

Determining Wage Growth and Productivity Increases in Pennsylvania Personal Injury Litigation

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This paper analyzes how vocational experts utilize the Consumer Price Index in determining the growth of future earnings and how this measurement does not accurately reflect wage growth. The measurement which best reflects wage growth is the Employment Cost Index. The Commonwealth of Pennsylvania does not allow for future wage growth attributed to inflation to be included in the projection of future earnings, but does allow for the inclusion of productivity increases. The research compiled in this article finds that depending on the person's age and gender, a productivity factor is appropriate when calculating the growth of future earnings.

Among the many responsibilities of the vocational expert or forensic economist is to determine the loss of earnings both historic and future. These experts utilize statistics and data traditionally from the past to project what may happen to an individual's income stream into the future. Data have been collected by the U.S. Census Bureau since 1947 reflecting the historical income of males and females in five distinct age groups. These age groups include 15 to 24 years of age, 25 to 34 years of age, 35 to 44 years of age, 45 to 54 years of age and 55 to 64 years of age. Starting in 1987, data has been collected data for individuals from 65 to 74 years of age and 75 years and older. (U.S. Census, 2008)

The Commonwealth of Pennsylvania and Alaska are the only two states which have total offsets for damages. The Supreme Court of Pennsylvania in *Kaczkowski v. Bolubasz* (1980), 491 Pa. 561, 421 A.2d 1027 has rendered the opinion that the growth of future earnings is equal to the investment return on those earnings. Ireland has interpreted this ruling to mean that the inflation rate, represented by the Consumer Price Index, equals the discount rate. (Ireland, 1999) The actual ruling states that "future inflation shall be presumed equal to future interest rates with those factors offsetting; thus the practice of discounting future lost earnings will be abandoned so that the impact of inflation will be reflected without specifically submitting the question to the jury" (p. 1). The Court was guided by a ruling made in Alaska, *Beaulieu v. Elliott* (1967), 434 P.2d 665. However, the Court in Pennsylvania did not agree with the prior

ruling in Alaska that productivity should also be considered as part of wage growth. The Court in Pennsylvania felt that not considering merit based increases causes further damages to the victims. Thus, *Kaczkowski v. Bolubasz* allows the plaintiff to claim a separate factor in the determination of the growth of earnings which would be attributed to productivity. This methodology has changed through the years depending on the specific type of case and jurisdiction. *Jones & Laughlin Steel v. Pfeifer* (1983), 103 S. Ct. 2541 found that Pennsylvania law was not mandated within federal cases heard in Pennsylvania. The Medical Care Availability and Reduction of Error (MCARE) Act passed in 2002 allows for the reduction to present value in cases involving medical malpractice litigation.

Webster's New World Dictionary (Second College Edition, 1980) defines inflation as an "increase in the amount of money in circulation, resulting in a relatively sharp and sudden fall in its value and rise in prices" (Webster). The Consumer Price Index is published by the U.S. Department of Labor, Bureau of Labor Statistics. It is based on the changes of costs of the following consumer items: food and beverages, housing, apparel, transportation, medical care, recreation, education and communication and other goods and services. The measurements are taken with two different populations; all urban consumers which are represented by the Consumer Price Index-Urban (CPI-U); and urban wage earnings and clerical workers which are represented by the Consumer Price Index-W (CPI-W). The factor being by many vocational

experts and economists (CPI-U) to project or reflect wage growth does not contain wage data. Table 1 provides the changes in these two measurements since 1992.

The growth of \$100 in 1992 utilizing the CPI-U increases to \$155.40 as of 2010. Using the CPI-W finds that this same \$100 has grown to \$154.92 during this time period, which is not a statistically different result.

A third index published by the U.S. Department of Labor is the Employment Cost Index (ECI). This index measures the changes in the cost of labor including production bonuses, incentive earnings, commission payments and cost-of-living adjustments. Garner (1988) has noted that the Bureau of Labor Statistics collects information from only a small percentage of employers which can result in sampling errors, but Garner also notes that economists have criticized the CPI as overstating the rate of inflation. Garner finds that the ECI is probably the best overall measure of labor costs. Using the ECI data since 1992, finds that \$100 in 1992 would grow to \$170.83 in 2010, a significant difference from the CPI-U and CPI-W. The comparison of this data is contained in Table 2.

The U.S. Census Bureau has published the Historical Income Tables providing the median income of males

and females in various age ranges since 1947. In analyzing the data published since 1992, the author finds significant variability in the growth of median earnings of males and females, with little if any relationship with the CPI-U, CPI-W or ECI. From 1992 to 2009 the annual changes in median earnings of males 25 to 34 years of age has varied from -4.5% to 8.1%. Females in this same age group experienced annual changes in their median earnings from -1.2% to 9.0%. Figure 1 shows these annual changes and how the wage growth between genders is not similar.

A similar analysis has been done for ages 35 to 44 – Figure 2, ages 45 to 54 – Figure 3, and ages 55 to 64 – Figure 4. These charts show that the actual growth in median earnings for males and females, depending on age group, were actually a negative number in the time from 2001 to 2002 and 2008 to 2009.

The growth rate of earnings for females from 25 to 34 years of age has generally been higher than males since 1993, with this difference becoming more pronounced after 2004. The changes in earnings growth for males and females between the ages of 35 and 44 are similar with the females continuing to have a higher growth in earnings. Females in the next two higher age groups had even more variance in the growth of their earnings, with the trend being higher than males.

Table 1
Changes in CPI-U and CPI-W

Year	Annual Percentage CPI-W	of Change	CPI-U	Annual Percentage of Change
1992	100.00	2.8	100.00	
1993	102.80	2.5	103.00	3.0
1994	105.37	2.9	105.68	2.6
1995	108.43	2.3	108.64	2.8
1996	111.57	1.3	111.90	3.0
1997	114.14	2.2	114.47	2.3
1998	115.61	3.5	116.30	1.6
1999	118.16	2.7	118.86	2.2
2000	122.30	3.5	122.90	3.4
2001	125.60	2.7	126.34	2.8
2002	127.36	1.4	128.36	1.6
2003	130.16	2.2	131.32	2.3
2004	133.55	2.6	134.86	2.7
2005	138.22	3.5	139.45	3.4
2006	142.64	3.2	143.91	3.2
2007	146.78	2.9	147.94	2.8
2008	152.80	4.1	153.56	3.8
2009	151.73	-0.7	152.95	-0.4
2010	154.92	2.1	155.40	1.6

Table 2
Changes in ECI, CPI-W and CPI-U

Year	ECI	CPI-W	CPI-U
1992	100.00	100.00	100.00
1993	102.90	102.80	103.00
1994	105.88	105.37	105.68
1995	108.84	108.43	108.64
1996	112.43	111.57	111.90
1997	116.48	114.14	114.47
1998	121.14	115.61	116.30
1999	125.26	118.16	118.86
2000	130.39	122.30	122.90
2001	135.35	125.60	126.34
2002	139.68	127.36	128.36
2003	144.01	130.16	131.32
2004	147.75	133.55	134.86
2005	151.45	138.22	139.45
2006	156.30	142.64	143.91
2007	161.46	146.78	147.94
2008	165.66	152.80	153.56
2009	168.14	151.73	152.95
2010	170.83	154.92	155.40

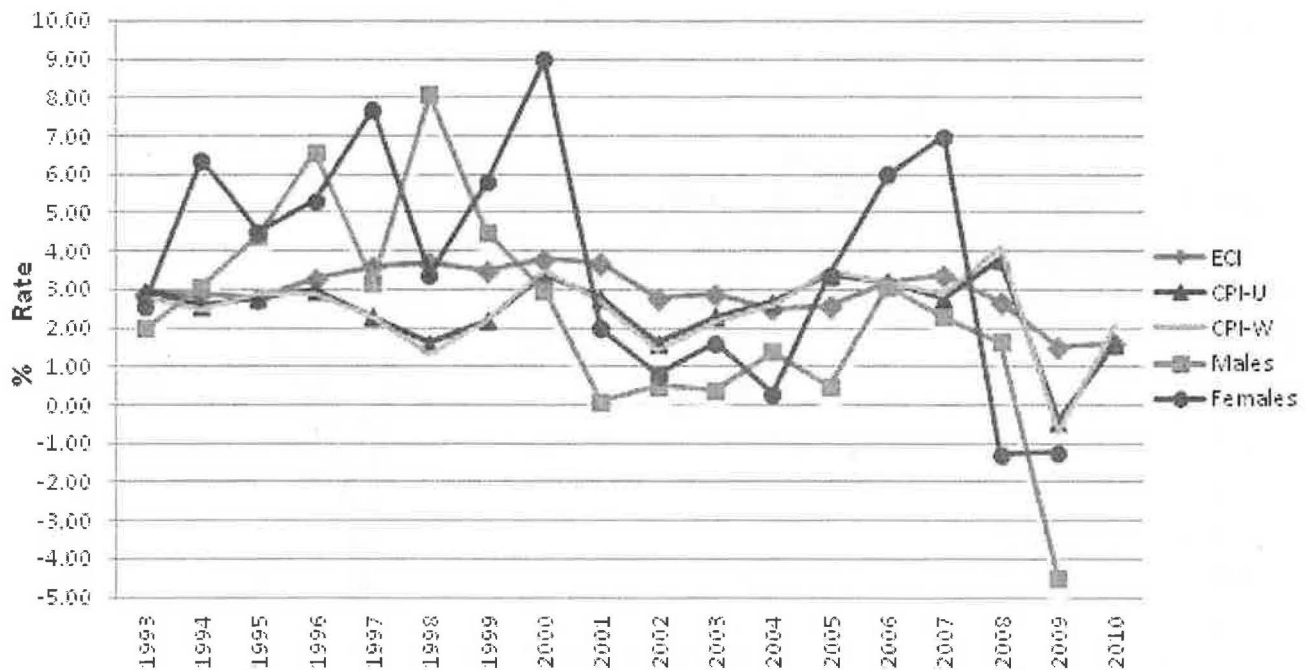


Figure 1. Changes in Median Income for Males and Females aged 25-34, 1993-2010.

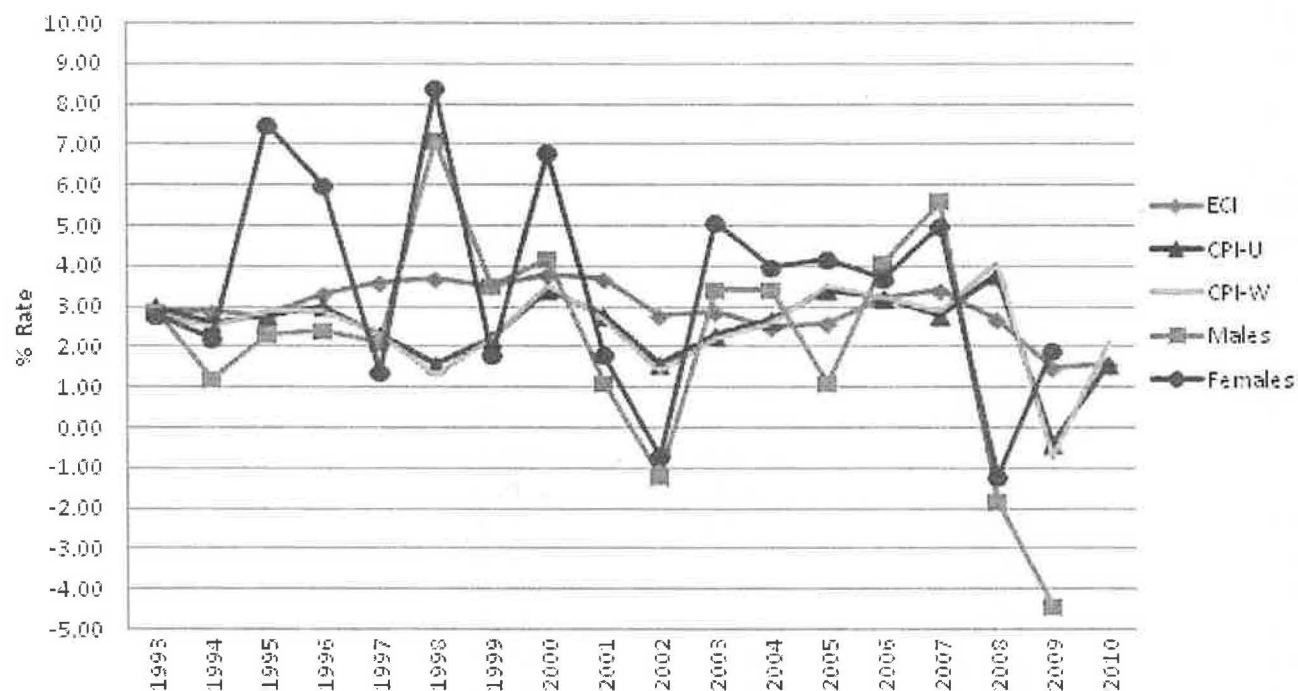


Figure 2. Changes in Median Income for Males and Females aged 35-44, 1993-2010

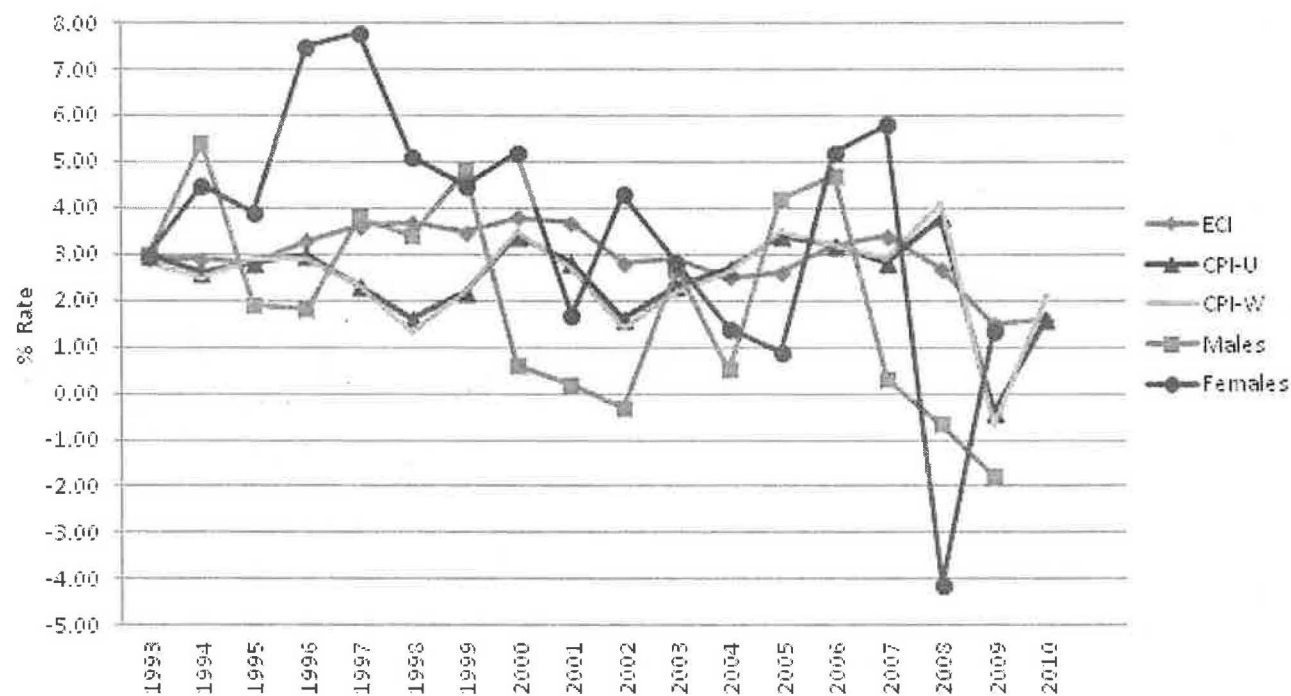


Figure 3. Changes in Median Income for Males and Females, aged 45-54, 1993-2010

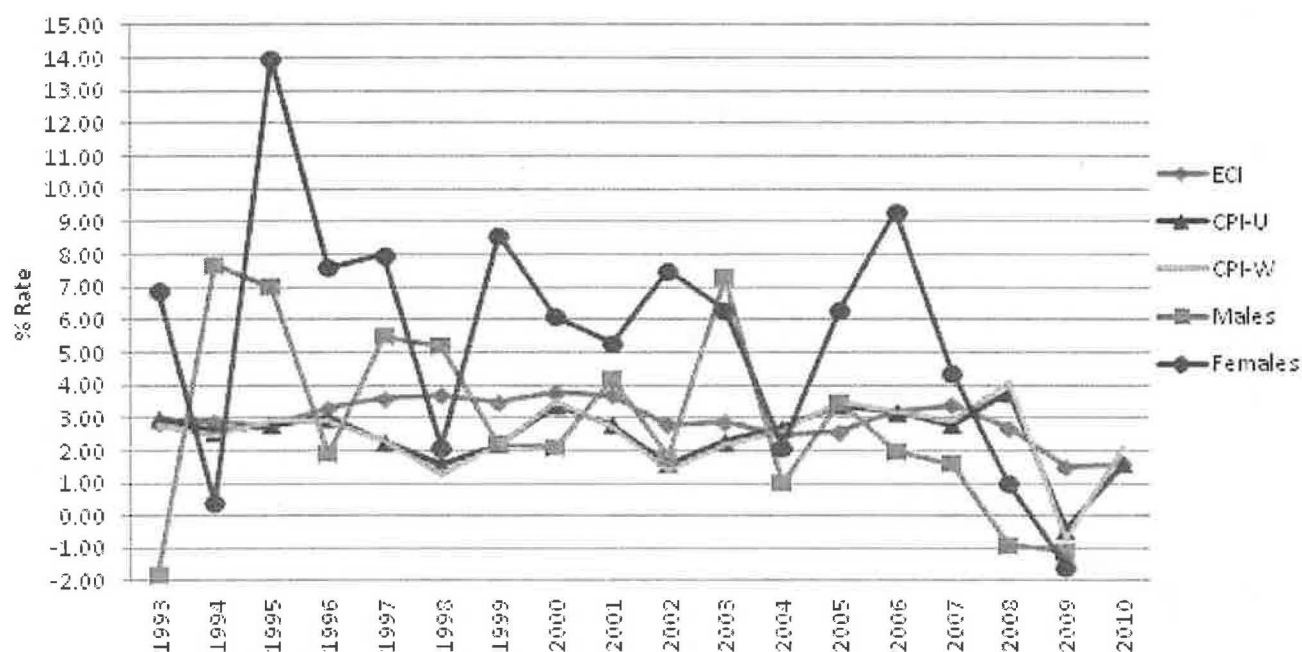


Figure 4. Changes in Median Income for Males and Females, aged 55-64, 1993-2010

The data published by the U.S. Census Bureau, Historical Income Tables, is further analyzed by comparing the wage growth of males and females in the various age groups with the CPI-U, CPI-W and ECI. Each group is given a starting value of 100 in 1992 to help illustrate the historical trend. This data is illustrated in Figures 5-8.

It is observed that there is no true correlation between the CPI-U, CPI-W or ECI with the actual growth in the earnings of males and females in the various age groups. The differences appear to be a function of productivity or the Age-Earnings Cycle.

The issue of productivity is further addressed by Everett G. Dillman in discussing the Age-Earnings Cycle (Dillman, 1988). Dillman discusses that the census data reflects that the earnings of a younger worker grow rapidly and then tend to level off towards middle age. They may even decline towards the end of the individual's life expectancy. However, since Dillman published his research the wage growth of older females has been significant. In his research, Dillman uses the data from the Census Bureau Report, Money Income of Households, Families and Persons in the United States; 1985. The data is compiled by age groups with Dillman using the midpoints of the age groups to represent the median earnings for the age group. Dillman then computes the compound interest rate between this data set and the data set in the next age group.

This results in the growth of earnings based on the age-earnings cycle growing faster than what would be expected by simply using the growth rate for inflation. Dillman found that this data shows that the growth rate for males and females over various levels of education grow at a faster rate until their mid 50's. There was then a flattening of the earnings growth curve and in some cases an actual decline in earnings.

Each year the U.S. Census Bureau publishes data entitled Money Income in the United States, which is compiled in statistical tables called the P-60 series. Mullet, Nelson, and Patton (1989) examined P-60 series data, not for the purpose of analyzing age-earnings functions but develop a better measure of wage increases over time. A common source of information for wage growth is the average rate of increase in wages or average weekly earnings over time. One of the difficulties with measures that look at the entire working population is that they do not take into account changing demographics over time. Mullet et al., (1989) found that from 1975-86, the average rate of wage increase for all workers was 5.83% while during the same period the average rate of increase in income for full-time female workers who were college graduates was 7.95%.

If we assume that the 50th percentile represents the earnings at the mid-point of the age group in the census data being analyzed then the median earnings of a

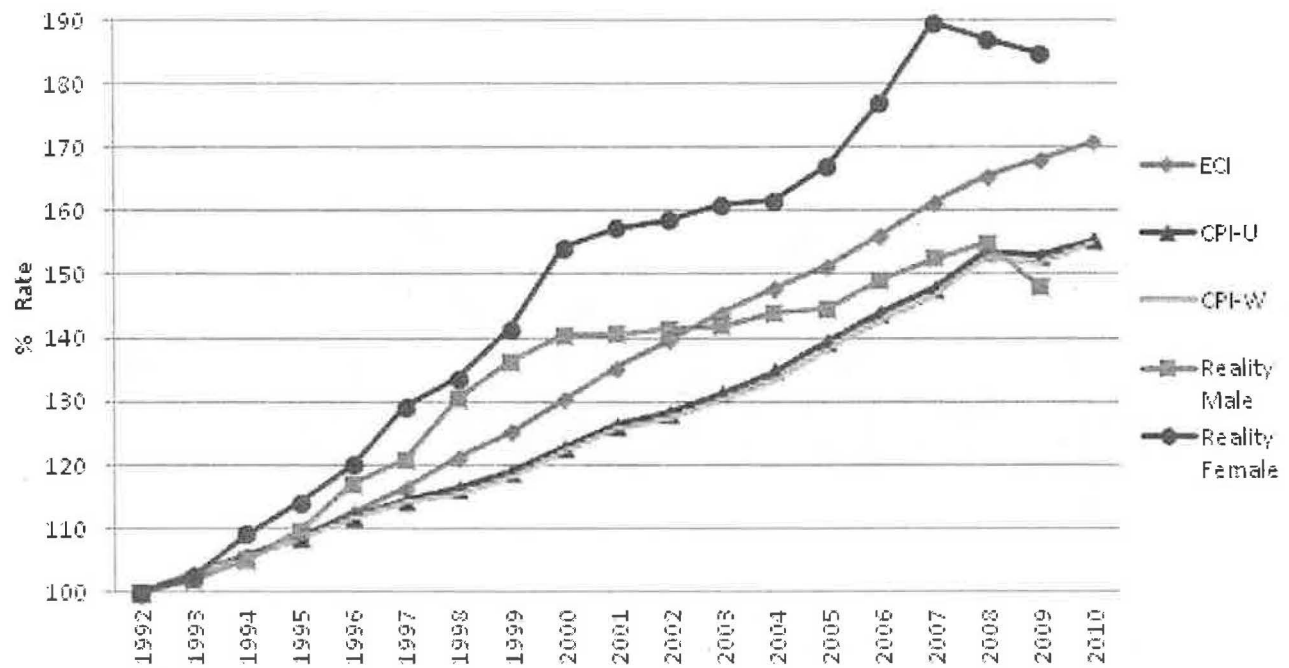


Figure 5. \$100.00 Grown Annually to 2010 – Ages 25-34

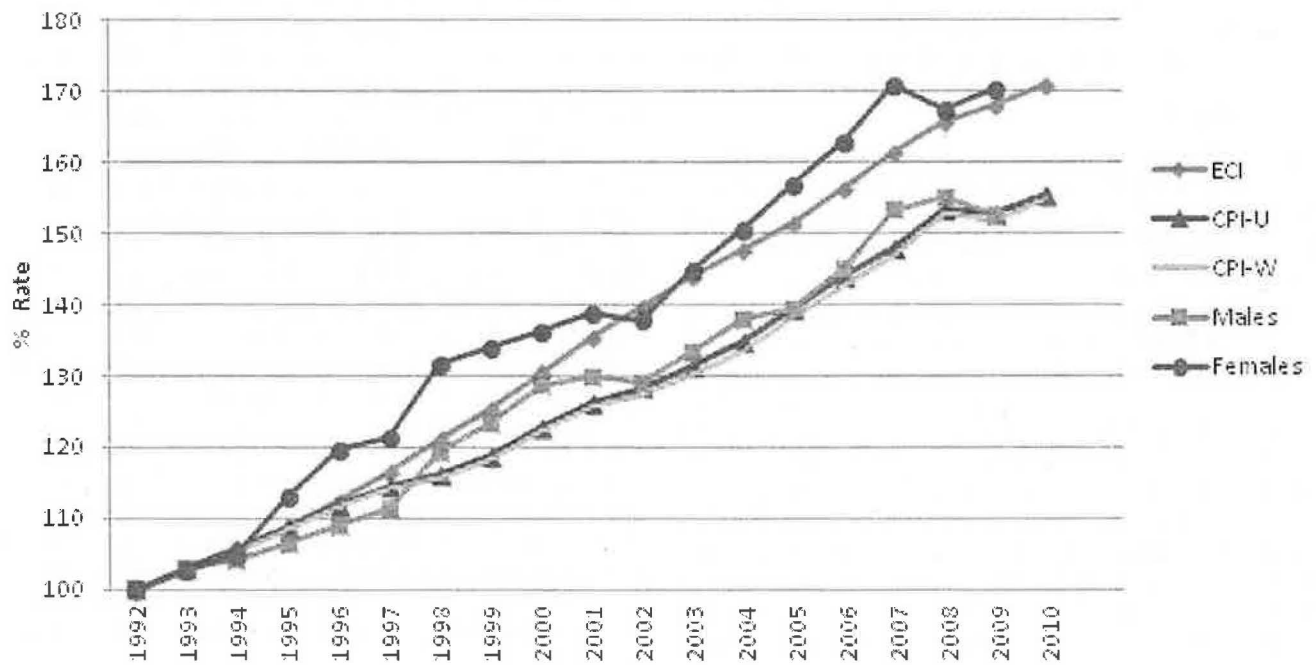


Figure 6. \$100.00 Grown Annually to 2010 – Ages 35-44

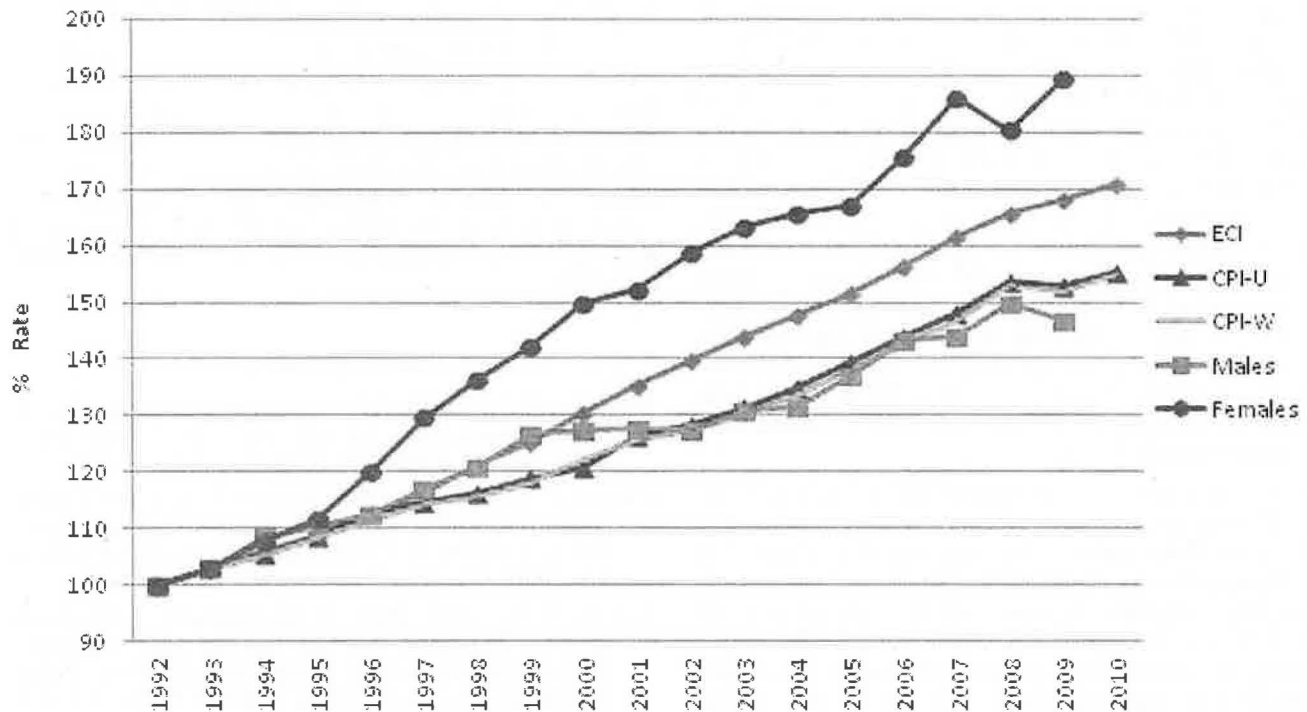


Figure 7. \$100.00 Grown Annually to 2010 – Ages 45-54

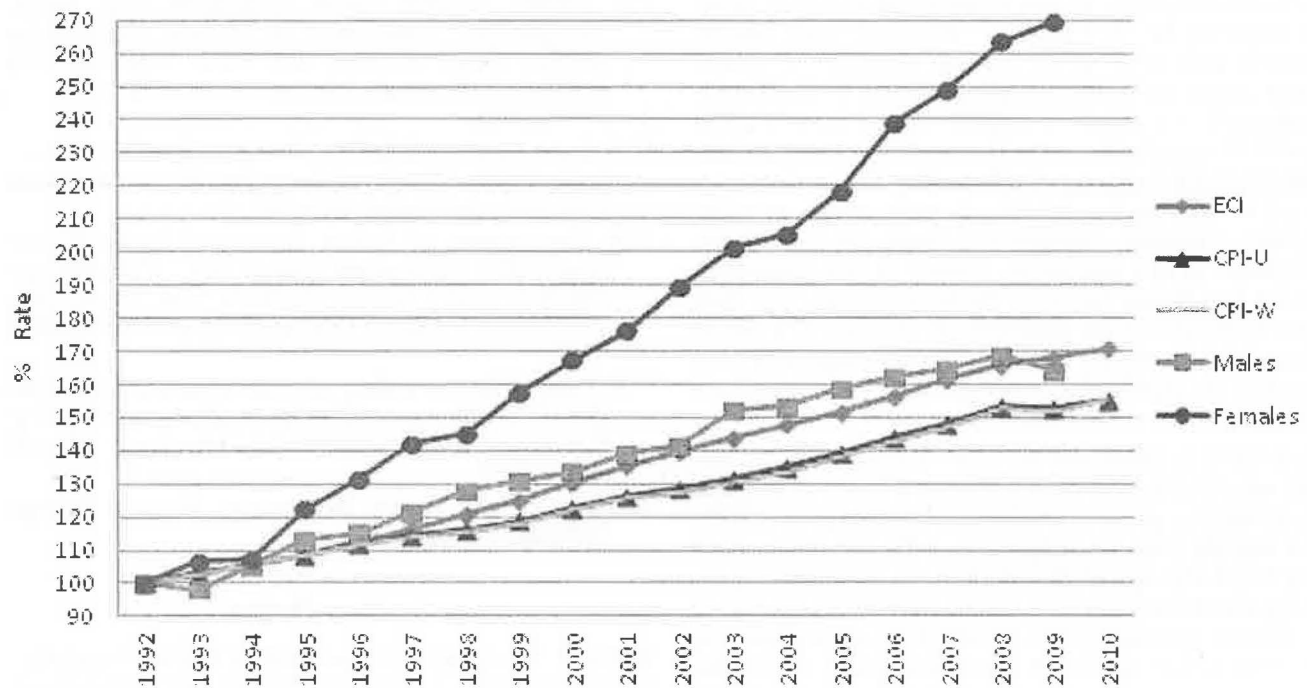


Figure 8. \$100.00 Grown Annually to 2010 – Ages 55-64

male in 1993 at 30 years of age would have been \$21,927. Ten years later, the median earnings for males in 2003 at 40 years of age were \$39,195, representing an annual growth rate of 5.98%. The median earnings of females in 1993 at 30 years of age were \$13,988. Ten years later the median earnings for females in 2003 at 40 years of age were \$23,472, representing an annual growth rate of 5.31%. During this same period of time, the earnings growth rate for 40 year old males grew at 3.32% and 5.02% for females. The earnings growth rate for 50 year old males grew at 1.6% and at 2.2% for females. Taking a linear perspective, a male who was 60 years of age in 2007 would have median earnings of \$42,129 or a 4.1% annual wage increase since the age of 30. A 60 year old female would have a 4.8% annual wage increase over the same period of time.

In determining the future growth of earnings a number of vocational experts and economists utilize the Consumer Price Index. Studying this data finds that this measurement underestimates the actual growth of future earnings. A more accurate measurement would be to utilize the Employment Cost Index which directly measures the increases of wages. However, depending on the individuals' age and gender, a productivity factor needs to be included to accurately reflect the historical growth in earnings.

In Pennsylvania the growth of future wages is equal to the investment return on those wages as determined by case law. This results in Pennsylvania being a zero net loss state in the determination of the present value of future earnings. However, case law in Pennsylvania does allow for an increase of future wages based on increases attributed to productivity. Productivity increases represent the portion of wage growth that is attributed to the workers ability to perform their job tasks more efficiently. These increases are in addition to the growth of earnings due to inflationary pressures. Productivity increases have been published in the Economic Report of the President and by the Social Security Administration, but they focus on increases in productivity instead of a direct relationship between increases in earnings and productivity or attributing a percentage of the increases in wage growth to productivity.

From 1992 to 2008, the ECI has increased at an annual rate of 2.62%. A male between 30 and 40 years of age should be given a productivity increase of 3.36%. This should then be reduced to 0.7% for males once they reach the age of 40 and then the productivity increase should be eliminated once they reach the age of 50. This is born out in the graphs that are included in this paper. Females have quite dissimilar productivity increases and based on the graphs contained in this article, an argument could be made that contrary to males, productivity increases for females should not stop. An appropriate productivity increase for females

to the age of 40 would be 2.69%. This would then be 2.18% over the course of their worklife expectancy.

The productivity increases may be more dramatic when also taking into account not only age and gender, but also education and occupation. Additional research should also be completed combine these various studies and statistics to provide the vocational expert and forensic economist with a foundation on which to render an opinion of the future growth of earnings and productivity increases over an individual's lifetime.

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