate degree
21	Baccalaureate degree
22	Master’s degree
23	Professional degree
24	Doctorate degree

Earnings Restatement to Current Dollars

To measure wage growth from 2013 to 2015, we use a wage index from the U. S. Bureau of Labor Statistics (National Employment, Hours, and Earnings: Average Hourly Earnings of Production Workers 2015). The average index for 2013 is 20.13. The preliminary index for January 2015¹⁸ is 20.90. Thus, the growth between the two periods is 3.8%. This value is used for the Growth to 2015 column in Figure 20 below.

The growth in earnings from 2009 – 2012 to 2013 is measured as the observed average of all full-time, year-round workers in the respective 2009 – 2012 PUMS data to the same value in the 2013 data. These values are shown in Figure 20 below as “Growth to 2013.” When compounded¹⁹ by the 3.8% adjustment factor discussed above, we derive the adjustment shown in “Growth to 2015.” This adjustment is applied to the PUMS earning data in each year when pooling the years into a single sample.

¹⁷ The education levels encompass all the SCHL values tracked by the ACS.

¹⁸ This is the most current release at the time of this article.

¹⁹ The compound growth is computed as $1.038 \times (1 + G13)$, where G13 is the respective value from the Growth to 2013 column.

Figure 20 Earnings Growth Adjustment Rates

Year	Avg. Earn	Growth to 2013	Growth to 2015
2009	\$56,682	7.1%	11.2%
2010	\$57,006	6.5%	10.6%
2011	\$58,565	3.7%	7.6%
2012	\$59,239	2.5%	6.4%
2013	\$60,719	-	3.8%

Appendix B Earnings by Level of Education

Figure 21 and Figure 22 present the median earnings for full-time, year-round workers between the ages of 25 and 64 by highest level of educational attainment and disability status. The percentage values in the columns for those with disabilities represent the changes from the comparable value for those with no disability.

Figure 21 Male Median FTYR Earnings by Level of Education

Highest Level of Education	No Disability	Cognitive	Mobility	Vision	Hearing
Less Than 9th grade	27,000	27,000 (0%)	29,000 (7%)	26,500 (-2%)	29,000 (7%)
Some High School	31,500	28,000 (-11%)	33,500 (6%)	30,500 (-3%)	35,000 (11%)
GED or Alt. Credential	38,500	34,500 (-10%)	38,500 (0%)	34,500 (-10%)	40,000 (4%)
High School Graduate	42,000	33,500 (-20%)	39,000 (-7%)	37,000 (-12%)	44,000 (5%)
Some College, No Degree	48,500	40,000 (-18%)	45,000 (-7%)	42,000 (-13%)	50,000 (3%)
Associate Degree	52,500	44,000 (-16%)	49,000 (-7%)	48,000 (-9%)	53,500 (2%)
Baccalaureate Degree	73,000	56,500 (-23%)	61,500 (-16%)	59,000 (-19%)	68,000 (-7%)
Master's Degree	90,000	67,000 (-26%)	71,000 (-21%)	73,000 (-19%)	82,000 (-9%)
Doctorate Degree	104,500	80,500 (-23%)	91,000 (-13%)	96,500 (-8%)	93,000 (-11%)
Professional Degree	125,500	77,500 (-38%)	96,500 (-23%)	99,500 (-21%)	111,500 (-11%)
All Levels of Education	52,500	38,500 (-27%)	44,000 (-16%)	41,000 (-22%)	49,500 (-6%)

Figure 22 Female Median FTYR Earnings by Level of Education

Highest Level of Education	No Disability	Cognitive	Mobility	Vision	Hearing
Less Than 9th grade	21,000	21,000 (0%)	21,000 (0%)	20,500 (-2%)	21,000 (0%)
Some High School	23,500	21,500 (-9%)	23,000 (-2%)	22,000 (-6%)	23,000 (-2%)
GED or Alt. Credential	29,500	25,500 (-14%)	27,000 (-8%)	25,000 (-15%)	27,500 (-7%)
High School Graduate	31,500	26,500 (-16%)	30,000 (-5%)	27,500 (-13%)	30,000 (-5%)
Some College, No Degree	36,500	31,000 (-15%)	34,500 (-5%)	32,000 (-12%)	35,000 (-4%)
Associate Degree	42,000	33,500 (-20%)	39,500 (-6%)	37,500 (-11%)	40,000 (-5%)
Baccalaureate Degree	52,500	44,500 (-15%)	48,500 (-8%)	48,000 (-9%)	51,500 (-2%)
Master's Degree	63,000	53,500 (-15%)	59,000 (-6%)	58,000 (-8%)	63,500 (1%)
Doctorate Degree	83,500	67,500 (-19%)	78,000 (-7%)	78,500 (-6%)	79,000 (-5%)
Professional Degree	89,000	60,500 (-32%)	72,500 (-19%)	79,500 (-11%)	85,500 (-4%)
All Levels of Education	42,000	31,000 (-26%)	34,500 (-18%)	32,500 (-23%)	37,000 (-12%)

Although the above tables give direct comparison of earnings by disability status at each level of education, they do not demonstrate the differences in distribution of the population by education. Figure 23 and Figure 24 present the percentages of each disability status that has attained the respective level of education. In each cell, the percentage on the left side of the slash indicates the percentage for that cell individually. The percentage on the right side of the slash indicates the cumulative percentage within the disability status that has attained that level of education or lower.²⁰

²⁰ For example, the cumulative percentage for High School Graduates will add the individual percentages for Less Than 9th grade, Some High School, GED or Alt. Credential, and High School Graduate. All values are rounded for display purposes. Thus although the cumulative percentage may appear over- or understated in some cells, it is accurately presented.

Figure 23 Male Earnings Distribution by Education within Disability Status

Highest Level of Education	No Disability	Cognitive	Mobility	Vision	Hearing
Less Than 9th grade	4% / 4%	6% / 6%	5% / 5%	7% / 7%	4% / 4%
Some High School	5% / 9%	10% / 16%	9% / 14%	10% / 18%	7% / 11%
GED or Alt. Credential	3% / 13%	6% / 22%	5% / 19%	5% / 23%	5% / 15%
High School Graduate	23% / 35%	27% / 49%	27% / 45%	26% / 49%	27% / 43%
Some College, No Degree	21% / 56%	25% / 74%	26% / 71%	23% / 72%	26% / 69%
Associate Degree	8% / 64%	7% / 82%	9% / 80%	7% / 80%	9% / 78%
Baccalaureate Degree	23% / 87%	13% / 94%	13% / 93%	13% / 93%	14% / 92%
Master's Degree	9% / 95%	4% / 98%	4% / 98%	5% / 98%	5% / 97%
Doctorate Degree	2% / 97%	1% / 99%	1% / 99%	1% / 99%	1% / 98%
Professional Degree	3% / 100%	1% / 100%	1% / 100%	1% / 100%	2% / 100%

Figure 24 Female Earnings Distribution by Education within Disability Status

Highest Level of Education	No Disability	Cognitive	Mobility	Vision	Hearing
Less Than 9th grade	2% / 2%	5% / 5%	3% / 3%	5% / 5%	3% / 3%
Some High School	3% / 5%	8% / 13%	7% / 10%	8% / 13%	5% / 8%
GED or Alt. Credential	3% / 8%	6% / 19%	5% / 15%	4% / 18%	4% / 12%
High School Graduate	19% / 27%	22% / 41%	24% / 39%	22% / 40%	23% / 35%
Some College, No Degree	22% / 48%	28% / 69%	29% / 68%	27% / 67%	26% / 61%
Associate Degree	11% / 60%	11% / 80%	11% / 79%	10% / 77%	11% / 73%
Baccalaureate Degree	25% / 85%	14% / 93%	14% / 92%	14% / 92%	17% / 89%
Master's Degree	12% / 96%	5% / 98%	6% / 98%	6% / 98%	8% / 97%
Doctorate Degree	2% / 98%	1% / 99%	1% / 99%	1% / 99%	1% / 99%
Professional Degree	2% / 100%	1% / 100%	1% / 100%	1% / 100%	1% / 100%

Appendix C Age-Earnings Profiles

We extracted earnings for age-earnings profiles in the same manner described in Appendix A, with the following exceptions:

- Rather than computing the FTYR medians for all persons between 25 and 64, we extracted them on an age-by-age basis. We grouped persons 68 and over into age 68 collectively.²¹
- We smoothed the raw medians using the T4253H algorithm (Velleman 1980).

The figures in this appendix present the age-earnings profiles for all education levels and disability categories. To conserve space, we provide values at every 5th year only.²² Where no values are provided, insufficient sample size existed to make the computations on an age-specific basis.

Figure 25 Median Age-Earnings Profile: Less Than 9th Grade

Age	Males					Females				
	No Dis.	Cog.	Mobil.	Vision	Hear	No Dis.	Cog.	Mobil.	Vision	Hear
20	19,277	17,061	25,221	17,966	19,720	16,641	20,340		19,987	
25	21,852	19,508	28,814	20,523	22,491	18,203	21,615		22,141	
30	23,141	22,533	28,697	23,841	25,541	18,664	16,531		22,510	
35	25,811	28,965	25,934	24,164	25,238	19,594	19,369		21,405	
40	27,541	30,762	31,063	28,680	27,367	20,803	20,043		19,344	
45	29,174	27,727	29,885	28,674	31,770	20,979	20,768		20,662	
50	30,039	27,445	28,176	27,125	29,285	21,912	21,951		20,018	
55	30,020	28,012	30,740	27,373	30,172	22,000	21,500		20,299	
60	30,555	26,750	28,141	26,174	30,668	22,441	20,461		20,656	
65	29,477	26,250	29,527	24,992	32,246	22,514	18,850		20,697	

Figure 26 Median Age-Earnings Profile: Some High School

Age	Males					Females				
	No Dis.	Cog.	Mobil.	Vision	Hear	No Dis.	Cog.	Mobil.	Vision	Hear
20	19,352	19,738	17,845	17,678	15,545	16,672	17,692	13,595	16,386	13,794
25	24,229	22,055	25,820	23,127	24,464	19,113	17,613	15,694	17,293	15,983
30	27,914	25,797	28,088	24,566	24,771	21,209	21,813	18,758	21,500	21,420
35	30,883	25,805	30,805	27,133	29,734	21,992	19,842	20,297	18,561	20,148
40	33,273	27,789	32,777	31,117	33,529	23,313	21,480	22,500	21,900	23,418
45	35,162	25,195	31,496	31,461	33,748	23,854	22,313	22,500	21,266	21,383
50	37,199	27,777	32,973	33,166	37,250	25,188	22,385	22,668	22,074	22,215
55	37,502	32,000	33,246	31,246	37,633	25,047	21,998	23,771	23,221	23,438
60	37,178	34,100	34,736	33,703	37,350	26,055	22,655	24,275	23,117	25,506
65	37,207	32,195	39,980	31,615	38,229	26,336	23,054	25,104	24,281	26,719

²¹ Since FTYR employment is limited at the older ages, this convention avoids difficulties with sufficient sample sizes for each individual age past 67.

²² The restriction of the analysis to these years was for purpose of brevity in the article. Detail for all years is available from the author.

Figure 27 Median Age-Earnings Profile: GED or Alt. Credential

Age	Males					Females				
	No Dis.	Cog.	Mobil.	Vision	Hear	No Dis.	Cog.	Mobil.	Vision	Hear
20	21,035	20,934	21,931	18,606	18,772	17,672	17,166	17,054	15,626	15,982
25	28,061	24,555	29,518	22,501	25,237	23,268	21,935	22,130	20,262	20,691
30	33,602	27,092	32,507	29,258	29,530	26,014	25,148	23,709	24,097	25,354
35	38,188	31,057	33,192	40,750	32,498	28,098	24,032	23,816	24,541	25,059
40	40,502	38,152	36,127	41,564	42,172	29,703	24,264	24,584	23,373	24,537
45	42,723	34,801	36,607	34,531	37,779	29,617	25,459	28,334	26,664	30,555
50	43,988	39,803	40,271	36,965	40,717	30,902	26,102	27,924	23,828	28,658
55	43,365	38,723	39,135	36,027	43,336	30,672	21,949	27,100	24,926	26,922
60	43,389	38,980	40,055	34,571	43,088	29,375	27,127	27,770	27,613	26,832
65	42,355	32,764	42,316	41,660	44,195	28,793	28,585	26,992	26,244	27,488

Figure 28 Median Age-Earnings Profile: High School Graduate

Age	Males					Females				
	No Dis.	Cog.	Mobil.	Vision	Hear	No Dis.	Cog.	Mobil.	Vision	Hear
20	21,148	19,904	22,082	18,946	18,225	17,785	15,514	14,186	18,886	19,971
25	29,541	25,594	28,598	29,977	30,875	24,391	23,137	19,322	22,665	24,859
30	34,209	28,141	29,609	30,904	36,609	27,824	23,467	22,399	27,588	27,029
35	39,619	31,488	34,135	33,568	34,563	29,488	24,582	27,797	27,378	28,326
40	42,891	33,453	38,623	36,313	42,025	31,109	26,605	27,143	27,841	27,758
45	44,586	36,221	36,516	37,383	44,330	32,182	26,543	28,121	28,756	28,938
50	47,254	38,094	42,467	40,092	46,047	33,359	27,971	30,516	27,234	29,953
55	47,174	38,898	39,867	38,875	45,477	33,500	27,723	30,320	27,889	30,826
60	45,023	36,586	42,314	39,275	45,803	33,500	28,852	30,393	27,365	31,506
65	44,305	34,898	39,037	39,078	42,762	33,383	25,338	31,598	28,322	31,279

Figure 29 Median Age-Earnings Profile: Some College, No Degree

Age	Males					Females				
	No Dis.	Cog.	Mobil.	Vision	Hear	No Dis.	Cog.	Mobil.	Vision	Hear
20	20,000	21,914	21,141	17,678	19,673	18,000	17,000	18,007	17,500	16,984
25	31,199	28,969	28,581	27,904	27,783	26,297	23,914	25,712	24,285	24,835
30	40,852	34,127	35,234	35,961	38,148	31,674	27,244	27,566	27,361	29,866
35	48,014	40,242	38,547	40,367	45,648	34,537	29,180	33,141	32,516	30,672
40	52,844	44,250	46,711	48,172	49,100	37,094	30,500	32,619	31,758	34,197
45	55,373	42,438	44,275	43,449	48,734	39,008	32,168	33,723	32,344	34,545
50	55,908	44,953	49,021	46,273	53,773	40,602	32,908	34,777	34,609	35,801
55	56,359	44,336	48,619	42,551	53,836	41,178	34,965	36,633	33,922	38,211
60	54,738	46,172	47,705	43,570	53,215	40,836	33,951	37,299	35,630	37,125
65	53,697	42,966	47,258	44,846	53,387	41,105	33,279	37,189	34,781	40,352

Figure 30 Median Age-Earnings Profile: Associate Degree

Age	Males					Females				
	No Dis.	Cog.	Mobil.	Vision	Hear	No Dis.	Cog.	Mobil.	Vision	Hear
25	34,961	30,992	32,797	35,635	33,304	29,975	26,549	25,810	27,492	27,538
30	43,992	41,361	41,970	40,859	41,420	36,486	29,078	33,150	33,963	32,877
35	52,090	42,217	42,744	47,859	50,066	39,773	32,037	31,699	34,082	38,131
40	56,301	42,359	47,020	45,957	54,389	43,396	34,416	35,154	38,057	39,898
45	60,215	48,672	50,711	47,650	54,180	44,361	37,469	40,453	37,545	42,262
50	62,092	47,082	52,027	52,990	54,410	46,287	34,414	38,516	40,207	40,637
55	61,250	48,207	50,648	50,770	55,998	47,510	38,117	42,221	37,438	43,484
60	56,934	47,822	51,000	50,551	58,273	47,289	36,236	42,682	46,617	44,395
65	55,893	45,251	50,410	53,832	52,963	46,137	27,279	43,141	41,377	42,699

Figure 31 Median Age-Earnings Profile: Baccalaureate Degree

Age	Males					Females				
	No Dis.	Cog.	Mobil.	Vision	Hear	No Dis.	Cog.	Mobil.	Vision	Hear
25	43,760	40,671	30,779	45,114	43,792	38,225	33,318	36,966	33,868	34,180
30	58,014	45,441	40,865	45,341	48,636	47,859	39,807	38,592	45,846	42,838
35	71,895	57,252	52,091	60,318	63,789	54,172	43,457	42,756	50,436	51,786
40	80,012	60,352	60,055	62,063	69,182	56,965	48,279	50,264	49,095	56,031
45	85,873	66,164	67,740	62,385	71,393	59,916	46,971	46,334	48,846	54,443
50	87,934	68,426	63,984	61,307	75,189	60,320	48,570	50,711	52,258	54,039
55	85,590	61,385	63,957	62,768	75,928	59,754	51,387	51,514	52,576	54,703
60	78,453	58,603	61,816	65,339	68,500	57,170	51,695	52,857	53,930	52,881
65	76,090	77,589	63,811	52,865	65,672	54,383	54,164	46,508	54,001	51,772

Figure 32 Median Age-Earnings Profile: Master's Degree

Age	Males					Females				
	No Dis.	Cog.	Mobil.	Vision	Hear	No Dis.	Cog.	Mobil.	Vision	Hear
25	51,039	37,509	33,612	38,917	42,861	43,531	31,758	37,582	33,190	48,549
30	68,453	50,226	45,466	55,057	53,167	54,662	41,430	47,506	45,455	53,727
35	85,797	78,305	53,270	69,420	70,164	62,801	45,680	51,445	56,566	60,988
40	97,418	60,529	69,406	85,008	71,813	67,680	55,457	58,074	61,438	56,441
45	104,924	78,695	83,842	80,221	87,885	70,764	57,570	58,520	54,539	65,523
50	106,529	73,873	78,969	68,773	94,594	72,188	62,561	62,734	65,275	65,609
55	101,662	85,539	67,977	82,063	92,500	72,393	53,117	61,117	59,646	66,723
60	93,943	65,450	74,078	72,406	81,508	70,898	57,003	62,441	62,229	65,076
65	89,930	90,970	70,287	78,063	78,002	68,551	54,379	59,350	64,469	65,889

Figure 33 Median Age-Earnings Profile: Doctorate Degree

Age	Males					Females				
	No Dis.	Cog.	Mobil.	Vision	Hear	No Dis.	Cog.	Mobil.	Vision	Hear
30	65,102				47,517	64,406				
35	87,465				63,576	75,930				
40	104,121				71,025	83,016				
45	111,367				86,031	90,393				
50	116,656				104,398	90,813				
55	118,576				99,836	93,531				
60	117,750				95,285	93,975				
65	116,867				100,211	93,289				

Figure 34 Median Age-Earnings Profile: Professional Degree

Age	Males					Females				
	No Dis.	Cog.	Mobil.	Vision	Hear	No Dis.	Cog.	Mobil.	Vision	Hear
30	71,906				59,422	66,900		28,683		66,311
35	115,879				93,861	94,018		38,921		86,828
40	142,791				110,133	101,820		73,914		105,973
45	159,273				118,148	104,750		85,816		87,088
50	157,598				128,648	100,844		81,381		79,314
55	157,102				124,791	100,547		73,352		87,031
60	146,502				110,078	95,830		75,080		80,297
65	144,133				114,734	90,406		75,883		77,570

Appendix D Probability of Life

This appendix provides the basis for the computation of the probability that a person will be alive at each future age. As discussed in the “Employment” section of this paper, the probability of life is combined with the probability of employment to compute the statistically expected number of years of employment, or worklife expectancy.

Figure 35 Life Survivors

Age	Males	Females	Age	Males	Females
25	98,105	98,880	58	87,746	92,656
26	97,973	98,829	59	86,889	92,136
27	97,841	98,776	60	85,984	91,575
28	97,709	98,722	61	85,031	90,969
29	97,576	98,664	62	84,029	90,317
30	97,441	98,604	63	82,972	89,615
31	97,304	98,541	64	81,853	88,858
32	97,163	98,474	65	80,663	88,040
33	97,020	98,403	66	79,390	87,150
34	96,874	98,328	67	78,025	86,178
35	96,724	98,247	68	76,566	85,123
36	96,570	98,161	69	75,015	83,984
37	96,410	98,068	70	73,371	82,760
38	96,243	97,967	71	71,631	81,444
39	96,066	97,860	72	69,787	80,021
40	95,880	97,745	73	67,828	78,486
41	95,682	97,621	74	65,742	76,827
42	95,470	97,487	75	63,519	75,037
43	95,239	97,340	76	61,163	73,107
44	94,983	97,177	77	58,684	71,033
45	94,699	96,996	78	56,062	68,799
46	94,387	96,796	79	53,302	66,394
47	94,045	96,578	80	50,405	63,820
48	93,671	96,340	81	47,375	61,079
49	93,265	96,081	82	44,221	58,167
50	92,822	95,798	83	40,973	55,082
51	92,342	95,491	84	37,666	51,814
52	91,823	95,157	85	34,247	48,344
53	91,264	94,800	86	30,785	44,691
54	90,660	94,420	87	27,327	40,903
55	90,010	94,018	88	23,924	37,019
56	89,309	93,592	89	20,628	33,092
57	88,554	93,140	90	17,493	29,178

Figure 35 presents the number of survivors out of 100,000 live births by gender and age. These values come directly from the United States Life Tables (Arias 2014). The probability of a person living to a future age is the number of survivors at that future age divided by the survivors at the person’s current age. For example, the probability that a 25-year-old female will live to the age of 70 is computed as $82,760$ (survivors at 70) \div $98,880$ (survivors at 25) = 0.837 , or 83.7% .

Appendix E Employment Extraction Criteria

Figure 36 identifies the variables from the 2009 – 2013 PUMS files and the related values used to extract the employment rates summarized in this paper.

Figure 36 Employment Extraction Criteria

Variable	Description	Use
AGEP	Age	Grouped in 5-year increments (e.g., 25 – 29, 30 – 34, etc.)
SCHL	Educational attainment	See Figure 19 in Appendix A
ESR	Employment status	Employed = 1 or 2; All civilians = 1, 2, 3, or 6
SEX	Gender	1 for males, 2 for females
PWGTP	Weight	Employment rate = $\sum \text{PWGTP for employed} / \sum \text{PWGTP for all civilians}$ (see the ESR variable above)
DPHY	Mobility disability (1 for yes, 2 for no)	See disability identification note below
DREM	Cognitive disability (1 for yes, 2 for no)	See disability identification note below
DEYE	Vision disability (1 for yes, 2 for no)	See disability identification note below
DEAR	Hearing disability (1 for yes, 2 for no)	See disability identification note below
DOUT	Go out disability (1 for yes, 2 for no)	See disability identification note below
DDRS	Self-care disability (1 for yes, 2 for no)	See disability identification note below
TYPE	Household variable to indicate type of house	1 to exclude group quarters

Disability Identification

- For rates for no disability, all six disability questions must be 2 (no).
- For nonsevere disability for any of the core functional limitations (mobility, cognitive, vision, or hearing), that question must be 1 (yes) and all of the remaining five must be 2 (no).
- For severe disability for any of the core functional limitations, that question must be 1 (yes) and either the go out or self-care limitations must also be 1 (yes).

Appendix F Employment Rates

Consistent with the extraction criteria in Appendix E, the tables below present the percentage of the population employed, cross-tabulated by gender, education, disability type, and age. For each of the four measures of disability (cognitive, mobility, vision, and hearing), the type of disability is segregated by severity.²³

Figure 37 provides the employment rates for males, and Figure 38 provides the rates for females. Together they provide the probabilities of employment to compute the worklife expectancies discussed earlier in this paper and presented in Appendix G.

Figure 37 Male Rates of Employment

	Ages	No Dis.	Cog.	Cog Severe	Mob.	Mob. Severe	Vis.	Vis. Severe	Hear	Hear Severe
Less Than 9th grade	25-29	81.2%	26.3%	9.7%	49.9%	9.6%	65.9%	14.0%	67.1%	12.5%
	30-34	84.0%	32.6%	10.6%	41.7%	14.0%	64.6%	18.8%	64.1%	26.3%
	35-39	85.2%	31.9%	12.3%	45.8%	12.2%	71.6%	16.9%	74.5%	22.4%
	40-44	82.7%	34.6%	12.8%	34.2%	14.8%	65.2%	18.7%	73.1%	26.0%
	45-49	80.5%	25.3%	13.5%	30.2%	12.2%	65.6%	13.7%	67.9%	20.3%
	50-54	77.3%	28.8%	12.0%	26.9%	9.8%	65.6%	9.5%	64.8%	11.4%
	55-59	71.4%	21.3%	11.5%	23.5%	8.8%	54.1%	8.8%	62.8%	8.5%
	60-64	55.7%	21.0%	8.8%	16.9%	5.9%	33.9%	8.1%	42.4%	7.5%
	65-69	29.0%	13.1%	5.7%	11.6%	4.7%	21.6%	5.1%	22.5%	4.9%
	70-74	16.7%	9.2%	3.3%	7.4%	3.5%	13.6%	4.5%	15.4%	3.6%
	75-79	10.2%	6.1%	2.2%	5.6%	2.3%	8.7%	2.2%	10.8%	2.4%
Some High School	80-84	5.6%	3.8%	1.0%	4.2%	1.1%	1.8%	1.0%	5.2%	1.3%
	85-89	3.7%	0.3%	0.3%	2.2%	0.6%	4.2%	0.5%	3.0%	0.8%
	25-29	69.0%	29.6%	14.7%	31.3%	14.4%	53.1%	21.2%	62.6%	26.6%
	30-34	74.1%	26.5%	13.1%	31.9%	10.9%	56.9%	14.1%	65.0%	23.2%
	35-39	76.6%	28.2%	14.5%	33.4%	12.7%	57.3%	16.4%	70.8%	24.3%
	40-44	76.1%	26.4%	13.8%	28.1%	13.3%	66.2%	17.9%	63.5%	16.1%
	45-49	74.1%	25.4%	11.4%	26.9%	9.2%	58.3%	11.2%	69.7%	12.7%
	50-54	72.1%	23.0%	8.1%	26.3%	7.8%	50.6%	10.2%	67.6%	12.6%
	55-59	68.0%	22.0%	7.6%	22.5%	7.8%	47.0%	8.0%	63.9%	9.4%
	60-64	52.5%	22.0%	6.6%	15.8%	6.1%	30.5%	8.6%	45.6%	7.3%
	65-69	28.1%	12.4%	4.2%	11.8%	4.3%	20.7%	3.0%	26.0%	4.6%
70-74	17.6%	8.6%	3.1%	8.7%	3.5%	10.6%	2.3%	18.4%	4.1%	
75-79	12.0%	7.5%	2.8%	6.4%	2.8%	7.9%	3.0%	11.8%	2.6%	
80-84	6.5%	6.2%	0.7%	3.7%	1.1%	5.1%	0.8%	6.0%	1.2%	
85-89	5.2%	1.2%	0.7%	2.7%	0.9%	3.2%	0.2%	3.2%	0.7%	

²³ See Appendix E for the extraction specification.

Figure 37 Male Rates of Employment (Continued)

	Ages	No Dis.	Cog.	Cog Severe	Mob.	Mob. Severe	Vis.	Vis. Severe	Hear	Hear Severe
GED or Alt. Credential	25-29	70.1%	35.5%	24.9%	34.4%	17.7%	67.3%	18.5%	62.9%	37.0%
	30-34	73.2%	30.3%	25.4%	34.8%	15.5%	54.6%	18.7%	65.0%	33.7%
	35-39	75.6%	36.7%	19.7%	36.0%	16.5%	59.8%	14.9%	74.0%	13.5%
	40-44	76.5%	26.8%	16.4%	33.8%	13.6%	51.8%	17.9%	77.4%	17.9%
	45-49	76.3%	28.8%	13.3%	31.5%	11.0%	59.3%	16.2%	75.1%	13.2%
	50-54	76.5%	24.6%	9.7%	31.5%	10.3%	61.1%	9.8%	73.5%	11.8%
	55-59	71.5%	21.1%	11.1%	25.7%	9.4%	47.6%	12.2%	68.6%	13.2%
	60-64	54.1%	15.7%	5.7%	19.4%	6.9%	37.2%	5.5%	46.8%	6.3%
	65-69	30.3%	17.8%	4.8%	12.8%	6.0%	19.7%	5.9%	26.4%	6.3%
	70-74	17.5%	13.7%	2.8%	12.1%	2.9%	13.1%	2.6%	16.2%	4.2%
	75-79	11.9%	9.4%	2.8%	7.3%	3.2%	10.8%	4.7%	11.0%	2.3%
	80-84	6.9%	7.2%	0.5%	3.7%	1.5%	3.6%	1.3%	6.9%	1.4%
85-89	5.3%	1.4%	1.6%	3.0%	1.0%	2.8%	0.8%	2.4%	0.8%	
High School Graduate	25-29	79.9%	43.7%	25.5%	51.1%	18.9%	67.3%	28.0%	73.3%	31.4%
	30-34	83.2%	43.3%	25.6%	42.1%	19.0%	69.2%	29.6%	75.5%	34.0%
	35-39	84.9%	41.1%	20.7%	40.9%	18.0%	63.0%	23.9%	80.5%	21.7%
	40-44	85.0%	40.1%	18.4%	38.6%	16.5%	70.9%	17.7%	79.6%	25.2%
	45-49	84.9%	38.7%	16.0%	40.1%	14.3%	70.0%	18.2%	81.1%	23.7%
	50-54	83.2%	35.9%	13.9%	37.2%	13.5%	64.4%	15.5%	79.7%	17.4%
	55-59	77.9%	29.9%	10.3%	32.4%	10.9%	59.6%	11.9%	72.2%	14.6%
	60-64	58.4%	23.9%	7.1%	24.9%	7.8%	36.5%	7.3%	50.4%	9.1%
	65-69	31.8%	18.4%	4.3%	16.6%	5.8%	23.2%	5.7%	29.2%	6.4%
	70-74	20.1%	12.0%	3.7%	12.5%	4.2%	15.4%	4.0%	18.2%	4.3%
	75-79	13.2%	9.9%	2.7%	9.1%	3.3%	12.6%	4.3%	11.1%	3.9%
	80-84	7.5%	2.9%	1.1%	4.7%	1.7%	5.2%	1.5%	6.7%	1.9%
85-89	4.7%	3.4%	1.0%	3.7%	1.1%	1.2%	0.8%	3.8%	1.2%	
Some College, No Degree	25-29	80.8%	53.9%	23.5%	52.1%	27.4%	65.0%	31.7%	74.8%	42.5%
	30-34	84.9%	50.1%	22.7%	54.9%	25.3%	74.6%	33.5%	76.1%	40.5%
	35-39	87.2%	51.9%	22.0%	50.1%	24.1%	70.1%	36.0%	80.7%	41.7%
	40-44	87.5%	45.0%	17.6%	50.9%	21.5%	75.0%	25.2%	84.5%	28.4%
	45-49	87.3%	43.5%	15.0%	46.8%	15.9%	71.5%	21.2%	82.9%	22.4%
	50-54	85.3%	39.4%	13.1%	44.7%	15.0%	69.0%	18.2%	82.3%	17.8%
	55-59	79.6%	33.6%	10.2%	36.8%	12.6%	60.5%	12.7%	75.0%	15.2%
	60-64	61.7%	25.6%	7.6%	28.4%	10.0%	46.9%	10.2%	54.3%	10.2%
	65-69	36.7%	19.7%	5.2%	20.9%	7.5%	30.4%	6.7%	31.0%	8.3%
	70-74	22.9%	17.1%	3.8%	14.9%	5.1%	19.0%	4.9%	18.6%	5.2%
	75-79	15.6%	10.8%	3.0%	10.3%	3.5%	12.4%	4.1%	13.4%	5.2%
	80-84	9.3%	8.7%	1.2%	7.0%	2.1%	5.6%	1.0%	7.5%	1.6%
85-89	6.2%	4.1%	1.4%	5.3%	1.8%	1.8%	1.5%	6.5%	1.3%	
Associate Degree	25-29	86.0%	59.3%	32.2%	65.7%	37.6%	76.6%	41.9%	79.2%	21.9%
	30-34	88.8%	58.7%	32.7%	51.7%	37.4%	85.0%	56.0%	83.9%	22.6%
	35-39	90.2%	51.0%	27.9%	58.9%	32.4%	78.1%	30.1%	85.9%	22.8%
	40-44	89.9%	50.9%	18.6%	53.0%	24.3%	72.9%	27.9%	85.8%	29.5%
	45-49	89.4%	50.4%	19.1%	54.1%	21.7%	81.7%	14.8%	86.8%	21.2%
	50-54	88.3%	40.6%	16.6%	48.3%	18.6%	81.0%	20.6%	81.6%	20.5%
	55-59	81.9%	36.4%	11.3%	46.3%	14.0%	64.6%	18.6%	77.6%	16.0%
	60-64	64.6%	24.7%	10.3%	33.2%	11.5%	50.1%	7.7%	56.8%	12.0%
	65-69	37.0%	10.1%	6.2%	17.6%	8.8%	29.8%	9.0%	32.8%	13.2%
	70-74	21.5%	13.4%	2.4%	12.2%	4.3%	18.0%	3.5%	19.6%	3.2%
	75-79	14.5%	3.8%	1.3%	9.9%	2.6%	18.4%	0.5%	11.9%	2.1%
	80-84	8.4%	3.8%	0.8%	2.9%	1.8%	6.0%	1.0%	9.7%	2.6%
85-89	8.1%	2.8%	0.7%	4.0%	2.5%	4.4%	1.9%	2.9%	1.3%	

Figure 37 Male Rates of Employment (continued)

	Ages	No Dis.	Cog.	Cog Severe	Mob.	Mob. Severe	Vis.	Vis. Severe	Hear	Hear Severe
Baccalaureate Degree	25-29	87.8%	70.9%	43.2%	70.4%	42.8%	84.8%	60.9%	83.8%	71.8%
	30-34	92.1%	64.0%	42.2%	64.9%	40.5%	86.4%	58.0%	90.0%	56.5%
	35-39	93.4%	61.3%	33.8%	65.1%	36.7%	85.9%	46.3%	87.9%	52.2%
	40-44	93.2%	54.0%	31.7%	62.3%	36.1%	87.0%	51.9%	88.8%	39.1%
	45-49	92.6%	56.7%	27.6%	69.1%	34.1%	87.6%	41.7%	87.8%	47.1%
	50-54	90.9%	49.5%	20.9%	59.8%	24.8%	78.2%	26.1%	86.2%	25.1%
	55-59	84.7%	39.3%	17.8%	53.1%	22.0%	71.3%	25.3%	82.7%	28.6%
	60-64	67.8%	30.3%	9.2%	40.6%	14.4%	58.5%	17.3%	63.5%	16.3%
	65-69	42.4%	19.9%	7.7%	26.7%	11.3%	31.2%	13.2%	36.9%	12.1%
	70-74	25.2%	12.6%	4.6%	17.9%	5.6%	18.0%	4.7%	23.6%	6.3%
	75-79	17.1%	5.8%	3.4%	12.3%	5.5%	12.0%	5.2%	15.1%	6.0%
	80-84	10.4%	6.7%	1.8%	8.3%	2.8%	3.5%	2.7%	9.4%	3.1%
85-89	6.9%	2.4%	1.2%	5.5%	2.0%	5.2%	1.9%	5.1%	2.1%	
Master's Degree	25-29	88.9%	66.9%	24.4%	60.2%	29.8%	88.9%	38.6%	84.8%	37.2%
	30-34	93.6%	84.3%	61.0%	85.6%	64.3%	89.6%	40.8%	91.7%	39.3%
	35-39	95.1%	62.1%	37.5%	84.4%	50.6%	89.4%	41.3%	97.6%	39.8%
	40-44	95.1%	68.9%	45.0%	78.9%	39.5%	81.6%	41.2%	92.0%	39.7%
	45-49	94.2%	59.6%	27.0%	74.7%	39.0%	85.1%	49.6%	92.7%	39.1%
	50-54	92.4%	62.1%	26.6%	63.1%	32.2%	80.6%	39.2%	93.1%	48.6%
	55-59	86.4%	54.2%	19.9%	61.5%	27.7%	83.9%	38.5%	84.1%	34.0%
	60-64	68.7%	32.2%	11.9%	44.1%	18.5%	61.8%	21.2%	63.1%	18.6%
	65-69	42.5%	20.7%	10.7%	27.9%	13.8%	32.6%	20.9%	40.2%	9.4%
	70-74	26.0%	15.0%	4.3%	17.7%	8.5%	27.7%	7.0%	20.7%	8.8%
	75-79	15.8%	10.3%	2.1%	11.9%	4.5%	17.2%	5.1%	16.3%	4.9%
	80-84	10.0%	5.7%	0.9%	10.5%	2.5%	1.1%	3.0%	8.6%	2.6%
85-89	5.9%	3.4%	0.5%	6.9%	2.1%	6.5%	2.0%	7.9%	1.3%	
Doctorate Degree	25-29	88.6%	59.9%	26.6%	67.5%	32.9%	79.4%		83.4%	
	30-34	94.4%	63.9%	28.4%	72.0%	35.2%	84.8%		89.1%	
	35-39	96.1%	65.0%	28.9%	73.3%	35.8%	86.2%		90.6%	
	40-44	96.6%	65.2%	28.9%	73.4%	35.8%	86.4%		90.8%	
	45-49	95.9%	64.6%	28.7%	72.8%	35.5%	85.7%		96.7%	
	50-54	94.9%	64.5%	28.2%	75.2%	32.7%	86.5%		96.2%	
	55-59	91.8%	43.1%	22.5%	77.1%	33.0%	82.2%		94.6%	
	60-64	82.8%	41.4%	21.6%	60.4%	24.4%	72.8%		79.3%	
	65-69	58.5%	38.4%	11.4%	38.9%	19.2%	60.3%		57.4%	
	70-74	37.9%	24.2%	2.9%	26.6%	13.1%	34.9%		31.4%	
	75-79	24.0%	14.9%	1.7%	23.8%	4.0%	13.7%		22.3%	
	80-84	14.5%	8.1%	0.7%	9.6%	2.5%	10.7%		10.6%	
85-89	8.0%	4.0%	0.4%	6.9%	0.7%	5.3%		5.5%		
Professional Degree	25-29	83.4%	46.2%	22.1%	61.2%	32.2%	74.5%		77.0%	
	30-34	93.9%	51.9%	24.9%	68.8%	36.2%	83.8%		86.6%	
	35-39	96.0%	68.0%	25.4%	70.2%	37.0%	85.5%		88.3%	
	40-44	96.6%	61.0%	25.5%	70.6%	37.2%	85.9%		92.9%	
	45-49	96.0%	52.9%	25.4%	76.0%	41.1%	85.4%		92.5%	
	50-54	95.6%	59.9%	26.5%	73.1%	40.9%	88.9%		98.8%	
	55-59	92.9%	36.4%	22.4%	67.5%	37.8%	83.0%		81.6%	
	60-64	83.7%	25.3%	14.1%	57.0%	24.1%	58.7%		77.2%	
	65-69	65.5%	22.8%	16.2%	52.1%	23.8%	48.1%		58.8%	
	70-74	44.4%	23.0%	5.6%	26.2%	16.3%	41.8%		35.5%	
	75-79	32.8%	16.5%	3.4%	21.9%	8.2%	23.3%		30.1%	
	80-84	21.2%	9.7%	0.0%	16.1%	4.0%	15.7%		16.9%	
85-89	14.2%	5.6%	1.0%	10.8%	3.1%	9.0%		10.4%		

Figure 38 Female Rates of Employment

	Ages	No Dis.	Cog.	Cog Severe	Mob.	Mob. Severe	Vis.	Vis. Severe	Hear	Hear Severe
Less Than 9th grade	25-29	37.5%	20.1%	7.0%	28.6%	4.6%	27.7%	7.9%	23.8%	11.8%
	30-34	42.2%	18.9%	10.0%	16.6%	10.7%	43.6%	16.6%	35.1%	9.8%
	35-39	47.1%	26.2%	8.5%	29.9%	7.8%	37.4%	13.6%	49.9%	14.5%
	40-44	52.6%	27.8%	9.1%	29.5%	9.3%	45.6%	7.9%	57.9%	9.4%
	45-49	54.2%	25.9%	9.5%	26.4%	6.5%	46.5%	9.7%	41.3%	11.9%
	50-54	53.5%	20.4%	9.0%	25.2%	8.1%	45.3%	8.9%	44.9%	11.5%
	55-59	47.0%	24.2%	7.4%	24.9%	7.5%	39.7%	8.4%	43.3%	8.2%
	60-64	35.1%	17.7%	5.6%	16.5%	5.6%	25.9%	4.9%	28.3%	5.3%
	65-69	16.2%	8.0%	3.1%	8.4%	3.6%	15.3%	3.0%	12.3%	2.7%
	70-74	8.8%	6.3%	1.5%	4.6%	1.5%	5.6%	1.8%	8.6%	1.5%
	75-79	4.4%	4.0%	0.7%	2.9%	0.8%	3.0%	0.8%	4.9%	0.8%
80-84	2.4%	1.3%	0.4%	2.0%	0.4%	1.9%	0.4%	2.3%	0.4%	
85-89	1.6%	0.9%	0.4%	0.8%	0.3%	1.3%	0.5%	0.9%	0.5%	
Some High School	25-29	43.5%	21.4%	12.7%	22.6%	10.0%	38.5%	12.7%	37.0%	14.0%
	30-34	48.0%	23.1%	11.7%	27.1%	10.4%	48.9%	14.1%	40.4%	18.2%
	35-39	52.4%	19.7%	12.0%	22.1%	10.9%	45.8%	6.9%	50.6%	12.1%
	40-44	56.0%	24.3%	9.6%	27.9%	10.3%	48.0%	9.7%	44.4%	20.4%
	45-49	57.7%	19.8%	7.9%	28.2%	7.8%	46.6%	8.7%	53.6%	10.6%
	50-54	56.3%	20.2%	7.6%	23.6%	8.0%	40.9%	8.4%	45.9%	7.7%
	55-59	53.1%	22.6%	6.8%	24.8%	7.5%	37.6%	6.1%	47.3%	8.2%
	60-64	40.4%	16.5%	4.4%	19.5%	5.5%	30.1%	4.3%	35.5%	6.3%
	65-69	21.0%	13.8%	3.5%	12.6%	3.2%	15.8%	2.6%	16.7%	2.2%
	70-74	11.8%	8.2%	1.8%	7.5%	2.2%	9.8%	2.0%	9.2%	2.1%
	75-79	6.9%	3.1%	1.5%	3.8%	1.6%	4.2%	0.9%	4.6%	2.1%
80-84	3.5%	2.5%	0.4%	2.2%	0.6%	3.3%	0.7%	3.7%	0.5%	
85-89	2.0%	1.5%	0.2%	1.4%	0.5%	2.8%	0.5%	1.7%	0.5%	
GED or Alt. Credential	25-29	55.5%	37.0%	18.6%	37.0%	14.5%	51.4%	19.4%	50.9%	38.6%
	30-34	60.4%	33.6%	19.1%	31.2%	18.5%	59.7%	14.9%	46.6%	19.2%
	35-39	64.0%	34.1%	14.3%	33.9%	11.3%	57.9%	16.8%	62.7%	24.9%
	40-44	66.3%	32.4%	14.0%	35.5%	11.0%	51.7%	21.3%	73.2%	23.3%
	45-49	69.0%	33.4%	13.8%	34.3%	10.9%	51.4%	17.9%	67.0%	13.6%
	50-54	68.3%	31.2%	8.3%	30.3%	9.7%	51.9%	10.0%	66.0%	12.4%
	55-59	64.2%	23.9%	7.8%	30.5%	8.9%	51.0%	9.7%	60.1%	11.2%
	60-64	47.9%	24.4%	7.3%	26.5%	8.1%	35.0%	7.4%	43.3%	6.8%
	65-69	26.5%	15.5%	5.2%	15.7%	4.7%	20.2%	5.6%	19.4%	4.6%
	70-74	13.9%	9.3%	3.6%	11.8%	3.4%	10.6%	3.9%	16.0%	3.0%
	75-79	10.0%	4.1%	1.4%	5.6%	2.7%	4.1%	2.7%	7.1%	2.9%
80-84	5.4%	17.8%	0.2%	3.2%	0.7%	6.3%	0.5%	6.9%	0.1%	
85-89	2.9%	1.2%	0.6%	2.3%	1.5%	1.9%	0.0%	2.3%	2.2%	
High School Graduate	25-29	63.7%	35.3%	22.8%	36.0%	17.4%	58.0%	25.7%	56.5%	32.2%
	30-34	64.7%	36.9%	19.8%	35.3%	14.6%	59.2%	20.8%	54.5%	24.9%
	35-39	68.3%	33.5%	16.6%	34.4%	13.7%	56.9%	14.0%	60.1%	17.3%
	40-44	71.8%	34.1%	13.8%	40.2%	13.5%	57.1%	15.5%	65.2%	18.1%
	45-49	74.4%	33.8%	13.6%	42.5%	13.8%	57.5%	15.3%	64.4%	14.0%
	50-54	73.1%	32.2%	11.1%	42.5%	12.6%	60.1%	11.2%	68.7%	12.4%
	55-59	67.1%	31.8%	9.6%	37.3%	11.8%	52.6%	10.0%	63.9%	12.8%
	60-64	49.9%	23.4%	6.2%	29.5%	7.9%	37.7%	6.0%	45.7%	8.5%
	65-69	26.1%	14.9%	3.3%	16.1%	5.4%	19.7%	4.1%	23.8%	4.4%
	70-74	14.0%	8.1%	1.9%	9.1%	2.9%	10.1%	2.5%	13.1%	2.1%
	75-79	8.0%	4.5%	1.6%	5.6%	2.4%	6.8%	2.3%	7.6%	2.1%
80-84	3.9%	2.7%	0.5%	2.8%	0.7%	2.7%	0.6%	3.2%	0.7%	
85-89	2.3%	1.0%	0.4%	1.8%	0.4%	0.8%	0.4%	1.8%	0.5%	

Figure 38 Female Rates of Employment (continued)

	Ages	No Dis.	Cog.	Cog Severe	Mob.	Mob. Severe	Vis.	Vis. Severe	Hear	Hear Severe
Some College, No Degree	25-29	70.5%	49.8%	24.9%	46.1%	29.0%	65.6%	34.0%	66.0%	42.6%
	30-34	70.6%	42.2%	18.3%	43.6%	19.5%	63.0%	21.9%	62.4%	28.2%
	35-39	72.9%	45.8%	17.0%	46.6%	19.0%	62.5%	22.1%	70.7%	24.2%
	40-44	76.0%	46.4%	11.6%	47.4%	16.2%	65.6%	16.2%	73.2%	20.4%
	45-49	78.0%	41.0%	13.6%	48.7%	17.4%	66.8%	20.4%	71.5%	21.2%
	50-54	77.4%	36.1%	11.4%	48.0%	15.3%	67.8%	14.3%	72.8%	12.6%
	55-59	71.9%	32.2%	8.3%	44.3%	12.5%	61.7%	10.4%	64.8%	12.9%
	60-64	55.0%	28.0%	6.9%	33.8%	10.0%	48.1%	8.7%	50.7%	10.5%
	65-69	31.1%	19.2%	4.5%	20.5%	7.7%	24.8%	8.1%	29.1%	8.0%
	70-74	17.6%	9.6%	3.7%	11.3%	4.4%	14.7%	3.5%	17.0%	3.3%
	75-79	10.1%	5.3%	2.0%	7.0%	2.5%	7.2%	2.0%	9.2%	2.2%
	80-84	5.2%	1.1%	0.8%	4.7%	1.3%	4.4%	1.6%	4.7%	1.2%
85-89	3.1%	1.4%	0.8%	2.0%	0.8%	1.8%	0.8%	3.7%	0.8%	
Associate Degree	25-29	79.0%	63.2%	31.7%	58.8%	29.2%	72.6%	46.9%	69.5%	24.1%
	30-34	77.0%	62.3%	21.0%	56.2%	27.8%	68.3%	43.8%	71.2%	46.0%
	35-39	78.8%	48.9%	15.1%	53.2%	22.8%	67.9%	22.2%	78.8%	21.0%
	40-44	80.5%	48.6%	21.3%	52.8%	22.4%	73.6%	29.7%	81.3%	38.1%
	45-49	82.1%	49.6%	15.2%	57.0%	17.7%	75.1%	19.8%	77.7%	22.5%
	50-54	81.3%	43.9%	12.8%	55.5%	18.1%	70.8%	14.6%	75.6%	25.1%
	55-59	76.3%	33.0%	8.9%	50.1%	15.5%	63.4%	12.4%	71.4%	10.5%
	60-64	59.7%	24.2%	6.2%	36.7%	11.7%	45.2%	7.8%	56.8%	11.9%
	65-69	33.0%	13.9%	4.5%	23.4%	7.5%	27.8%	6.3%	28.6%	5.9%
	70-74	17.7%	8.9%	0.5%	11.2%	3.3%	17.8%	1.7%	16.2%	1.8%
	75-79	10.1%	0.6%	2.1%	9.8%	3.2%	1.9%	3.4%	7.8%	1.2%
	80-84	5.2%	0.3%	0.5%	2.0%	1.1%	2.2%	0.0%	3.4%	0.4%
85-89	3.5%	1.5%	0.8%	2.2%	1.0%	12.9%	0.7%	1.7%	0.5%	
Baccalaureate Degree	25-29	83.4%	72.8%	44.6%	73.0%	45.5%	80.2%	63.6%	85.0%	34.6%
	30-34	78.9%	62.1%	36.5%	66.2%	36.1%	76.1%	58.2%	72.7%	63.7%
	35-39	76.5%	58.9%	25.7%	63.4%	31.6%	81.6%	32.5%	76.0%	31.6%
	40-44	77.7%	55.4%	21.3%	67.1%	30.7%	82.5%	38.3%	80.3%	47.2%
	45-49	79.7%	53.0%	20.6%	61.4%	26.0%	76.4%	25.8%	81.0%	39.1%
	50-54	80.4%	42.3%	16.6%	61.9%	24.0%	73.7%	30.1%	80.2%	27.6%
	55-59	74.7%	36.9%	13.2%	55.6%	19.1%	62.8%	14.7%	69.6%	18.3%
	60-64	56.7%	28.8%	9.1%	42.4%	14.7%	48.6%	14.4%	52.6%	16.3%
	65-69	31.3%	16.9%	6.5%	24.6%	9.1%	25.2%	8.0%	26.8%	9.8%
	70-74	16.4%	12.5%	2.7%	12.9%	4.4%	11.5%	4.8%	13.7%	5.1%
	75-79	9.9%	4.9%	1.7%	5.8%	3.2%	9.6%	3.1%	7.4%	3.7%
	80-84	5.1%	2.5%	0.8%	3.7%	1.1%	3.3%	1.3%	4.2%	1.1%
85-89	3.7%	1.9%	0.5%	2.5%	0.7%	1.8%	1.5%	2.3%	0.3%	
Master's Degree	25-29	85.8%	74.0%	23.6%	64.6%	59.8%	90.3%	36.4%	83.3%	36.1%
	30-34	84.4%	66.1%	45.7%	79.3%	48.0%	85.3%	35.8%	81.3%	35.5%
	35-39	83.4%	72.4%	30.1%	76.1%	38.6%	79.9%	35.3%	72.1%	35.0%
	40-44	83.8%	65.9%	28.1%	70.8%	43.2%	86.0%	47.6%	82.0%	35.2%
	45-49	86.1%	64.5%	20.9%	73.2%	32.6%	77.9%	34.5%	87.5%	36.0%
	50-54	86.5%	50.8%	19.4%	72.2%	31.2%	82.8%	29.1%	85.2%	39.2%
	55-59	79.9%	38.9%	18.7%	60.6%	25.3%	75.8%	30.3%	78.0%	33.0%
	60-64	59.6%	31.1%	13.1%	46.5%	18.2%	52.6%	23.1%	58.5%	18.0%
	65-69	34.5%	28.9%	8.2%	27.7%	10.7%	32.3%	10.2%	34.9%	8.6%
	70-74	20.0%	10.1%	1.3%	15.4%	4.2%	22.0%	0.8%	19.8%	5.1%
	75-79	12.0%	2.6%	1.7%	7.2%	3.0%	13.1%	2.3%	8.8%	1.9%
	80-84	6.9%	2.6%	0.6%	6.7%	1.1%	1.7%	0.5%	5.7%	1.8%
85-89	3.4%	2.0%	0.7%	1.9%	1.8%	9.2%	0.4%	5.3%	1.1%	

Figure 38 Female Rates of Employment (continued)

	Ages	No Dis.	Cog.	Cog Severe	Mob.	Mob. Severe	Vis.	Vis. Severe	Hear	Hear Severe
Doctorate Degree	25-29	88.5%			66.1%	33.6%			86.3%	
	30-34	90.6%			67.7%	34.4%			88.5%	
	35-39	88.9%			66.4%	33.8%			86.7%	
	40-44	88.4%			65.8%	33.5%			86.1%	
	45-49	90.5%			66.8%	34.1%			87.7%	
	50-54	89.6%			72.7%	37.2%			94.3%	
	55-59	86.9%			67.4%	21.6%			87.7%	
	60-64	75.3%			54.3%	23.3%			68.9%	
	65-69	51.6%			39.9%	22.6%			50.3%	
	70-74	34.4%			22.7%	10.4%			32.3%	
	75-79	21.4%			15.0%	4.2%			12.0%	
	80-84	10.7%			15.2%	1.1%			5.9%	
	85-89	10.0%			4.3%	2.0%			5.7%	
Professional Degree	25-29	82.8%	58.8%	22.0%	64.8%	24.6%	78.4%		81.5%	
	30-34	87.8%	62.3%	23.3%	68.7%	26.1%	83.0%		86.4%	
	35-39	85.5%	60.6%	22.7%	66.9%	25.4%	80.9%		84.1%	
	40-44	85.6%	60.4%	15.1%	73.3%	26.2%	80.5%		93.6%	
	45-49	86.5%	62.9%	22.5%	76.6%	23.7%	81.1%		84.2%	
	50-54	86.1%	55.2%	16.7%	72.2%	17.1%	80.1%		92.0%	
	55-59	82.1%	40.4%	18.2%	66.0%	22.5%	78.1%		76.8%	
	60-64	66.8%	38.8%	5.9%	51.8%	19.2%	61.0%		68.4%	
	65-69	45.6%	30.2%	5.4%	29.2%	10.9%	40.3%		30.0%	
	70-74	25.9%	16.5%	5.0%	15.0%	5.5%	22.0%		20.0%	
	75-79	17.4%	10.1%	1.7%	14.9%	3.7%	13.5%		9.2%	
	80-84	8.3%	4.1%	0.0%	4.9%	1.7%	5.5%		4.7%	
	85-89	5.8%	3.3%	0.0%	9.5%	4.1%	4.5%		8.0%	

Appendix G Worklife Expectancies

A worklife expectancy, or number of years of future employment, from a given age is the sum of the joint probabilities of life and employment for the remaining years. The probability of life for each future age is computed in accordance with Appendix D. The probability of employment at each future age is taken from Appendix F. We compute and sum these probabilities through the age of 89. Doing these computations for every fifth starting age of 25 through 60,²⁴ we derive the worklife expectancies shown in the following tables.

Figure 39 Male Worklife Expectancies by Education and Disability Status

	Age	No Dis.	Cog.	Cog Severe	Mob.	Mob. Severe	Vis.	Vis. Severe	Hear	Hear Severe
Less Than 9th grade	25	31.5	11.6	4.7	13.9	4.6	24.8	5.6	26.4	6.9
	30	27.6	10.4	4.3	11.5	4.1	21.7	5.0	23.2	6.3
	35	23.6	8.8	3.8	9.5	3.4	18.6	4.1	20.1	5.0
	40	19.5	7.3	3.2	7.2	2.9	15.2	3.2	16.6	4.0
	45	15.6	5.7	2.6	5.6	2.1	12.1	2.4	13.1	2.7
	50	11.9	4.5	2.0	4.2	1.6	9.0	1.7	10.0	1.7
	55	8.4	3.2	1.4	3.0	1.1	6.0	1.3	7.0	1.2
Some High School	25	28.9	10.8	4.7	11.4	4.3	21.5	5.4	26.2	6.8
	30	25.6	9.3	4.0	9.9	3.6	19.0	4.4	23.3	5.5
	35	22.1	8.1	3.3	8.3	3.1	16.3	3.7	20.2	4.4
	40	18.4	6.7	2.6	6.7	2.5	13.6	3.0	16.8	3.2
	45	14.9	5.5	2.0	5.4	1.9	10.4	2.1	13.8	2.4
	50	11.4	4.3	1.4	4.2	1.4	7.7	1.6	10.6	1.8
	55	8.2	3.3	1.1	3.0	1.1	5.4	1.1	7.5	1.3
GED or Alt. Credential	25	29.5	12.1	6.5	13.0	5.3	22.5	5.9	27.8	7.6
	30	26.2	10.4	5.3	11.4	4.4	19.2	5.0	24.8	5.8
	35	22.7	8.9	4.0	9.7	3.7	16.6	4.1	21.8	4.1
	40	19.1	7.2	3.1	8.0	2.9	13.8	3.4	18.2	3.5
	45	15.5	5.9	2.3	6.4	2.3	11.4	2.6	14.6	2.6
	50	12.0	4.6	1.7	4.9	1.7	8.6	1.8	11.1	2.0
	55	8.5	3.5	1.2	3.5	1.3	5.8	1.4	7.7	1.5
High School Graduate	25	32.7	15.6	7.0	16.1	6.2	25.7	7.8	30.3	9.1
	30	28.9	13.5	5.8	13.6	5.3	22.5	6.5	26.9	7.5
	35	25.0	11.5	4.5	11.6	4.4	19.2	5.0	23.3	5.9
	40	20.9	9.5	3.5	9.7	3.5	16.2	3.9	19.5	4.9
	45	16.9	7.6	2.7	7.9	2.7	12.9	3.0	15.7	3.7
	50	13.0	5.8	1.9	6.0	2.1	9.6	2.2	11.9	2.5
	55	9.2	4.2	1.3	4.3	1.4	6.7	1.5	8.3	1.7
60	5.7	2.9	0.8	2.9	1.0	3.9	0.9	5.0	1.1	

²⁴ Computations are limited to every 5th year for brevity. Full detail is available from the author.

Figure 39 Male Worklife Expectancies by Education and Disability Status (continued)

	Age	No Dis.	Cog.	Cog Severe	Mob.	Mob. Severe	Vis.	Vis. Severe	Hear	Hear Severe
Some College, No Degree	25	33.9	18.2	6.8	19.2	7.9	27.6	9.7	31.4	11.2
	30	30.1	15.7	5.6	16.7	6.6	24.5	8.1	27.8	9.2
	35	26.0	13.3	4.5	14.1	5.4	21.0	6.5	24.2	7.2
	40	21.9	10.8	3.5	11.7	4.2	17.6	4.8	20.4	5.2
	45	17.8	8.7	2.6	9.3	3.2	14.1	3.6	16.4	3.8
	50	13.8	6.6	1.9	7.1	2.4	10.8	2.6	12.6	2.8
	55	9.9	4.9	1.3	5.1	1.8	7.6	1.7	8.8	2.0
60	6.3	3.4	0.9	3.4	1.2	4.9	1.2	5.4	1.3	
Associate Degree	25	35.0	18.8	8.5	21.1	10.1	30.5	11.0	32.7	8.7
	30	30.9	16.0	6.9	17.9	8.3	26.9	9.0	29.0	7.6
	35	26.7	13.2	5.3	15.4	6.5	22.8	6.3	25.0	6.6
	40	22.4	10.7	4.0	12.6	4.9	19.1	4.8	20.9	5.5
	45	18.2	8.3	3.1	10.1	3.8	15.7	3.5	16.9	4.1
	50	14.1	5.9	2.2	7.6	2.7	11.9	2.8	12.8	3.1
	55	10.1	4.1	1.4	5.4	1.9	8.1	1.8	9.1	2.1
60	6.4	2.4	0.9	3.3	1.3	5.2	1.0	5.6	1.4	
Baccalaureate Degree	25	36.6	21.9	11.5	25.3	12.9	32.7	16.6	34.7	17.1
	30	32.4	18.5	9.4	21.9	10.9	28.6	13.7	30.7	13.7
	35	28.0	15.4	7.4	18.8	8.9	24.5	10.9	26.4	10.9
	40	23.6	12.5	5.7	15.7	7.1	20.4	8.7	22.3	8.4
	45	19.2	9.9	4.2	12.8	5.4	16.3	6.2	18.1	6.5
	50	14.9	7.2	2.9	9.6	3.8	12.2	4.2	14.0	4.3
	55	10.8	5.0	1.9	6.9	2.7	8.7	3.0	10.1	3.2
60	7.0	3.2	1.1	4.5	1.7	5.4	1.9	6.4	1.9	
Master's Degree	25	37.1	25.1	12.8	28.6	15.5	34.1	16.0	36.1	15.0
	30	32.9	22.0	11.7	25.8	14.1	29.9	14.2	32.1	13.2
	35	28.4	17.9	8.7	21.7	10.9	25.6	12.3	27.8	11.3
	40	23.9	14.9	6.9	17.6	8.5	21.4	10.3	23.1	9.4
	45	19.5	11.7	4.7	13.9	6.6	17.5	8.4	18.8	7.6
	50	15.1	8.9	3.5	10.4	4.8	13.6	6.0	14.5	5.7
	55	10.9	6.0	2.2	7.6	3.3	10.0	4.2	10.3	3.5
60	7.0	3.6	1.3	4.8	2.1	6.2	2.5	6.5	1.9	
Doctorate Degree	25	39.7	25.2	10.7	30.4	13.9	35.6		38.2	
	30	35.5	22.3	9.5	27.2	12.4	31.8		34.3	
	35	31.0	19.3	8.1	23.8	10.7	27.8		30.1	
	40	26.5	16.2	6.7	20.3	9.0	23.8		25.8	
	45	22.0	13.1	5.4	16.9	7.3	19.7		21.6	
	50	17.6	10.2	4.0	13.6	5.7	15.8		17.2	
	55	13.3	7.2	2.7	10.2	4.2	11.9		12.8	
60	9.3	5.4	1.7	6.8	2.7	8.3		8.6		
Professional Degree	25	40.4	21.5	9.8	29.7	15.4	35.0		37.6	
	30	36.5	19.4	8.7	26.9	13.9	31.5		34.0	
	35	32.1	16.9	7.5	23.6	12.2	27.5		29.9	
	40	27.6	13.7	6.3	20.3	10.4	23.4		25.8	
	45	23.1	10.8	5.1	17.0	8.7	19.4		21.4	
	50	18.7	8.3	4.0	13.5	6.8	15.5		17.2	
	55	14.5	5.6	2.7	10.3	4.9	11.5		12.8	
60	10.4	4.0	1.7	7.3	3.3	7.8		9.2		

Figure 40 Female Worklife Expectancies by Education and Disability Status

	Age	No Dis.	Cog.	Cog Severe	Mob.	Mob. Severe	Vis.	Vis. Severe	Hear	Hear Severe
Less Than 9th grade	25	19.2	9.6	3.4	10.3	3.2	16.2	4.0	16.8	4.2
	30	17.3	8.6	3.1	8.9	2.9	14.8	3.7	15.7	3.7
	35	15.3	7.7	2.6	8.1	2.4	12.7	2.8	14.0	3.2
	40	13.0	6.4	2.2	6.6	2.0	10.9	2.2	11.6	2.5
	45	10.5	5.0	1.8	5.2	1.6	8.7	1.8	8.7	2.0
	50	7.9	3.8	1.3	3.9	1.3	6.5	1.3	6.8	1.4
	55	5.3	2.9	0.9	2.8	0.9	4.3	0.9	4.7	0.9
	60	3.1	1.7	0.5	1.6	0.6	2.4	0.5	2.6	0.5
Some High School	25	21.4	9.2	3.8	10.5	3.7	17.7	3.7	18.5	5.0
	30	19.3	8.2	3.2	9.4	3.2	15.8	3.1	16.7	4.3
	35	17.0	7.1	2.6	8.1	2.7	13.4	2.4	14.8	3.4
	40	14.5	6.1	2.0	7.0	2.2	11.2	2.1	12.3	2.9
	45	11.8	4.9	1.6	5.7	1.7	8.9	1.6	10.2	1.9
	50	9.0	4.0	1.2	4.4	1.3	6.6	1.2	7.6	1.4
	55	6.4	3.1	0.8	3.3	1.0	4.7	0.8	5.5	1.0
	60	3.9	2.0	0.5	2.1	0.6	2.9	0.5	3.2	0.6
GED or Alt. Credential	25	26.2	13.8	5.5	14.0	5.0	21.5	6.2	24.7	7.8
	30	23.5	12.0	4.6	12.2	4.3	19.0	5.3	22.2	5.9
	35	20.6	10.4	3.6	10.7	3.4	16.1	4.5	20.0	5.0
	40	17.5	8.7	2.9	9.1	2.8	13.3	3.7	16.9	3.7
	45	14.3	7.2	2.2	7.3	2.3	10.8	2.7	13.4	2.6
	50	11.0	5.6	1.6	5.7	1.8	8.3	1.8	10.2	1.9
	55	7.8	4.1	1.2	4.3	1.3	5.9	1.4	7.1	1.4
	60	4.8	3.0	0.8	2.9	0.9	3.5	0.9	4.2	0.8
High School Graduate	25	27.9	13.9	5.8	15.8	5.6	22.9	6.2	25.1	7.2
	30	24.8	12.1	4.7	14.0	4.7	20.0	4.9	22.3	5.6
	35	21.7	10.3	3.7	12.3	4.0	17.1	3.9	19.7	4.4
	40	18.3	8.7	2.9	10.6	3.3	14.4	3.2	16.8	3.6
	45	14.9	7.1	2.3	8.7	2.7	11.6	2.4	13.7	2.7
	50	11.4	5.5	1.6	6.7	2.0	8.9	1.7	10.6	2.0
	55	7.9	4.0	1.1	4.7	1.4	6.0	1.2	7.3	1.4
	60	4.7	2.4	0.6	2.9	0.9	3.5	0.7	4.3	0.8
Some College, No Degree	25	30.3	17.1	5.9	19.1	7.4	26.3	7.8	28.2	9.0
	30	26.8	14.6	4.7	16.8	6.0	23.1	6.2	25.0	6.9
	35	23.4	12.6	3.8	14.7	5.0	20.0	5.1	22.0	5.5
	40	19.9	10.3	3.0	12.5	4.1	17.0	4.0	18.5	4.4
	45	16.2	8.1	2.4	10.2	3.3	13.9	3.2	15.0	3.4
	50	12.5	6.1	1.7	7.9	2.5	10.7	2.2	11.6	2.4
	55	8.9	4.4	1.2	5.6	1.8	7.5	1.6	8.2	1.8
	60	5.5	2.9	0.8	3.5	1.2	4.6	1.1	5.1	1.2
Associate Degree	25	32.4	19.2	6.8	22.3	8.7	28.3	10.1	30.5	10.1
	30	28.6	16.1	5.2	19.4	7.2	24.8	7.8	27.1	8.9
	35	24.8	13.0	4.2	16.6	5.9	21.4	5.7	23.6	6.7
	40	21.0	10.7	3.5	14.1	4.7	18.1	4.6	19.8	5.6
	45	17.1	8.3	2.4	11.5	3.7	14.6	3.1	15.9	3.8
	50	13.2	5.9	1.7	8.8	2.8	11.0	2.2	12.2	2.7
	55	9.4	3.8	1.1	6.2	2.0	7.6	1.5	8.6	1.5
	60	5.8	2.3	0.6	3.8	1.2	4.7	0.9	5.2	1.0

Figure 40 Female Worklife Expectancies by Education and Disability Status (continued)

	Age	No Dis.	Cog.	Cog Severe	Mob.	Mob. Severe	Vis.	Vis. Severe	Hear	Hear Severe
Baccalaureate Degree	25	32.0	21.5	9.7	25.7	11.8	30.2	14.3	31.1	14.4
	30	27.9	17.9	7.5	22.2	9.6	26.3	11.2	26.9	12.7
	35	24.1	14.9	5.7	18.9	7.8	22.6	8.3	23.4	9.5
	40	20.4	12.0	4.4	15.9	6.3	18.6	6.7	19.7	8.0
	45	16.6	9.3	3.4	12.6	4.8	14.6	4.8	15.8	5.7
	50	12.8	6.8	2.4	9.7	3.5	11.0	3.6	12.0	3.8
	55	9.0	4.8	1.6	6.8	2.4	7.5	2.1	8.1	2.5
	60	5.5	3.0	1.0	4.1	1.5	4.5	1.5	4.8	1.6
Master's Degree	25	34.4	24.4	10.2	28.6	15.3	33.5	13.8	33.3	13.7
	30	30.2	20.8	9.1	25.5	12.3	29.1	12.0	29.2	12.0
	35	26.1	17.6	6.8	21.6	10.0	24.9	10.3	25.2	10.2
	40	22.1	14.0	5.3	17.9	8.1	21.1	8.5	21.7	8.5
	45	18.0	10.8	4.0	14.5	6.0	16.9	6.2	17.8	6.8
	50	13.9	7.7	3.0	11.0	4.4	13.2	4.6	13.6	5.1
	55	9.9	5.3	2.1	7.6	2.9	9.3	3.2	9.6	3.2
	60	6.1	3.5	1.2	4.7	1.7	5.7	1.7	5.9	1.6
Doctorate Degree	25	38.6			29.1	13.8			37.3	
	30	34.3			25.9	12.2			33.1	
	35	29.9			22.6	10.5			28.8	
	40	25.6			19.4	8.8			24.6	
	45	21.4			16.3	7.2			20.5	
	50	17.1			13.1	5.6			16.4	
	55	12.9			9.7	3.8			11.9	
	60	8.9			6.6	2.9			7.8	
Professional Degree	25	36.0	23.8	7.6	28.8	9.9	33.5		35.0	
	30	32.0	20.9	6.5	25.7	8.7	29.7		31.0	
	35	27.7	17.9	5.4	22.3	7.4	25.6		26.8	
	40	23.6	15.0	4.3	19.1	6.2	21.7		22.7	
	45	19.5	12.0	3.6	15.6	4.9	17.8		18.2	
	50	15.4	9.0	2.5	11.9	3.8	14.0		14.2	
	55	11.3	6.4	1.7	8.5	3.0	10.2		9.8	
	60	7.5	4.6	0.8	5.4	2.0	6.5		6.2	

Appendix H Lifetime Loss from Disability

As discussed in the “Putting it All Together” section, we compute lifetime loss as follows:

- We computed the joint probability of life (Appendix D) and employment (Appendix F) for each age from the starting age through 89.
- We multiplied these joint probabilities by the age-earnings profiles (Appendix C) to arrive at weighted expected earnings by age.
- The sum of the weighted earnings is the lifetime expected earnings.

Figure 41 provides all the computable values at the age of 25, and Figure 42 provides the same at the age of 50. Where sample size prohibited computations of an age-earnings profile, we compute no loss.

Figure 41 Lifetime Loss by Gender, Education, and Disability Status at Age 25

	No Disab. Earnings	Cog. Loss	Cog. Sev. Loss	Mob. Loss	Mob. Sev. Loss	Vis. Loss	Vis. Sev. Loss	Hear Loss	Hear Sev. Loss	
Males	Less Than 9th grade	865,000	550,000 (64%)	736,000 (85%)	465,000 (54%)	733,000 (85%)	219,000 (25%)	719,000 (83%)	119,000 (14%)	671,000 (78%)
	Some High School	964,000	666,000 (69%)	837,000 (87%)	608,000 (63%)	829,000 (86%)	330,000 (34%)	807,000 (84%)	105,000 (11%)	752,000 (78%)
	GED or Alt. Credential	1,172,000	763,000 (65%)	958,000 (82%)	703,000 (60%)	983,000 (84%)	389,000 (33%)	967,000 (83%)	129,000 (11%)	908,000 (77%)
	High School Graduate	1,367,000	843,000 (62%)	1,137,000 (83%)	784,000 (57%)	1,144,000 (84%)	435,000 (32%)	1,090,000 (80%)	129,000 (9%)	1,007,000 (74%)
	Some College, No Degree	1,703,000	957,000 (56%)	1,430,000 (84%)	892,000 (52%)	1,376,000 (81%)	546,000 (32%)	1,307,000 (77%)	221,000 (13%)	1,200,000 (70%)
	Associate Degree	1,901,000	1,084,000 (57%)	1,537,000 (81%)	915,000 (48%)	1,437,000 (76%)	465,000 (24%)	1,397,000 (73%)	254,000 (13%)	1,466,000 (77%)
	Baccalaureate Degree	2,742,000	1,470,000 (54%)	2,088,000 (76%)	1,325,000 (48%)	2,036,000 (74%)	858,000 (31%)	1,802,000 (66%)	491,000 (18%)	1,675,000 (61%)
	Master's Degree	3,344,000	1,650,000 (49%)	2,477,000 (74%)	1,505,000 (45%)	2,369,000 (71%)	946,000 (28%)	2,210,000 (66%)	620,000 (19%)	2,212,000 (66%)
	Doctorate Degree	3,972,000							896,000 (23%)	
Professional Degree	5,246,000							1,328,000 (25%)		
Females	Less Than 9th grade	401,000	208,000 (52%)	332,000 (83%)			65,000 (16%)	316,000 (79%)		
	Some High School	510,000	311,000 (61%)	429,000 (84%)	278,000 (55%)	429,000 (84%)	129,000 (25%)	431,000 (85%)	94,000 (18%)	400,000 (78%)
	GED or Alt. Credential	758,000	410,000 (54%)	621,000 (82%)	395,000 (52%)	630,000 (83%)	226,000 (30%)	605,000 (80%)	105,000 (14%)	559,000 (74%)
	High School Graduate	870,000	509,000 (59%)	721,000 (83%)	431,000 (50%)	718,000 (83%)	240,000 (28%)	701,000 (81%)	141,000 (16%)	665,000 (76%)
	Some College, No Degree	1,126,000	603,000 (54%)	949,000 (84%)	491,000 (44%)	886,000 (79%)	279,000 (25%)	881,000 (78%)	167,000 (15%)	832,000 (74%)
	Associate Degree	1,384,000	757,000 (55%)	1,166,000 (84%)	564,000 (41%)	1,072,000 (77%)	324,000 (23%)	1,021,000 (74%)	179,000 (13%)	996,000 (72%)
	Baccalaureate Degree	1,748,000	788,000 (45%)	1,325,000 (76%)	556,000 (32%)	1,210,000 (69%)	275,000 (16%)	1,070,000 (61%)	176,000 (10%)	1,025,000 (59%)
	Master's Degree	2,246,000	1,008,000 (45%)	1,730,000 (77%)	652,000 (29%)	1,420,000 (63%)	363,000 (16%)	1,471,000 (65%)	206,000 (9%)	1,406,000 (63%)
	Doctorate Degree	3,190,000								
Professional Degree	3,255,000			1,457,000 (45%)	2,656,000 (82%)			419,000 (13%)		

Figure 42 Lifetime Loss by Gender, Education, and Disability Status at Age 50

	No Disab. Earnings	Cog. Loss	Cog. Sev. Loss	Mob. Loss	Mob. Sev. Loss	Vis. Loss	Vis. Sev. Loss	Hear Loss	Hear Sev. Loss	
Males	Less Than 9th grade	356,000	231,000 (65%)	302,000 (85%)	232,000 (65%)	310,000 (87%)	116,000 (33%)	311,000 (87%)	52,000 (15%)	303,000 (85%)
	Some High School	419,000	285,000 (68%)	375,000 (89%)	281,000 (67%)	371,000 (89%)	178,000 (42%)	369,000 (88%)	31,000 (7%)	352,000 (84%)
	GED or Alt. Credential	508,000	342,000 (67%)	446,000 (88%)	319,000 (63%)	441,000 (87%)	203,000 (40%)	445,000 (88%)	47,000 (9%)	426,000 (84%)
	High School Graduate	584,000	370,000 (63%)	513,000 (88%)	346,000 (59%)	502,000 (86%)	207,000 (35%)	498,000 (85%)	60,000 (10%)	474,000 (81%)
	Some College, No Degree	744,000	449,000 (60%)	658,000 (88%)	412,000 (55%)	630,000 (85%)	269,000 (36%)	631,000 (85%)	84,000 (11%)	600,000 (81%)
	Associate Degree	815,000	541,000 (66%)	712,000 (87%)	425,000 (52%)	674,000 (83%)	214,000 (26%)	673,000 (83%)	133,000 (16%)	653,000 (80%)
	Baccalaureate Degree	1,193,000	725,000 (61%)	1,006,000 (84%)	597,000 (50%)	956,000 (80%)	459,000 (38%)	943,000 (79%)	213,000 (18%)	893,000 (75%)
	Master's Degree	1,447,000	783,000 (54%)	1,186,000 (82%)	711,000 (49%)	1,107,000 (77%)	450,000 (31%)	1,004,000 (69%)	227,000 (16%)	954,000 (66%)
	Doctorate Degree	2,051,000	-	-	-	-	-	-	343,000 (17%)	-
	Professional Degree	2,750,000	-	-	-	-	-	-	692,000 (25%)	-
Females	Less Than 9th grade	175,000	97,000 (55%)	148,000 (85%)	-	-	43,000 (25%)	148,000 (85%)	-	-
	Some High School	230,000	140,000 (61%)	203,000 (88%)	124,000 (54%)	198,000 (86%)	74,000 (32%)	203,000 (88%)	45,000 (20%)	197,000 (86%)
	GED or Alt. Credential	329,000	184,000 (56%)	288,000 (88%)	174,000 (53%)	281,000 (85%)	114,000 (35%)	282,000 (86%)	56,000 (17%)	277,000 (84%)
	High School Graduate	376,000	226,000 (60%)	332,000 (88%)	174,000 (46%)	315,000 (84%)	129,000 (34%)	328,000 (87%)	50,000 (13%)	314,000 (84%)
	Some College, No Degree	504,000	300,000 (60%)	446,000 (88%)	219,000 (43%)	414,000 (82%)	134,000 (27%)	426,000 (85%)	76,000 (15%)	417,000 (83%)
	Associate Degree	613,000	413,000 (67%)	557,000 (91%)	253,000 (41%)	498,000 (81%)	171,000 (28%)	526,000 (86%)	98,000 (16%)	500,000 (82%)
	Baccalaureate Degree	730,000	407,000 (56%)	616,000 (84%)	244,000 (33%)	553,000 (76%)	178,000 (24%)	551,000 (75%)	102,000 (14%)	530,000 (73%)
	Master's Degree	976,000	543,000 (56%)	808,000 (83%)	311,000 (32%)	707,000 (72%)	161,000 (16%)	692,000 (71%)	83,000 (9%)	640,000 (66%)
	Doctorate Degree	1,575,000	-	-	-	-	-	-	-	-
	Professional Degree	1,478,000	-	-	590,000 (40%)	1,198,000 (81%)	-	-	320,000 (22%)	-

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