

APPENDIX

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JULY YR-0 UPDATE

NOTES ON THE DETERMINATION OF PROBABLE NET PRESENT VALUE

The derivation of the net present value in an appraisal of economic loss must take into account both expected inflationary earnings growth and probable interest returns. When future expenditures for products, equipment, medical care, etc. are considered, the relevant comparison is future price inflation relative to interest returns. When wage losses are considered, the relevant comparison is growth in earnings (both macroeconomic and individual) relative to interest returns. The following discussion focuses on the relationship of earnings growth versus interest returns to establish net present value. The same analysis is valid for the inflation versus interest returns relationship.

EARNINGS GROWTH

The reality of wage increases (earnings growth) is a future probability. Although earnings growth may fluctuate from year to year, the trend over the long-term is more predictable. The significance of such economic circumstances is that a continuation of the general historical pattern is, with some variation, probable into the future. By incorporating economic trends into an appraisal one is able to identify the appropriate real earnings loss to be compensated in the future. Identifying the real earnings loss is critical because economic losses involve a loss of living standards into the future, and it is this lifestyle that is sought as recovery, not an endlessly diminishing monetary value.

Notably, part of the increase in earnings growth is inflationary in nature while further growth is a result of technological advances in our economy, which improve overall (macroeconomic) productivity. A third component in earnings growth recognizes the increased productivity that accrues over the work years as an individual acquires specific experience and training.

For example, inflation growth or cost of living increases over time can be found on Table II of this Appendix. Table II indicates that, although price level increases have slowed in recent years, over the last thirty-three years the YR-2 price level is greater than four and one-half times the YR-35 level. That is, one currently needs \$4.74 to purchase each dollar (\$1.00) of goods and services consumed thirty-three years ago (i.e., divide the YR-2 index of 184.0 by the YR-35 index of 38.8). Thus, to maintain the same standard of living or the same basic purchasing power in YR-2 as one had in YR-35, earnings must also have a similar 4.74 fold increase.

For a variety of market reasons, hourly wage earners just barely “kept up” with inflationary increases over this same thirty-three year period. As noted on Table I-A for YR-2 vis-à-vis the base year in YR-35 produced a 4.69 fold increase (i.e. 196.6 divided by 41.9). However, over the same time frame the wages of salaried workers (indicated in Table I-B) improved by a multiple of 7.09 compared to the 4.74 inflation multiple. This information indicates that a typical thirty year old male *hourly* wage earner in YR-2 has simply maintained his standard of living in relation to inflation since YR-35 while a thirty year old male *salaried* worker in YR-2 has a substantially better standard of living than his YR-35 counterpart. Of note (and also good news) is that over the past decade, while the overall increase in inflation was approximately twenty- seven percent, the increase in the average aggregate earnings for hourly wage earners was up thirty-nine percent, resulting in a recent increase in the standard of living for these workers. Detail by year for the aggregate average hourly wage earners, salaried workers, and the inflation phenomena can be found in Tables I-A, I-B, and II, respectively.

However, the aggregate average earnings discussed above are not the only wage increases either hourly or salaried workers can expect to receive over their work years. As earlier noted, in addition to wage increases due to inflation and/or technological advances (macroeconomic factors), individual workers receive earnings increases due to their own experience, skill, and training. It is relatively common knowledge that wages tend to increase substantially faster in the early years of an individual's worklife and as the training and experience accrues, wages continue to increase but at slower rates in the latter work years. Also, conventional wisdom suggests and various government and academic data confirm that increased levels of education and training will, on average, produce not only better wage increases, but also prolonged opportunity for these wages to continue at accelerated rates. This well recognized phenomena is best captured in the "age-earnings profiles" compiled by the *Bureau of Census* and also replicated on Chart I in this Appendix.

As described above, wage increases consider numerous factors including, but not limited to, general economic conditions, industry specifics, and the special characteristics of the worker such as age, education, occupation, etc. These factors and special characteristics are important but do not invalidate the universality of inflationary earnings growth in the U.S. economy, either historically or in the future.

INTEREST EARNINGS

In addition to probable earnings growth considerations, interest earnings from a lump sum payment must be incorporated into the analysis. A sum of money available today as compensation for probable future losses has the capacity and expectation to earn additional monies. Since it is necessary that all probable future losses be summarized *in toto* today, the interest earnings available from a lump-sum payment in the present must be taken into account. (The concept of interest earnings is more precisely labeled "net" interest earnings since the yield, net of investment expenses, is the relevant measure.)

Not surprisingly, if one is required to replace \$10,000 ten years from today, less than \$10,000 can be set aside for this future obligation. How much less depends upon the probable net interest rate. At a five percent net interest, only 61 cents is needed now to replace each dollar (\$1.00) in ten years; that is, the "present value" of \$10,000 is \$5,139, the remaining amount being accumulated through ten years of compound interest.

The data in Tables III and IV depict interest returns on U.S. Treasury bills and bonds. These government securities are regarded as appropriate rates to use (especially in determining monies needed in regular intervals for wages, medical needs, etc.) when discounting to present value for several reasons:

- (1) They are relatively stable and reasonably prudent investments as these types of government securities reflect a predictable and reliable stream of income;
- (2) They are characterized by high liquidity, being easily transformed into money needed for day-to-day living; and

- (3) Management costs and the degree of difficulty in managing such an investment are minimal in comparison to investments that are more risky, less liquid, and more likely to have a volatile value.

Taxable government bonds of varying time frames or tax-free municipal bonds have appropriate applications, depending upon the nature of the economic loss.

NET PRESENT VALUE

Whereas earnings growth factors will cause probable future earnings loss values to rise in magnitude over time, the adjustment of probable future dollar quantities for interest earnings will have the opposite effect.

One approach in the determination of the probable net present value is to project the loss of an expected earnings stream by adjusting the current annual dollar loss by a projected wage growth factor and then discounting this value by an anticipated interest rate. This procedure incorporates explicit assumptions about the level of probable earnings growth as well as interest rates. As these magnitudes are tied to general economic conditions and to the fiscal and monetary policies of our federal government, they can be expected to vary, within a reasonable range, over time and across administrations. Nonetheless, using a variety of interest rates (in combination with wage and/or inflation rates) within a reasonable range will result in similar present value amounts.

The second method of analysis determines the probable differential between earnings growth and interest yields. This approach recognizes both the statistical relationship among inflation, wage increases, and interest rates plus the dynamic nature of our economy. That is, if inflation is high, wage increases tend to be larger than “average”; however, interest rates (with some lead or lag) also tend to be higher than “average.”

Indeed, as anticipated from basic economic principles, an extremely high correlation between aggregate earnings growth and investment yields exists over time. Also, the percentage spread between these two economic magnitudes is relatively stable, particularly when evaluated over the worklife of a “typical” individual. Generally, what one finds is that:

- (1) Historically, earnings and interest returns rise and fall together (or with a time lag) in a relatively consistent and/or predictable fashion;
- (2) Interest returns are typically somewhat greater than the aggregate average earnings growth for both hourly and salaried workers, although (as expected) a smaller differential exists for the latter group;
- (3) Only the macroeconomic effects of the relationship between earnings growth and interest rates are captured in the aggregate data on Tables I through IV but additional wage growth is also obtained from the individual age-earnings profile as noted on Chart I.

While over the short term, interest earnings and wages will vary year-to-year (although highly correlated), over the long term worker's growth in earnings (in a free market economy) will largely offset the interest earnings.

The Tables which follow identify some relevant historical relationships for specific economic indicators. Charts also follow illustrating some of the data from the preceding Tables. An annotated bibliography of general economic data sources is also provided. When appropriate, given the information available for a particular loss evaluation, more specific data measures and economic studies are utilized.

TABLE I-A
EARNINGS INDICES
HOURLY

| Year | Index (YR- 23=100) | % Change from Previous Year | Year | Index (YR- 23=100) | % Change from Previous Year |
|--------------|-----------------------------------|----------------------------------------|--------------|-----------------------------------|--------------------------------------------|
| YR-1 | 200.8 | 2.1% | YR-31 | 54.3 | 7.6% |
| YR-2 | 196.6 | 2.9% | YR-32 | 51.0 | 6.5% |
| YR-3 | 191.1 | 2.9% | YR-33 | 47.6 | 7.2% |
| YR-4 | 185.8 | 3.8% | YR-34 | 44.6 | 6.8% |
| YR-5 | 179.0 | 3.8% | YR-35 | 41.9 | 6.3% |
| YR-6 | 172.4 | 3.6% | YR-36 | 39.3 | 6.7% |
| YR-7 | 166.4 | 4.1% | YR-37 | 37.0 | 6.3% |
| YR-8 | 159.9 | 3.9% | YR-38 | 35.3 | 4.7% |
| YR-9 | 153.9 | 3.4% | YR-39 | 33.9 | 4.1% |
| YR-10 | 148.8 | 2.8% | YR-40 | 32.6 | 4.2% |
| YR-11 | 144.8 | 2.7% | YR-41 | 31.4 | 3.5% |
| YR-12 | 141.0 | 2.5% | YR-42 | 30.6 | 2.7% |
| YR-13 | 137.6 | 2.4% | YR-43 | 29.5 | 3.7% |
| YR-14 | 134.4 | 3.1% | YR-44 | 28.8 | 2.4% |
| YR-15 | 130.3 | 3.6% | YR-45 | 27.9 | 3.5% |
| YR-16 | 125.8 | 4.1% | | | |
| YR-17 | 120.8 | 3.3% | | | |
| YR-18 | 116.9 | 2.5% | | | |
| YR-19 | 114.1 | 2.2% | | | |
| YR-20 | 111.6 | 3.0% | | | |
| YR-21 | 108.3 | 3.7% | | | |
| YR-22 | 104.4 | 4.4% | | | |
| YR-23 | 100.0 | 5.9% | | | |
| YR-24 | 91.9 | 8.9% | | | |
| YR-25 | 85.0 | 8.1% | | | |
| YR-26 | 78.5 | 8.3% | | | |
| YR-27 | 72.4 | 8.4% | | | |
| YR-28 | 67.0 | 8.0% | | | |
| YR-29 | 62.5 | 7.3% | | | |
| YR-30 | 58.5 | 6.8% | | | |

Source: This chart was adapted from information regarding hours and earnings in private nonagricultural industries. *Economic Report of the President, Council of Economic Advisors.*

TABLE I-B
EARNINGS INDICES
SALARY

| Year | Index (YR-23=100) | % Change from Previous Year |
|-------------|------------------------------|----------------------------------------|
| YR-1 | 282.9 | 3.7% |
| YR-2 | 272.8 | 3.5% |
| YR-3 | 263.6 | 3.9% |
| YR-4 | 253.7 | 4.6% |
| YR-5 | 242.6 | 4.6% |
| YR-6 | 231.9 | 4.4% |
| YR-7 | 222.1 | 4.5% |
| YR- 8 | 212.6 | 4.3% |
| YR-9 | 203.8 | 4.1% |
| YR-10 | 195.8 | 4.0% |
| YR-11 | 188.3 | 4.0% |
| YR-12 | 181.0 | 4.3% |
| YR-13 | 173.6 | 4.7% |
| YR-14 | 165.8 | 5.0% |
| YR-15 | 157.9 | 5.5% |
| YR-16 | 149.6 | 5.4% |
| YR-17 | 142.0 | 5.2% |
| YR-18 | 135.0 | 5.2% |
| YR-19 | 128.3 | 5.9% |
| YR20 | 121.1 | 6.4% |
| YR-21 | 113.8 | 6.5% |
| YR-22 | 106.9 | 6.9% |
| YR-23 | 100.0 | 9.1% |
| YR-24 | 91.7 | 10.5% |
| YR-25 | 82.9 | 9.9% |
| YR-26 | 75.5 | 8.0% |
| YR-27 | 69.9 | 8.4% |
| YR-28 | 64.5 | 8.2% |
| YR-29 | 59.6 | 8.2% |
| YR-30 | 55.1 | 8.9% |

Source: This chart was adapted from information found at www.worldatwork.org **Error! Hyperlink reference not valid.**

(Compensation Association), various yearly editions.

**TABLE III
YIELDS ON U.S. TREASURY SECURITIES**

| <u>Year</u> | <u>3-Month Bills</u> | <u>6-Month Bills</u> | <u>3-Year Notes</u> | <u>10-Year Notes</u> |
|--------------------|-----------------------------|-----------------------------|----------------------------|-----------------------------|
| YR-1 | 1.4% | 1.6% | 2.8% | 4.3% |
| YR-2 | 1.0% | 1.1% | 2.1% | 4.0% |
| YR-3 | 1.6% | 1.7% | 10.0% | 4.6% |
| YR-4 | 3.5% | 3.4% | 4.1% | 5.0% |
| YR-5 | 5.9% | 5.9% | 6.2% | 6.0% |
| YR-6 | 4.7% | 4.8% | 5.5% | 5.7% |
| YR-7 | 4.8% | 4.9% | 5.1% | 5.3% |
| YR-8 | 5.1% | 5.2% | 6.1% | 6.4% |
| YR-9 | 5.0% | 5.1% | 6.0% | 6.4% |
| YR-10 | 5.5% | 5.6% | 6.3% | 6.6% |
| YR-11 | 4.3% | 4.7% | 6.3% | 7.1% |
| YR-12 | 3.0% | 3.1% | 4.4% | 5.9% |
| YR-13 | 3.5% | 3.6% | 5.3% | 7.0% |
| YR-14 | 5.4% | 5.5% | 6.8% | 7.9% |
| YR-15 | 7.5% | 7.5% | 8.3% | 8.6% |
| YR-16 | 8.1% | 8.0% | 8.6% | 8.5% |
| YR-17 | 6.7% | 6.9% | 8.3% | 8.9% |
| YR-18 | 5.8% | 6.1% | 7.7% | 8.4% |
| YR-19 | 6.0% | 6.0% | 7.1% | 7.7% |
| YR-20 | 7.5% | 7.7% | 9.6% | 10.6% |
| YR-21 | 9.6% | 9.8% | 11.9% | 12.4% |
| YR-22 | 8.6% | 8.8% | 10.5% | 11.1% |
| YR-23 | 10.7% | 11.1% | 12.9% | 13.0% |
| YR-24 | 14.0% | 13.8% | 14.4% | 13.9% |
| YR-25 | 11.5% | 11.4% | 11.6% | 11.5% |
| YR-26 | 10.0% | 10.0% | 9.7% | 9.4% |
| YR-27 | 7.2% | 7.6% | 8.3% | 8.4% |
| YR-28 | 5.3% | 5.5% | 6.7% | 7.4% |
| YR-29 | 5.0% | 5.3% | 6.8% | 7.6% |
| YR-30 | 5.8% | 6.1% | 7.5% | 8.0% |
| YR-31 | 7.9% | 7.9% | 7.8% | 7.6% |
| YR-32 | 7.0% | 7.2% | 7.0% | 6.8% |
| YR-33 | 4.1% | 4.5% | 5.7% | 6.2% |
| YR-34 | 4.3% | 4.5% | 5.7% | 6.2% |
| YR-35 | 6.5% | 6.6% | 7.3% | 7.4% |
| YR-36 | 6.7% | 6.9% | 7.0% | 6.7% |
| YR-37 | 5.3% | 5.5% | 5.7% | 5.7% |
| YR-38 | 4.3% | 4.6% | 5.0% | 5.1% |
| YR-39 | 4.9% | 5.1% | 5.2% | 4.9% |
| YR-40 | 4.0% | 4.1% | 4.2% | 4.3% |
| YR-41 | 3.5% | 3.7% | 4.0% | 4.2% |
| YR-42 | 3.2% | 3.3% | 3.7% | 4.0% |
| YR-43 | 2.8% | 2.9% | 3.5% | 4.0% |
| YR-44 | 2.4% | 2.6% | 3.5% | 3.9% |
| YR-45 | 2.9% | 3.2% | 4.0% | 4.1% |

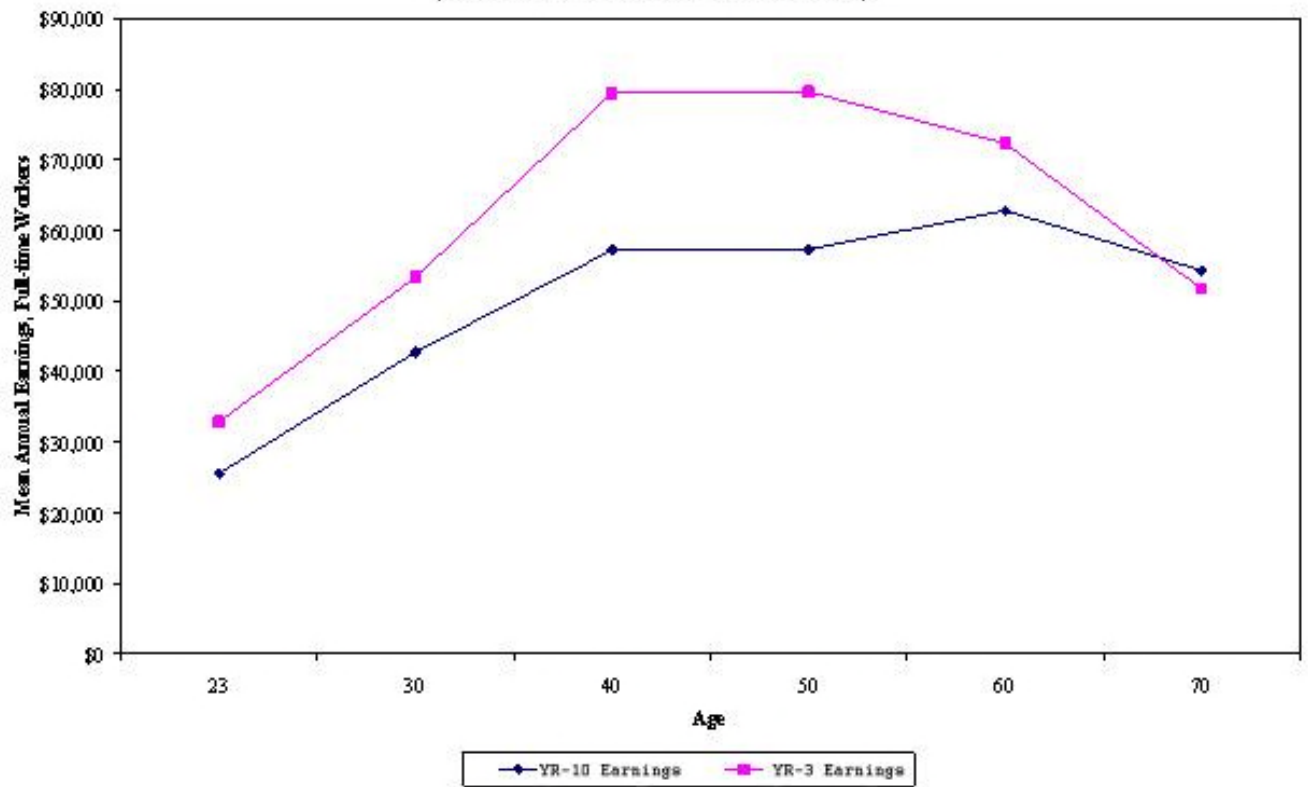
Source: Table B-73. – This chart was adapted from information regarding bond yields and interest rates. *Economic Report of the President*, Council of Economic Advisors.

TABLE IV
YIELDS ON 30-YEAR U.S. GOVERNMENT AND
HIGH GRADE MUNICIPAL BONDS

| <u>Year</u> | <u>U.S. Bonds</u> | <u>Municipal Bonds</u> |
|-------------|-------------------|------------------------|
| YR-1 | n/a | 4.6% |
| YR-2 | n/a | 4.7% |
| YR-3 | n/a | 5.1% |
| YR-4 | 5.5% | 5.2% |
| YR-5 | 5.9% | 5.8% |
| YR-6 | 5.9% | 5.4% |
| YR-7 | 5.6% | 5.1% |
| YR-8 | 6.6% | 5.6% |
| YR-9 | 6.7% | 5.8% |
| YR-10 | 6.9% | 6.0% |
| YR-11 | 7.4% | 6.2% |
| YR-12 | 6.6% | 5.6% |
| YR-13 | 7.7% | 5.4% |
| YR-14 | 8.1% | 6.9% |
| YR-15 | 8.6% | 7.3% |
| YR-16 | 8.5% | 7.2% |
| YR-17 | 9.0% | 7.8% |
| YR-18 | 8.6% | 7.7% |
| YR-19 | 7.8% | 7.4% |
| YR-20 | 10.8% | 9.2% |
| YR-21 | 12.4% | 10.2% |
| YR-22 | 11.2% | 9.5% |
| YR-23 | 12.8% | 11.6% |
| YR-24 | 13.4% | 11.2% |
| YR-25 | 11.3% | 8.5% |
| YR-26 | 8.7% | 6.4% |
| YR-27 | 7.9% | 5.9% |
| YR-28 | 7.0% | 5.6% |
| YR-29 | 6.8% | 6.5% |
| YR-30 | 7.0% | 6.9% |
| YR-31 | 7.0% | 6.1% |
| YR-32 | 6.4% | 5.2% |
| YR-33 | 5.6% | 5.3% |
| YR-34 | 5.7% | 5.7% |
| YR-35 | 6.6% | 6.5% |
| YR-36 | 6.1% | 5.8% |
| YR-37 | 5.3% | 4.5% |
| YR-38 | 4.9% | 4.0% |
| YR-39 | 4.7% | 3.8% |
| YR-40 | 4.2% | 3.3% |
| YR-41 | 4.2% | 3.2% |
| YR-42 | 4.0% | 3.2% |
| YR-43 | 4.0% | 3.2% |
| YR-44 | 3.9% | 3.5% |
| YR-45 | 4.0% | 3.7% |

Source: Table B-73. – This chart was adapted from information regarding bond yields and interest rates. *Economic Report of the President*, Council of Economic Advisors.

CHART I
AGE-EARNINGS PROFILE ANALYSIS
(MALES WITH BACHELOR'S DEGREE)



BIBLIOGRAPHY OF GENERAL ECONOMIC SOURCES

Federal, state and local governments plus professional and trade associations, private agencies and academics compile and publish a wide variety of information which can be useful in an economic analysis. Although not exhaustive, the following list of government and private agencies and their publications is comprehensive and indicative of the sources which are generally referred to when performing an economic appraisal of loss. Of note, voluminous academic textbooks and/or handbooks covering an array of economic principles, as well as additional background, training and experience, have not been detailed in this bibliography.

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

The Board of Governors compiles data on various financial and business statistics. Included are yields on securities, interest rates, price indices, and GNP. The *Federal Reserve Bulletin* is published monthly and the *Federal Reserve Statistical Release of Selected Interest Rates* is now available via their website (listed at end).

COUNCIL OF ECONOMIC ADVISORS

The Council compiles statistics including consumer and producer prices by major expenditure, productivity and wage by major industry sector, employment and unemployment figures, bond yields and interest rates. Publications include the *Economic Report of the President* and *Economic Indicators*.

FEDERAL RESERVE BANK OF ST. LOUIS

The Bank collects data on the financial outlook of the economy. This includes such items as yields on securities, interest rates, general price levels, GNP and monetary components. Publications include *U.S. Financial Data*, *Monetary Trends*, and *National Economic Trends*.

U.S. CHAMBER OF COMMERCE, ECONOMIC POLICY DIVISION

The Chamber's annual publication, *Employee Benefits*, is an extensive survey of fringe benefits packages by type of benefit, industry sector, size of firm, geographic location, etc.

U.S. DEPARTMENT OF AGRICULTURE

The Consumer and Food Economics Research Division collects information relating to the economic aspects of family living, including such topics as home services, personal consumption, and cost of children. Publications issued quarterly include *Family Economics Review* now known as *Family Economics and Nutrition Review*.

U.S. DEPARTMENT OF COMMERCE

The Bureau of Census provides summary statistics on the social, political and economic organization of the United States as well as disseminating a number of special studies with statistical information by education, age, sex, occupation, labor force participation, work disability, etc. Among its publications are the *Statistical Abstract of the United States* and *Current Population Reports: Selected Studies* including *Earnings by Occupation and Education*, *Labor Force Statistics and Other Characteristics of Persons with a Work Disability* and *Money Income of Households, Families, and Persons in the United States*. The Bureau of Census also provides data on earnings for workers with impairments/disabilities (as these terms are defined in labor economics) through the following sources: *Survey of Income and Program Participation (SIPP)*, the *Decennial Census of the Population* and the *Current Population Survey (CPS)*. The Bureau of Economic Analysis reviews and presents in its publications various economic time series data useful to business analysts and forecasters as well as information on general business conditions. Publications include the *Business Conditions Digest* and the *Survey of Current Business*.

U.S. DEPARTMENT OF EDUCATION

The information published by the Office of Educational Research and Improvement includes statistics on graduates, teachers, finances, educational characteristics of the labor force, fields of study, earnings by educational attainment, etc. Among its publications are the *Digest of Education Statistics*, *Projections of Education Statistics*, *Education Indicators*, *The Condition of Education*, *College Costs; Basic Student Charges at Two-Year and Four-Year Institutions* (Survey Report), *Special Demographic Analysis; Education in the United States, High School and Beyond Tabulations*, *Educational Attainment in the United States* (various years), and *School Enrollment - Social and Economic Characteristics of Students* (various years).

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Included in the Department's publications, *Vital and Health Statistics of the United States and U.S. Decennial Life Tables*, are information regarding life expectancy by age, sex, race, and labor force participation. Another publication, *Health United States*, provides statistical information regarding health status and determinants, utilization of health resources, health care resources and health care expenditures. In addition to their own publications, the U.S. Department of Health and Human Services contracts out various projects such as a study entitled *A Labor Force Profile of Persons With Disabilities* prepared by Mathematica Policy Research, Inc. and Systemetrics/McGraw Hill. Under this department, the Social Security Administration has also published the *Survey of Disability and Work*. This survey presents information regarding the demographic characteristics of the disabled, the presence of activity limitations and

regarding the demographic characteristics of the disabled, the presence of activity limitations and mobility issues, chronic health conditions resulting in disability, labor force status and economic status.

U.S. DEPARTMENT OF LABOR

This agency, through the Bureau of Labor Statistics, collects and distributes data and statistics on labor force participation, work life expectancies, work patterns, income, budgets by household type, price indices, etc. Publications include the *Handbook of Labor Statistics*, *Occupational Outlook Handbook*, *Employment and Earnings*, *Employment and Wages*, *National Survey of Professional Administrative, Technical, and Clerical Pay*, *Area Wage Surveys*, *Occupational Injuries and Illnesses in the United States by Industry*, *Employee Benefits in Medium and Large Firms*, *Monthly Labor Review*, *Employee Benefits Survey: An MLR Reader*, *Current Wage Developments*, *CPI Detailed Report*, and *Consumer Expenditure Survey*.

EMPLOYMENT/OCCUPATIONAL RESOURCES

Supplementing the economic information available on labor market trends and characteristics is specific occupational information that can be found in publications issued by various professional and trade associations. Among these private organizations are American Medical Association, Commission on Professionals in Science & Technology, American Dental Association, and American Compensation Association. Likewise, wage information specific to occupation can be found in the Bureau of Labor Statistics state specific employment and wage estimates. Also, details regarding wages, benefits and other specific information for various employers are outlined in publications such as *Federal Employees Almanac*, *Railroad Retirement and Survivor Benefits* and *Uniformed Services Almanac* (as well as for Reserve Forces, National Guard and Retired Military).

ADDITIONAL BACKGROUND MATERIALS

In addition to federal government sources, specific state and local government data also exist, as do studies on a wide range of topics from private sources. State and local labor market data is available through government offices such as the Department of Labor as well as private organizations like the Chamber of Commerce. For the state of Colorado, sources include the *Occupational Supply & Demand Report* and *Occupational Employment Statistics*, both issued by the Colorado Department of Labor & Employment. Wage and benefit information in Colorado's municipalities and communities is available in the *Benchmark Employee Compensation Report* produced by the Colorado Municipal League (CML). Similar data is available for other regions and states. Comparative cost of living data for urban areas is available quarterly from the American Chamber of Commerce Researchers Association (ACCRA).

Studies and surveys on a wide range of topics can be found through private sources such as the Employee Benefit Research Institute (EBRI), the International Center for the Disabled, The Menninger Foundation, Global Insight, The RAND Corporation, and the Commission on Professionals in Science and Technology.

Moreover, much informative, quantitative and qualitative academic research can be found in and is reviewed from such journals as the *Journal of Human Resources*, *Journal of Labor Economics*, *Journal of Law and Economics*, *Economic Inquiry*, *Southern Economic Journal*, *American Economic Review*, *Journal of Risk and Insurance*, *Journal of Business*, *Journal of the Political Economy*, *Journal of Public Economics*, *Journal of Forensic Economics*, *Review of Social Economy*, *Empirical Economics*, *Journal of Socio-Economics*, *Social Security Bulletin*, *Population and Development Review*, *Demography*, *Industrial and Labor Relations Review*, *Applied Economics*, *Oxford Bulletin of Economics and Statistics*, *Review of Economics and Statistics*, *American Journal of Economics and Sociology*, *Quarterly Review of Economics and Finance*, *Journal of Risk and Uncertainty*, *Review of Income and Wealth*, among others.

More detailed data and analyses regarding home services can be found in the academic and government literature and surveys. These data and surveys are included in publications such as *Monthly Labor Review*, *Journal of Human Resources* and *Family Economics Review* as well as specific academic articles authored by W.H. Gauger and K.E. Walker, K.E. Walker and M.E. Woods, M.V. Leonesio, H. Paul, T. Van der Lippe and J.J. Siegers, F. Stafford and G. Duncan, M. Minton and J. Bloch, J. Peskin, among others. Specifically, studies such as *The Dollar Value of a Day* published by Expectancy Data and *The Dollar Value of Household Work* authored by W. Keith Bryant, Cathleen D. Zick, and Hyoshin Kim, contain data measuring the value of time usage for home services and associated replacement costs. *The Dollar Value of a Day (DVD)* utilizes the National Human Activity Pattern Survey (NHAPS) time-diary studied as published by the U.S. Environmental Protection Agency.

Personal consumption information has been obtained from various editions of the *Consumer Expenditure Survey* from the Bureau of Labor Statistics as well as from publications such as *Family Economics Review*, *Monthly Labor Review* and *Economic Report of the President*. In addition, various academic and research articles evaluating this phenomenon are represented in articles authored by E. Cheit, J. Burke and H. Rosen, R. Gieseman and J. Rogers, E. Jacobs and S. Shipp, and others.

Worklife expectancies can be found in various issues of the *Journal of Legal Economics* and *Life and Worklife Expectancies* by Hugh Richards.

National forecasting information is obtained from a number of sources such as *Short-Term Outlook* and *Long-Term Outlook* published by Global Insight, *The Economic and Budget Outlook* issued by the Congressional Budget Office (CBO), and various documents obtained through the General Accounting Office (GAO).

Local forecasting information for the State of Colorado is presented in the *Colorado Economic Perspective* issued by the Office of State Planning and Budgeting as well as in *Focus Colorado: Economic & Revenue Forecast* which is a Colorado Legislative Council Staff Report. Other states have comparable information.

Financial statistics, personal income and tax data are available quarterly through the *SOI Bulletin* issued by the Department of the Treasury, Internal Revenue Service. Also, financial instruments and yield information are provided through various sources including the *Stocks, Bonds, Bills and Inflation Yearbook* published by Ibbotson Associates. Sources for information regarding businesses' financial ratios, discounting, etc. include, but are not limited to, *Valuing a Business* and *Valuing Small Business and Professional Practices*, both authored by Shannon

Pratt, *Robert Morris Associates' (RMA's) Annual Statement Studies*, *The Almanac of Business and Industrial Financial Ratios*, *Business Statistics of the United States*, *Guide to Forecasts and Projections* authored by Pallais and Holton, *Guide to Business Valuations* authored by Fishman, Pratt, et al. and *Valuation-Measuring and Managing the Value of Companies* authored by Copeland, Koller and Murrin. Information regarding the valuation of a business in a specific industry can be found in books such as *Valuation of a Medical Practice* authored by Tinsley, Sides and Anderson. Other more specific textbooks that focus on valuing damages specifically in litigation matters involving businesses can be found in a book authored by P. Gaughan titled *Measuring Commercial Damages*. A text that focuses specifically on valuing lost earnings and household services in litigation matters involving personal injury and wrongful death is *Determining Economic Damages* by Gerald D. Martin and Ted Vavoulis.

Finally, a variety of academic textbooks in the economic, finance and general business offer important theoretical and empirical information necessary to understand the dynamics of our economy. This literature provides the foundation and the basic underpinnings for an economic appraisal and include various *Principles of Economics* and more advanced *Micro/Macroeconomic* textbooks authored by Samuelson, Lipsey and Steiner, Baumol and Blinder, Ekelund and Tollison, Ferguson, Henderson and Quandt, Mansfield, and Hirshleifer; various *Managerial Economics* textbooks by Brigham, Pappas and Brigham, Maurice and Smithson, and Rooney; *Financial Theory and Corporate Policy* and *Managerial Finance* both authored by Copeland and Weston; *Financial Institutions* by Edmister; and *Fundamentals of Financial Management* by Brigham.

Also, a sampling of labor economic textbooks which focus more specifically on worker issues include *The Economics of Work and Pay* by Hammermash and Rees, *Contemporary Labor Economics* by McConnell and Brue, *Handbook of Labor Economics* by Ashenfelter and Layard, Editors, *Longitudinal Analysis of Labor Market Data* by Heckman and Singer, to name but a few.

WEBSITE RESOURCES

Many agency publications that were previously available only in hardcopy are now available online. Frequently used sites include:

Bureau of Labor Statistics

<http://www.stats.bls.gov> **Error! Hyperlink reference not valid.**
<http://www.census.gov> **Error! Hyperlink reference not valid.**
<http://www.cbo.gov> **Error! Hyperlink reference not valid.**

Federal Reserve Board

<http://www.federalreserve.gov> **Error! Hyperlink reference not valid.**

Federal Reserve Bank

<http://www.stls.frb.org> **Error! Hyperlink reference not valid.**
<http://www.irs.gov> **Error! Hyperlink reference not valid.**
<http://www.nces.ed.gov> **Error! Hyperlink reference not valid.**
<http://www.ssa.gov> **Error! Hyperlink reference not valid.**

US Bureau of Economic Analysis

<http://www.bea.gov> **Error! Hyperlink reference not valid.**

US Chamber of Commerce

<http://www.uschamber.org> **Error! Hyperlink reference not valid.**

US Department of Commerce

<http://www.doc.gov> **Error! Hyperlink reference not valid.**
<http://www.ed.gov> **Error! Hyperlink reference not valid.**
<http://www.dol.gov> **Error! Hyperlink reference not valid.**
<http://www.ebr.gov> **Error! Hyperlink reference not valid.**

For state government Websites

<http://www.state.gov> **Error! Hyperlink reference not valid.**

(Replace ** with the two-letter state code, e.g., for California: <http://www.state.ca.us> **Error! Hyperlink reference not valid.**)