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Total Worklife Expectancy

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Abstract

This paper appends the standard Markov increment-decrement worklife expectancy model used in forensic economics to measure the years that people perform the non-market work of taking care of their homes or families. We find that adding non-market working years to the worklife model nearly equalizes men and women's estimated lifetime total working years. The paper begins with the gender-related problems of solely using labor force worklife tables as a tort compensation determinant. We then present demographic characteristics of persons that perform full-time, non-market work. A Markov life table model that incorporates two work activities (market and non-market work) is specified—we name the sum of market and non-market working years "total worklife expectancy." Ending the paper are examples of using total worklife expectancy as a tort compensation estimator.

I. Introduction

A recent study[1] relying on the American Time Use Survey showed that the weekly total working time (paid work, housework, and child care) for 18- to 64-year-old men averages 45.6 hours while that of 18- to 64-year-old women averages 45.2 hours, a difference of less than 1%. If men's and women's total working time is the same, then life table estimates of working time should be gender equivalent. To date, working time life tables have been defined by the years of labor force attachment and the productive portion of life spent full-time at non-market housework and childcare has gone unmeasured. Since men spend more time in the labor force than do women and women spend more time at non-market work than men, women's total lifetime work has been under measured. This paper appends the standard worklife expectancy life table model to include measurement of the years that men and women perform the non-market work of taking care of their homes or families. We find that adding non-market working years to the model nearly equalizes men's and women's estimated lifetime total working years. The paper begins with the gender-related problems of solely using labor force worklife tables as the determinant of lifetime work. We then present demographic characteristics of men and women that vary by their main life situation: labor force attachment, taking care of

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[1]Parker (2013), p. 39.

home or family, or something else. A Markov life table model that incorporates two active work states (market and non-market work) and one inactive state is specified— we name the sum of market and non-market working years "total worklife expectancy." Ending the paper are examples of using total worklife expectancy as a tort compensation estimator.

II. Worklife Expectancy and its Gender Problem

The Markov increment decrement model (MID) is the current standard in determining worklife expectancy (WLE) with its history traced in Krueger (2004) and its methodology presented in detail by Foster and Skoog (2004). The MID WLE statistic represents the remaining lifetime years of labor force attachment for certain populations by beginning age and starting labor force attachment status (active, inactive, or all). For United States estimates, the Current Population Survey (CPS) has been utilized to estimate the MID longitudinal labor force attachment transit probabilities and the *U.S. Life Tables* are chosen for the death hazard.

The latest published example of MID WLE estimates are found in Skoog, Ciecka, and Krueger (SCK), (2011). In Table 1, we show SCK labor force worklife expectancy estimates for initially active-in-the-labor-force high school educated men and women by age. The MID WLE estimates in Table 1 show the same patterns as found with other educational attainments: worklife expectancy declines with age and the ratio of women's to men's worklife expectancy increases with age as women lose their child raising responsibilities.

In a personal injury litigation, lifetime earning capacity can be calculated as the present value of pre-injury expected earnings over the years of remaining worklife expectancy. Suppose a man and a woman are 25 years old, high school educated, and are assumed to have lifetime gender equivalence in their annual earning capability. The present value of estimated lifetime earning capacity for the man would be 17.3% higher than for the woman when using the SCK worklife expectancy years (33.64 years is 17.3% greater than 28.68 years).

Table 1
Example MID WLE estimates from SCK

Beginning Age	High School Educated Active in the Labor Force		Women's WLE as a % of Men's
	Men	Women	
18	38.72	32.91	85.0%
25	33.64	28.68	85.3
35	25.37	22.17	87.4
45	17.14	15.38	89.7
55	9.71	9.03	93.0
65	4.72	4.62	97.9

Chamallas (1994) states that since women voluntarily choose to allocate more of their productivity to domestic activity in raising children and/or maintaining family homes, the usage of worklife expectancy alone to measure tort economic damages signals that men are more productive than women. The first September 11th compensation model offered by the U.S. Justice Department used MID WLE estimates by gender. After calls of gender discrimination,[2] the Justice department decided to use men's worklife tables for both men and women, something described by the September 11th Special Master as "generous."[3]

Chamallas argues that worklife assessments grounded in probabilities based on gender generalizations eclipse the fact that a defendant's conduct often denies the plaintiff the option of paid employment.[4] Even if a woman was participating in the labor force at the time of injury, and she never intended to engage in domestic activity, gender-based worklife tables predict (but do not measure) that she would have done so at some point in the future. While gender-based and labor force-based worklife expectancy tables have such discriminatory features, courts and economists have developed a habit in using them. Chamallas and Wriggins (2010) found that the most familiar objections to abandoning gender-specific data are couched in terms of "accuracy" fitting within the "make whole" goal which seeks to restore tort victims to their *status quo ante* occupied absent the tort. They write of the widely held perception that since most women work fewer years than men, tort damages based on worklife expectancy statistics are a fair and accurate measurement of what they likely lost as a result of the tort (e.g., tort victims should not seek compensation to make up for social inequities; or, the defendant takes the victim as found). Forgotten from that discriminatory argument is (1) the legal standard of earning capacity focuses on what the plaintiff *could* have earned rather than what plaintiff *would* have earned, and (2) economic theory and data reveal that the personal economic value of domestic activity exceeds the money returns achievable in the labor force.[5] Indeed, Horner and Slesnick (1999) state that

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[2]See September 11th Victim Compensation Fund of 2001 Final Rule. Federal Register: March 13, 2002 (Volume 67, Number 49) p. 11,238. See also "Less for Women? Work life statistics may limit Sept. 11 fund payout to victims." Newsday, January 3, 2002.

[3]*Final Report of the Special Master for the September 11th Victim Compensation Fund of 2001*, Volume 1, p. 33: "The Fund adopted the more generous standard for males to avoid any gender bias in assumed future work life patterns and to ensure consistency." Found January 18, 2014 at http://www.justice.gov/final_report.pdf.

[4]Chamallas and Wriggins (2010). p. 159: "The use of gender- and race-based tables saddles nonconforming individuals with generalizations about their group, a kind of stereotyping generally prohibited by the constitutional guarantees of equal protection and statutory antidiscrimination laws."

[5]Judge Richard Posner (1989):

> If a housewife is disabled, how should her lost "earnings" be evaluated? My analysis of a housewives' tax implies that a minimum estimate of a disabled housewife's lost earnings is the wage she would have commanded in the market (summed over the estimated period of disability and then discounted to present value at the appropriate interest rate), for if those earnings were less, she would switch from household to market employment. This method of estimation would probably yield higher estimates than the "replacement cost" method, which is the one most courts use at present and is flawed by the tendency to ignore the quality dimension of the housewife's services. (p. 194-195)

worklife expectancy tables are not ideal instruments for measuring earning capacity because worklife expectancy is unable to capture the lifetime economic value associated with the voluntary, non-binding choices made by the portion of the population that chooses not to participate in the labor force.[6]

Corcione and Thornton (1991) consider a young woman, aged 12, who is the subject of a tort litigation. According to the authors,

> If the economist were to rely simply upon worklife tables based upon the experience of an 'average' woman, the resulting estimate (about 30 years) would reflect considerable periods of inactivity and frequent entry to and exit from the labor force–mostly due to marriage, childbirth, and child-rearing. But is it reasonable or fair to assume that the twelve-year-old would have been similar to that of an "average" woman? (p. 164)

Not only have the child's preferences not been established, but it is likely that an economist would assume that the plaintiff would eventually have a family as most worklife tables reflect such an assumption.[7] Corcione and Thornton classified the reasons for non-participation in the labor force as voluntary and involuntary. Those who were involuntarily out of the labor force included those who wanted a job but did not have one, were ill or disabled, and in one scenario those who had no desire to enter the labor force. All other individuals not in the labor force for reasons that were not specifically mentioned above were considered voluntarily out of the labor force. After developing what Corcione and Thornton term "potential labor force participation rates," which consist of the sum of those in the labor force plus those who are voluntarily not in the labor force divided by the total population, the authors come to two general conclusions:

1. The potential labor force participation rate for women is considerably higher than the actual rate for women, but the two rates are much closer for men; and,
2. The potential rates for men and women are nearly identical.

The Corcione and Thornton article concludes by developing alternative form worklife tables, substituting potential participation rates for the actual rates commonly used. As expected, worklife estimates for men changed little. However, for women the change was dramatic. For women age 21, worklife using actual rates was 27.7 years while worklife using potential rates was 38.8 years.

III. Persons Participating in Non-Market Work

The idea that taking care of a home or family is actual work is uncontested (Bianchi, et al., 2005) and women lead men in that work activity. In order to find the proportion of the U.S. population concentrating their efforts on non-market work, we turn to the CPS. While the CPS is designed to find the size of the U.S. labor force, it also reports the specific reason people give for not participating in the labor force with taking care of house or family being one of the

[6]At page 29, footnote 24.

[7]For a discussion of worklife tables that adjust for the presence of marriage and children, see Daniel Millimet, et al., (2010).

reasons.[8] We assign the label of non-market work to the non-labor-force-participation situation of taking care of house or family. Table 2 shows a cross-tabulation of the main situation of men and women tabulated from the 2009-2013 CPS microdata files. As a percentage of their age group, men who take care of a house or family are at a maximum in the 18 to 24 age group and slowly decline by age. Conversely, women taking care of a home or family rise as a

Table 2
Main activity by gender and demographic group, CPS 2009-2013

	Men			Women		
Demographic	In the labor force	Taking care of house or family	Other situations	In the labor force	Taking care of house or family	Other-situations
All persons	86.6%	1.5%	11.9%	73.0%	13.7%	13.2%
18 to 24	67.7	1.9	30.4	62.7	9.2	28.1
25 to 29	88.2	1.7	10.2	74.6	16.0	9.3
30 to 34	91.0	1.7	7.4	73.7	19.0	7.4
35 to 39	91.8	1.6	6.6	74.0	18.5	7.5
40 to 44	90.6	1.6	7.8	75.7	15.6	8.7
45 to 49	88.1	1.5	10.4	76.3	12.8	10.8
50 to 54	84.7	1.3	14.1	74.1	9.9	16.1
55 to 59	78.1	1.0	20.8	67.9	7.8	24.3
60 to 64	60.3	0.6	39.1	50.4	4.8	44.8
65 & older	22.8	0.2	77.0	14.2	1.5	84.4
Married, no minor children	85.5	0.9	13.7	72.6	10.4	16.9
Married, with minor children	94.5	1.4	4.1	69.5	26.0	4.5
Single, no minor children	79.8	1.8	18.4	75.6	4.0	20.4
Single, with minor children	88.6	2.8	8.6	77.5	11.8	10.7
Less than 9th grade	79.5	2.0	18.4	46.7	32.2	21.1
9th to 12th grade, no diploma	75.0	2.7	22.3	51.3	23.2	25.6
GED	78.2	2.4	19.4	62.3	15.7	22.1
High school	84.4	1.9	13.8	68.7	15.4	15.8
< 1 year college, no degree	83.7	1.6	14.6	70.1	12.7	17.2
1 year college, no degree	85.6	1.5	12.9	72.8	12.3	15.0
2 years college, no degree	86.6	1.3	12.0	74.8	11.7	13.6
3 years college, no degree	85.6	1.3	13.1	73.6	11.3	15.0
4 years college, no degree	85.3	0.9	13.7	73.7	10.7	15.7
Associate vocational degree	89.3	1.1	9.6	80.3	8.9	10.8
Associate academic degree	89.0	0.9	10.0	79.6	9.9	10.4
Bachelor degree	92.5	0.9	6.6	79.7	12.4	7.9
Master degree	93.3	0.7	6.0	84.0	8.5	7.5
Professional degree	95.1	0.4	4.5	84.8	8.2	7.0
Doctorate degree	95.0	0.6	4.4	88.6	5.8	5.7
With a Census disability	37.8	1.0	61.1	31.6	6.2	62.2
Without a Census disability	90.7	1.5	7.8	76.6	14.4	9.0

[8]In the CPS microdata, the "situation" for persons not in the labor force is recorded under the variable PENLFACT. Possible situations are disabled, ill, in school, taking care of house or family, in retirement, or something else/other.

percentage of their age group from 18 to 24 to a maximum at ages 30 to 34 and then slowly decline by age. At ages 65 and over, taking care of a house or family is a trivial main, or full-time activity in the population with just 0.2% of men and 1.5% of women reporting that situation. Since the by-age pattern in the proportion of women taking care of a house or family matches that of the women in the labor force, homemaking is clearly an alternative non-market vocation.

Also in Table 2, we see how demographic factors such as marital status, children, race, education, and disability affect the proportion of men and women engaged in non-market work. We focus on the primary working years of ages 25 to 61 (essentially after schooling is complete and before retirement). The gender difference in market work time is 13.5 percentage points (86.6% minus 73.1%) and 12.3 percentage points in non-market work (13.7% minus 1.4%). Single men are twice more likely to be engaged in non-market work as married men. While 26% of married women with children are full-time homemakers, less than half that number (11.8%) of single women with children are able to be full-time homemakers. Except for a slight uptick in women with a bachelor degree, the proportion of women who are homemakers declines steadily with increasing education (the opportunity cost of foregoing the labor force increases with human capital). The CPS probes for six disability conditions using the U.S. Census designed questions. Since a lower proportion of men and women reporting having a disability engage themselves in non-market work than those without a Census disability, disability does not appear to be factor in the reason why people choose non-market work over labor force participation.

IV. Markov Increment-Decrement Life Table Model

Life tables are defined by their number of living states. Labor force worklife expectancy has two living states: in the labor force, not in the labor force. The three living states we are concerned with are labor force attachment, taking care of house or family, and all other life situations such as being a student or volunteer, disabled and unable to work, or a retiree. As presented by Krueger, Skoog, and Ciecka (2006), the notation for the increment-decrement or Markov process model of three living state activities includes the transition probabilities described in the equations:

$$(1.1) \qquad {}^{lf}p_x^{lf} + {}^{lf}p_x^{nm} + {}^{lf}p_x^{i} + {}^{lf}p_x^{d} = 1$$

$$(1.2) \qquad {}^{nm}p_x^{lf} + {}^{nm}p_x^{nm} + {}^{nm}p_x^{i} + {}^{nm}p_x^{d} = 1$$

$$(1.3) \qquad {}^{i}p_x^{lf} + {}^{i}p_x^{nm} + {}^{i}p_x^{i} + {}^{i}p_x^{d} = 1$$

The prefix superscript (upper left) is the beginning period life-defining activity at exact age x, and the suffix superscript (upper right) indicates the life activity at the end of the period. Labor force attachment is represented as *lf*; *nm* repre-

sents the full-time, non-market work activity of taking care of a home or family; and, *i* represents the balance of the inactive, or non-working population.[9]

Since the only ending *x*+1 states, *lf, nm*, *i*, or *d* (dead), are mutually exclusive, the probabilities summing to 1 in (1.1)-(1.3) follows trivially. In practice, it is assumed that ${}^{lf}p_x^d = {}^{nm}p_x^d = {}^{i}p_x^d = {}^{\bullet}p_x^d$ (which is estimated as the risk of death at age *x* (q_x) taken from a mortality *U.S. Life Table*). From longitudinal data, individual activity (*lf*, *nm*, or *i*) is found in each of two months one year apart. Since everyone in the data are alive at age *x* and *x*+1, the conditional-on-survival probabilities (those with upper case superscripts) are estimated from the data and are displayed in (2.1)-(2.3):

$$ {}^{LF}p_x^{LF} + {}^{LF}p_x^{NM} + {}^{LF}p_x^{I} = 1 \tag{2.1} $$

$$ {}^{NM}p_x^{LF} + {}^{NM}p_x^{NM} + {}^{NM}p_x^{I} = 1 \tag{2.2} $$

$$ {}^{I}p_x^{LF} + {}^{I}p_x^{NM} + {}^{I}p_x^{I} = 1 \tag{2.3} $$

Details of the data selected to operate the model appear in the next section. For any of the initial states (*lf, nm,* or *i*) and final states (*lf, nm,* or *i*), there are nine equations such as ${}^{nm}p_x^{nm} = (1 - q_x)\,{}^{NM}p_x^{NM}$ linking the sets of transition probabilities defined above.

It is then standard to let ${}^{lf}l_x$, ${}^{nm}l_x$, and ${}^{i}l_x$ denote the number of labor force attachment, non-market work, and work inactive lives at age *x* possessing similar exogenous attributes, typically gender and level of education. If the initial stationary population is represented by proportion of the lives participating in all activities at age *x*, then worklife expectancy regardless of the initial state participation is produced; alternatively, if one wishes worklife expectancy conditional upon an initial status, say labor force attachment, then ${}^{lf}l_x$ is set to some radix number (often 100,000), and ${}^{nm}l_x$ and ${}^{i}l_x$ are set to 0. In any event, the ${}^{\bullet}l_x$ people who are distributed as ${}^{lf}l_x$, ${}^{nm}l_x$ and ${}^{i}l_x$ at age *x* will on average result in

$$ {}^{lf}l_{x+1} = {}^{lf}p_x^{lf}\,{}^{lf}l_x + {}^{nm}p_x^{lf}\,{}^{nm}l_x + {}^{i}p_x^{lf}\,{}^{i}l_x \tag{3.1} $$

$$ {}^{nm}l_{x+1} = {}^{lf}p_x^{nm}\,{}^{lf}l_x + {}^{nm}p_x^{nm}\,{}^{nm}l_x + {}^{i}p_x^{nm}\,{}^{i}l_x \tag{3.2} $$

$$ {}^{i}l_{x+1} = {}^{lf}p_x^{i}\,{}^{lf}l_x + {}^{nm}p_x^{i}\,{}^{nm}l_x + {}^{i}p_x^{i}\,{}^{i}l_x \tag{3.3} $$

persons in the states depicted by the left hand sides of (3.1) - (3.3) at age *x*+1. Gathering these quantities into vectors and matrices, the equation of motion of the system is

[9]There is an expectation that some persons in the "*i*" group are voluntarily giving up participation in *lf* or *nm* to enjoy leisure. For example, a person might retire at age 62 but still possess an earning capacity.

$$(4.1) \qquad l_{x+1} \equiv \begin{pmatrix} {}^{lf}l_{x+1} \\ {}^{nm}l_{x+1} \\ {}^{i}l_{x+1} \end{pmatrix} = \begin{pmatrix} {}^{lf}p_x^{lf} & {}^{nm}p_x^{lf} & {}^{i}p_x^{lf} \\ {}^{lf}p_x^{nm} & {}^{nm}p_x^{nm} & {}^{i}p_x^{nm} \\ {}^{lf}p_x^{i} & {}^{nm}p_x^{i} & {}^{i}p_x^{i} \end{pmatrix} \begin{pmatrix} {}^{lf}l_x \\ {}^{nm}l_x \\ {}^{i}l_x \end{pmatrix}$$

which in matrix notation is

$$(4.2) \qquad l_{x+1} = P_x l_x .$$

Using the example of the beginning state activity of labor force participation, $\begin{pmatrix} {}^{lf}l_x \\ {}^{nm}l_x \\ {}^{i}l_x \end{pmatrix} = \begin{pmatrix} {}^{lf}l_x \\ 0 \\ 0 \end{pmatrix}$, (3.1) - (3.3) (or 4.2) may be repeated for ages x+2,x+3,… to obtain ${}^{lf}l_{x+2}$, ${}^{lf}l_{x+3}$,… as well as the numbers in the non-market work and inactive states. One then defines ${}^{lf}L_x = ({}^{lf}l_x + {}^{lf}l_{x+1})/2$, ${}^{lf}L_{x+1} = ({}^{lf}l_{x+1} + {}^{lf}l_{x+2})/2$, etc. as the person-years spent in the labor force attachment state. Finally, one calculates ${}^{lf}e_x^{lf} = (1/{}^{lf}l_x)\sum_{j=x}^{j=R} {}^{lf}L_j$ as the worklife expectancy of years in the labor force attachment state (the upper right *lf* superscript) having started in the *lf* state (the upper left superscript) for a person at exact age x. R is an age of table closure, beyond which no further activity is allowed.

For persons initially active in the labor force at age x, we can find the time spent in the non-market work state by age using (3.2) to count those persons moving to non-market work. Repeating the process, obtaining ${}^{nm}l_{x+2}$, ${}^{nm}l_{x+3}$, etc. Now, defining ${}^{nm}L_x = ({}^{nm}l_x + {}^{nm}l_{x+1})/2$, ${}^{nm}L_{x+1} = ({}^{nm}l_{x+1} + {}^{nm}l_{x+2})/2$, etc. as the person-years spent in the non-market work state, the worklife expectancy of non-market work years is calculated starting labor force attachment, as ${}^{lf}e_x^{nm} = (1/{}^{lf}l_x)\sum_{j=x}^{j=R} {}^{nm}L_j$. In this way, overall years of work activity is defined by the sum of the time in the active states, labor force attachment and non-market work, as ${}^{lf}e_x^a \equiv {}^{lf}e_x^{lf} + {}^{lf}e_x^{nm}$. If beginning in the non-market work state, the initial condition radix vector $\begin{pmatrix} {}^{lf}l_x \\ {}^{nm}l_x \\ {}^{i}l_x \end{pmatrix} = \begin{pmatrix} 0 \\ {}^{nm}l_x \\ 0 \end{pmatrix}$ would have been employed as above to calculate ${}^{nm}e_x^{lf}$ and ${}^{nm}e_x^{nm}$, depending on which of the sequences $\left\{ {}^{lf}l_{x+j} \right\}$ or $\left\{ {}^{nm}l_{x+j} \right\}$ were to be measured. Similarly, ${}^{nm}e_x^a \equiv {}^{nm}e_x^{lf} + {}^{nm}e_x^{nm}$ is arrived at as both the definition of years of productive work starting at non-market work and its decomposition into time spent in each of the active working states. Re-

peating the process a last time, using $\begin{pmatrix} {}^{lf}l_x \\ {}^{nm}l_x \\ {}^{i}l_x \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \\ {}^{i}l_x \end{pmatrix}$ as the radix vector, it is possible to compute ${}^{i}e_x^{lf}$ and ${}^{i}e_x^{nm}$ and ${}^{i}e_x^{a} \equiv {}^{i}e_x^{lf} + {}^{i}e_x^{nm}$. In sum, our Markov increment-decrement life table model produces, by initial age, the expected remaining lifetime years where the main activity of persons is labor force attachment, taking care of house of family, or some other non-work activity; those years vary by what activity existed at exact age *x*.

V. Data

The monthly CPS microdata from January 2009 to December 2013 and the *U.S. Life Tables, 2009* were used to obtain the data to operate the MID total worklife expectancy model. The data selection period was the latest five full years of data available at time of publication which then provides four years of matched interviews.[10] The CPS interview begins by probing for labor force participation. For respondents who are not in the labor force and state that they do not want a job, the CPS asks "What best describes your situation at this time?" with the possible answers being "taking care of house or family" and five other non-work activities (disabled, ill, in school, in retirement, or something else/other). In operating the MID model, we set CPS-determined employed and unemployed persons to the activity of labor force participation (*LF*), persons whose CPS situation is taking care of house or family are set to the activity of non-market work (*NM*), and the balance of the CPS population has no work activity (*I*).

The size of the U.S. population by demographic consideration was tabulated using the monthly outgoing rotations of the CPS. Using the outgoing rotations has two benefits: (1) only one observation per CPS respondent is used in the estimation, and (2) the CPS provides an outgoing rotation weighting mechanism matching that of the entire CPS sample.[11] There were 505,929 one-year-apart matching records on 635,555 potential individual CPS respondents for a match rate of 79.6%. The *U.S. Life Tables 2009* (Centers for Disease Control, 2014) were used for survivor data for persons by gender and age. Since the CPS topcodes age at 79, the market and non-market transit probabilities were reduced by 10% for each progressive age until age 109; everyone was assumed to be dead at age 110 (see SCK, 2011).

VI. Total Worklife Expectancy Estimates

In Table 3, we present detailed total worklife expectancy estimates for the U.S. non-institutional population. The estimates in Table 3 are presented

[10]See Skoog, Ciecka, Krueger (2011) for a discussion of multi-year worklife expectancy estimation.
[11]Since labor force participation rates from matched CPS records are generally greater than those from unmatched records (see Bailer, 1975), the CPS outgoing weights can be re-computed to match CPS composite weights (see Krueger, 2004).

starting at age 25 increasing in 5-year age increments to age 70. Starting at age 18, single age estimates are contained in an electronic appendix. The estimates are grouped by starting activity by age: all persons, persons starting the age in other situations besides labor force participation or taking care of house or family (inactive persons), persons starting the age in the non-market work activity of taking care of house of family, and persons starting the age at market work in the labor force.

From Table 3 for all persons by gender, we show that women spend significantly more time taking care of a home or family than do men. Working with the population of men (women) regardless of education level, at the exact age of 25, men (women) who are active in the labor force have 34.94 (29.72) remaining years in the labor force and 0.52 (5.19) remaining years at the non-market work of taking care of a home or family. As shown in Table 4, the sum of the lifetime years of market and non-market work for all men (women) who are actively in the labor force at exact age 25 are 35.46 (34.90). Working with the population of men (women) regardless of education level, at the exact age of 25 as indicated in Table 3, men (women) who are active at non-market work have 33.67 (27.36) remaining years of labor force attachment and 1.34 (7.34) remaining years at non-market work. From Table 4, the matching sum of total remaining labor market and non-market work years for men (women) at exact age 25 are 35.01 (34.70). When varying education attainment, the sum of the total remaining years of labor force and non-market work years within any educational attainment level are similar for men and women. The total worklife expectancy findings demonstrate that men and women have comparable lifetime total work activity; however, women choose more working time at home than in the labor force.

VII. Applications

Returning to the example of a man and a woman each 25 years old, high school educated, Table 4 indicates that they have near gender equivalence in their total worklife expectancy. From Table 3 however, the present value of estimated lifetime earnings for the man would be 20.2% higher than for the woman when using the market worklife expectancy years (32.85 years is 20.2% greater than 27.32 years). If total worklife expectancy of market and non-market years are considered and the value of non-market work is equal to labor market earnings, then the present value of the lifetime worth of the man's work becomes just 0.3% more than that of the woman (from Table 4, 33.54 years is 0.3% more than 33.44 years). If the man and woman start age 25 performing non-market work, their total working years from Table 4 are 33.09 for the man and 33.25 for the woman, with women's total work years exceeding men by a small margin.

Table 3
Components of total worklife expectancy, by gender and education, 2009-2013

	All Men						All Women					
	Initially active at non-market work			Initially active at labor force participation			Initially active at non-market work			Initially active at labor force participation		
Age	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years
25	17.24	1.34	33.67	16.79	0.52	34.94	22.05	7.34	27.36	21.85	5.19	29.72
30	16.82	1.30	29.45	16.37	0.43	30.78	21.60	6.79	23.52	21.39	4.20	26.31
35	16.62	1.39	24.90	16.11	0.35	26.45	21.33	5.97	19.78	21.05	3.21	22.83
40	16.73	1.31	20.23	15.86	0.27	22.14	21.20	5.20	15.92	20.67	2.32	19.33
45	16.83	1.35	15.56	15.57	0.20	17.98	21.19	4.22	12.25	20.25	1.58	15.82
50	16.76	1.19	11.43	15.18	0.14	14.07	21.24	3.21	8.65	19.67	1.01	12.43
55	16.32	0.97	7.97	14.68	0.08	10.49	20.91	2.50	5.29	18.85	0.61	9.25
60	15.46	0.77	5.11	13.92	0.05	7.37	19.90	1.73	2.79	17.61	0.34	6.47
65	13.74	0.70	3.17	12.39	0.03	5.19	17.57	1.20	1.56	15.57	0.19	4.56
70	11.62	0.70	1.85	10.21	0.02	3.93	14.58	1.01	0.89	12.78	0.12	3.57

	Men with less than high school (no GED)						Women with less than high school (no GED)					
	Initially active at non-market work			Initially active at labor force participation			Initially active at non-market work			Initially active at labor force participation		
Age	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years
25	22.46	1.88	27.91	21.89	0.97	29.40	27.24	11.88	17.63	27.15	10.19	19.41
30	21.71	1.64	24.23	21.03	0.77	25.78	26.53	9.97	15.41	26.48	8.00	17.43
35	21.41	1.44	20.05	20.50	0.62	21.78	26.03	8.14	12.93	25.87	6.06	15.16
40	21.63	1.27	15.37	20.01	0.50	17.75	25.43	6.53	10.37	25.11	4.34	12.88
45	21.02	1.53	11.20	19.20	0.38	14.16	24.80	5.12	7.74	24.22	2.95	10.49
50	19.98	1.23	8.17	18.06	0.29	11.04	23.92	3.92	5.27	22.84	1.92	8.35
55	18.48	1.05	5.74	16.97	0.22	8.07	22.54	3.08	3.08	21.11	1.15	6.45
60	17.08	0.82	3.42	15.73	0.15	5.45	20.75	2.01	1.66	19.16	0.59	4.67
65	14.83	0.94	1.86	13.75	0.10	3.76	18.10	1.35	0.87	16.37	0.29	3.66
70	12.05	0.93	1.17	11.22	0.07	2.86	15.02	1.00	0.46	13.54	0.14	2.80

Table 3 (continued)
Components of total worklife expectancy, by gender and education, 2009-2013

	Men with a GED						Women with a GED					
	Initially active at non-market work			Initially active at labor force participation			Initially active at non-market work			Initially active at labor force participation		
Age	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years
25	20.71	2.03	29.48	20.49	0.89	30.87	27.15	7.46	22.12	27.06	5.85	23.82
30	20.17	1.78	25.60	20.05	0.62	26.91	26.76	6.21	18.92	26.35	4.47	21.07
35	19.77	1.66	21.52	19.62	0.38	22.90	26.20	5.23	15.64	25.81	3.24	18.03
40	19.09	1.32	17.96	18.97	0.24	19.05	25.56	4.43	12.32	25.29	2.12	14.91
45	19.47	0.95	13.30	18.37	0.15	15.22	24.96	3.23	9.46	24.22	1.37	12.06
50	19.41	0.88	9.09	17.74	0.06	11.59	24.24	2.27	6.59	22.66	0.78	9.67
55	18.23	0.60	6.42	17.06	0.01	8.18	22.46	1.60	4.64	20.72	0.44	7.55
60	15.46	0.61	5.26	16.04	0.00	5.28	21.27	1.07	2.08	19.03	0.20	5.19
65	12.64	0.50	4.47	13.58	0.00	4.02	18.23	0.64	1.47	16.41	0.10	3.82
70	12.93	0.49	0.74	10.15	0.00	4.00	14.89	1.23	0.36	12.86	0.03	3.59

	Men with a high school diploma						Women with a high school diploma					
	Initially active at non-market work			Initially active at labor force participation			Initially active at non-market work			Initially active at labor force participation		
Age	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years
25	19.16	1.56	31.52	18.70	0.69	32.85	23.50	8.16	25.10	23.31	6.11	27.32
30	18.67	1.56	27.35	18.26	0.55	28.76	23.06	7.24	21.61	22.84	4.85	24.22
35	18.46	1.68	22.76	17.89	0.43	24.58	22.68	6.28	18.13	22.33	3.64	21.12
40	18.35	1.42	18.49	17.44	0.32	20.50	22.52	5.44	14.36	21.74	2.67	17.91
45	18.18	1.48	14.08	17.00	0.24	16.50	22.20	4.34	11.11	21.08	1.81	14.76
50	17.92	1.27	10.20	16.48	0.16	12.74	21.95	3.27	7.89	20.27	1.15	11.69
55	17.73	1.01	6.52	15.79	0.09	9.38	21.37	2.56	4.78	19.23	0.66	8.81
60	16.61	0.79	3.94	14.80	0.04	6.49	20.21	1.74	2.47	17.89	0.36	6.17
65	13.70	0.83	3.07	12.95	0.02	4.64	17.76	1.14	1.43	15.74	0.19	4.39
70	11.41	0.50	2.28	10.38	0.01	3.77	14.69	1.01	0.78	12.76	0.12	3.60

Table 3 (continued)
Components of total worklife expectancy, by gender and education, 2009-2013

	Men with some college but no degree						Women with some college but no degree					
	Initially active at non-market work			Initially active at labor force participation			Initially active at non-market work			Initially active at labor force participation		
Age	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years
25	17.77	1.21	33.28	17.26	0.51	34.48	22.93	6.68	27.14	22.64	4.91	29.20
30	17.34	1.31	28.92	16.68	0.44	30.45	22.24	6.24	23.42	21.94	3.96	26.01
35	16.91	1.40	24.60	16.36	0.36	26.18	21.61	5.43	20.05	21.33	2.96	22.80
40	16.70	1.34	20.23	16.10	0.27	21.90	21.13	4.49	16.70	20.66	2.09	19.57
45	16.87	1.19	15.68	15.71	0.19	17.83	20.99	3.70	12.97	20.05	1.44	16.16
50	17.00	1.28	11.10	15.30	0.13	13.96	20.84	2.87	9.40	19.45	0.94	12.72
55	16.21	0.99	8.07	14.83	0.07	10.35	20.56	2.34	5.81	18.71	0.57	9.42
60	15.47	0.65	5.23	13.94	0.04	7.36	19.54	1.62	3.26	17.44	0.32	6.65
65	14.03	0.51	3.07	12.35	0.02	5.24	17.50	1.25	1.58	15.34	0.20	4.79
70	11.76	0.50	1.85	10.38	0.02	3.76	14.44	0.91	1.13	12.47	0.13	3.88

	Men with an associate degree						Women with an associate degree					
	Initially active at non-market work			Initially active at labor force participation			Initially active at non-market work			Initially active at labor force participation		
Age	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years
25	16.96	0.88	34.41	16.38	0.36	35.51	20.29	5.46	31.01	20.09	3.51	33.15
30	16.68	1.05	29.85	16.13	0.32	31.12	20.03	5.15	26.73	19.86	2.83	29.21
35	16.38	1.13	25.42	16.00	0.25	26.65	19.92	4.77	22.40	19.68	2.19	25.22
40	16.48	1.10	20.69	15.92	0.19	22.16	19.83	4.05	18.43	19.43	1.58	21.31
45	16.88	1.02	15.87	15.77	0.15	17.82	19.96	3.40	14.30	19.18	1.09	17.37
50	16.97	1.06	11.36	15.51	0.11	13.77	20.25	2.75	10.11	18.87	0.73	13.51
55	16.71	0.94	7.61	15.10	0.08	10.08	20.08	2.28	6.34	18.27	0.46	9.98
60	15.38	1.05	4.93	14.55	0.04	6.75	19.51	1.60	3.32	17.16	0.28	6.98
65	14.32	0.72	2.57	13.18	0.02	4.42	17.11	1.10	2.11	15.43	0.18	4.71
70	11.82	0.50	2.02	10.83	0.02	3.31	14.15	1.15	1.18	12.91	0.11	3.45

Table 3 (continued)
Components of total worklife expectancy, by gender and education, 2009-2013

	Men with a bachelor degree						Women with a bachelor degree					
	Initially active at non-market work			Initially active at labor force participation			Initially active at non-market work			Initially active at labor force participation		
Age	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years
25	13.83	0.96	37.46	13.64	0.32	38.29	19.50	7.00	30.26	19.34	4.66	32.74
30	13.58	0.95	33.06	13.43	0.29	33.85	19.06	7.21	25.63	18.98	4.03	28.90
35	13.47	1.22	28.21	13.35	0.25	29.31	18.99	6.64	21.47	18.81	3.13	25.14
40	13.70	1.70	22.89	13.31	0.19	24.77	19.08	6.15	17.09	18.74	2.29	21.29
45	14.11	1.72	17.93	13.32	0.15	20.28	19.34	5.01	13.30	18.63	1.58	17.44
50	14.52	1.31	13.55	13.28	0.10	16.01	19.81	3.73	9.57	18.39	0.99	13.73
55	14.28	1.00	9.98	13.15	0.06	12.05	20.06	2.63	6.02	17.95	0.61	10.15
60	13.64	0.75	6.93	12.79	0.03	8.51	19.42	1.85	3.15	17.03	0.36	7.03
65	13.19	0.61	3.81	11.70	0.01	5.89	17.00	1.36	1.97	15.21	0.22	4.90
70	11.77	0.85	1.60	9.88	0.00	4.28	13.65	1.20	1.63	12.62	0.15	3.71

	Men with a graduate degree						Women with a graduate degree					
	Initially active at non-market work			Initially active at labor force participation			Initially active at non-market work			Initially active at labor force participation		
Age	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years	Inactive years	Non-market work years	Labor force years
25	12.82	0.67	38.53	11.92	0.18	40.16	18.24	5.36	33.14	18.14	2.81	35.81
30	12.13	0.66	34.79	11.76	0.15	35.67	18.00	5.20	28.70	17.97	2.28	31.66
35	11.80	0.92	30.19	11.74	0.12	31.05	17.98	4.49	24.62	17.89	1.72	27.48
40	12.02	1.05	25.20	11.75	0.10	26.42	18.05	4.20	20.08	17.82	1.18	23.33
45	12.30	1.04	20.40	11.81	0.08	21.86	18.20	3.46	15.99	17.78	0.78	19.09
50	12.37	0.98	16.06	11.89	0.05	17.45	18.88	2.61	11.63	17.75	0.51	14.86
55	12.81	0.71	11.78	11.93	0.03	13.30	19.42	1.90	7.39	17.49	0.31	10.91
60	14.26	0.76	6.37	11.66	0.01	9.66	18.48	1.52	4.42	16.58	0.18	7.66
65	11.80	0.50	5.68	10.71	0.01	6.90	16.69	1.01	2.63	14.88	0.10	5.35
70	12.24	0.49	1.43	9.02	0.00	5.14	13.77	0.94	1.79	12.48	0.06	3.94

Table 4
Total worklife expectancy, by gender and education, 2009-2013

Age	All men				All women			
	Starting all	Starting inactive	Starting non-market	Starting labor force	Starting all	Starting inactive	Starting non-market	Starting labor force
25	35.23	33.82	35.01	35.46	34.70	33.47	34.70	34.90
30	31.05	29.19	30.75	31.21	30.35	28.79	30.31	30.51
35	26.63	24.30	26.29	26.79	25.83	23.84	25.76	26.04
40	22.18	19.16	21.54	22.41	21.35	18.80	21.12	21.65
45	17.83	14.32	16.91	18.17	16.97	13.93	16.47	17.41
50	13.66	9.63	12.63	14.21	12.75	9.30	11.87	13.44
55	9.78	5.85	8.94	10.58	8.84	5.48	7.79	9.86
60	6.17	3.24	5.88	7.42	5.27	2.75	4.52	6.81
65	3.40	1.80	3.87	5.22	2.70	1.42	2.76	4.76
70	1.82	0.94	2.55	3.95	1.31	0.68	1.90	3.69
Age	Men with less than high school (no GED)				Women with less than high school (no GED)			
	Starting all	Starting inactive	Starting non-market	Starting labor force	Starting all	Starting inactive	Starting non-market	Starting labor force
25	30.00	28.26	29.79	30.36	29.32	27.85	29.51	29.60
30	26.20	23.86	25.87	26.55	25.18	23.41	25.38	25.43
35	22.02	19.19	21.49	22.40	20.87	18.76	21.07	21.22
40	17.71	14.47	16.64	18.26	16.64	14.12	16.89	17.22
45	13.75	10.29	12.72	14.54	12.64	10.06	12.85	13.44
50	10.10	6.68	9.40	11.33	8.99	6.39	9.19	10.27
55	6.82	3.97	6.78	8.29	5.96	3.77	6.16	7.60
60	3.91	2.12	4.24	5.61	3.30	1.84	3.67	5.26
65	1.95	1.09	2.80	3.86	1.65	0.93	2.22	3.95
70	1.00	0.57	2.10	2.93	0.79	0.44	1.46	2.94
Age	Men with a GED				Women with a GED			
	Starting all	Starting inactive	Starting non-market	Starting labor force	Starting all	Starting inactive	Starting non-market	Starting labor force
25	31.55	30.38	31.51	31.75	29.47	27.90	29.59	29.67
30	27.30	25.65	27.39	27.52	25.20	23.62	25.13	25.54
35	23.02	20.78	23.18	23.28	20.87	18.94	20.88	21.26
40	18.87	16.09	19.28	19.30	16.48	13.94	16.75	17.02
45	14.68	11.86	14.24	15.37	12.49	9.13	12.69	13.43
50	10.72	7.62	9.97	11.65	9.20	6.27	8.86	10.45
55	6.86	3.69	7.03	8.19	6.46	3.91	6.24	7.99
60	3.62	1.53	5.87	5.29	3.70	1.96	3.15	5.39
65	1.99	1.16	4.97	4.03	2.13	1.25	2.11	3.92
70	1.50	0.83	1.23	4.00	1.21	0.64	1.59	3.62

Table 4 (continued)
Total worklife expectancy, by gender and education, 2009-2013

Age	Men with a high school diploma				Women with a high school diploma			
	Starting all	Starting inactive	Starting non-market	Starting labor force	Starting all	Starting inactive	Starting non-market	Starting labor force
25	33.30	31.65	33.09	33.54	33.22	31.78	33.25	33.44
30	29.11	27.02	28.91	29.32	28.82	26.86	28.85	29.07
35	24.79	22.35	24.44	25.01	24.42	21.81	24.41	24.76
40	20.52	17.42	19.91	20.82	20.12	17.11	19.80	20.58
45	16.29	12.69	15.56	16.74	16.00	12.75	15.45	16.57
50	12.27	8.19	11.47	12.90	11.99	8.45	11.16	12.84
55	8.54	4.63	7.53	9.47	8.26	4.87	7.34	9.47
60	5.13	2.50	4.73	6.53	4.82	2.42	4.21	6.52
65	2.74	1.42	3.91	4.66	2.41	1.29	2.57	4.58
70	1.56	0.79	2.78	3.78	1.24	0.67	1.79	3.72
Age	Men with some college but no degree				Women with some college but no degree			
	Starting all	Starting inactive	Starting non-market	Starting labor force	Starting all	Starting inactive	Starting non-market	Starting labor force
25	34.71	33.41	34.49	34.99	33.85	32.64	33.82	34.11
30	30.71	28.97	30.23	30.90	29.75	28.27	29.67	29.97
35	26.35	24.09	25.99	26.54	25.52	23.57	25.48	25.76
40	21.93	18.81	21.57	22.17	21.35	18.80	21.20	21.66
45	17.71	14.67	16.87	18.03	17.16	14.04	16.67	17.61
50	13.58	10.04	12.38	14.09	13.05	9.75	12.27	13.66
55	9.65	6.00	9.05	10.43	9.01	5.76	8.15	9.99
60	6.09	3.17	5.88	7.40	5.48	2.98	4.88	6.97
65	3.37	1.80	3.58	5.26	2.96	1.62	2.83	4.99
70	1.79	0.98	2.35	3.78	1.61	0.87	2.04	4.01
Age	Men with an associate degree				Women with an associate degree			
	Starting all	Starting inactive	Starting non-market	Starting labor force	Starting all	Starting inactive	Starting non-market	Starting labor force
25	35.73	34.53	35.29	35.87	36.52	35.48	36.47	36.66
30	31.35	29.88	30.90	31.44	31.92	30.82	31.88	32.04
35	26.80	25.06	26.56	26.90	27.26	25.67	27.17	27.41
40	22.23	19.85	21.80	22.35	22.69	20.70	22.49	22.89
45	17.73	14.21	16.89	17.97	18.20	15.70	17.69	18.47
50	13.45	9.46	12.41	13.88	13.76	10.47	12.86	14.24
55	9.47	5.59	8.56	10.16	9.67	6.22	8.62	10.43
60	5.72	2.89	5.98	6.79	5.93	3.07	4.92	7.26
65	2.89	1.49	3.29	4.44	3.06	1.64	3.21	4.89
70	1.51	0.76	2.52	3.33	1.33	0.65	2.33	3.56

Table 4 (continued)
Total worklife expectancy, by gender and education, 2009-2013

Age	Men with a bachelor degree				Women with a bachelor degree			
	Starting all	Starting inactive	Starting non-market	Starting labor force	Starting all	Starting inactive	Starting non-market	Starting labor force
25	38.43	37.26	38.42	38.61	37.26	36.11	37.25	37.41
30	34.08	32.69	34.01	34.14	32.85	31.40	32.84	32.93
35	29.50	27.56	29.43	29.55	28.19	26.75	28.10	28.28
40	24.90	22.75	24.60	24.96	23.46	21.73	23.24	23.59
45	20.33	17.74	19.65	20.42	18.82	16.67	18.31	19.02
50	15.91	12.07	14.87	16.11	14.34	11.40	13.30	14.72
55	11.69	7.75	10.98	12.11	10.07	6.74	8.65	10.76
60	7.68	4.58	7.69	8.54	6.15	3.34	5.00	7.39
65	4.39	2.49	4.42	5.91	3.20	1.60	3.32	5.12
70	2.23	1.16	2.45	4.28	1.56	0.77	2.83	3.86
Age	Men with a graduate degree				Women with a graduate degree			
	Starting all	Starting inactive	Starting non-market	Starting labor force	Starting all	Starting inactive	Starting non-market	Starting labor force
25	40.16	38.80	39.20	40.34	38.48	37.52	38.50	38.62
30	35.75	34.34	35.45	35.82	33.88	32.71	33.90	33.94
35	31.13	29.89	31.12	31.17	29.15	27.86	29.11	29.20
40	26.48	24.87	26.25	26.52	24.42	22.70	24.28	24.51
45	21.88	19.98	21.45	21.93	19.75	17.76	19.45	19.87
50	17.37	14.46	17.04	17.50	15.13	12.56	14.23	15.37
55	13.09	9.63	12.49	13.33	10.78	7.66	9.29	11.22
60	8.98	5.52	7.13	9.68	6.76	4.04	5.94	7.84
65	5.56	3.19	6.18	6.91	3.80	2.11	3.64	5.45
70	3.21	1.69	1.92	5.14	1.88	0.94	2.72	3.99

Consider the example of a 25-year-old woman homemaker with less than a high school education that incurs a personal injury. From Table 3, she has 11.88 remaining expected years in non-market work and 17.63 years in labor force attachment. If she were to stay 11.88 continuous years at home, she could be expected to enter the labor force at age 36.88. With such a long time out of the labor force, it is unlikely that her earning capacity upon entering the labor force would equal those of 36-year-old women in the labor force. Equally, it would be difficult to anticipate what her earning capacity would be at age 36.88. A solution to determining economic loss could be the valuation method suggested by Judge Posner (see footnote 5). Economic loss at age 25 could be calculated based on her foregone earning capacity at age 25 continuing for her 29.51 years of total worklife expectancy.

A problem with using life table estimates of remaining years in any activity is that the timing of the activities during a lifetime are unknown. For ex-

ample, from Table 3 we see that 25-year-old women in the labor force with a high school education work an average of 27.32 years in the labor force between ages 25 and their eventual death, they work 6.11 years in the home, and they spend the balance of their life expectancy (23.31 years) at some other inactive work activity. Using those estimates, we don't know if women leave the labor force with a certain probability at age 30, for example, to raise children for 6.11 years and then return to the labor force to complete their careers. An expected value of each activity in the model can be estimated using the transit probabilities. In Figure 1, we show the activity probabilities for market work, non-market work, and all other activities for women with a high school diploma who starting at age 25 are in the labor market. One method for computing the expected values of work activities would be to multiply the annual economic value of participation in each activity by the annual probability of being in that activity as computed in the model. For example, assume that the economic value created during labor force attachment years is estimated at $75,000 in earnings and household services, the economic value created during non-market years when taking care of a home or family on a full-time basis is estimated at $50,000 in household services, and during other situation (or inactive) years the economic value created is estimated at $25,000 in household services. The probability weighted annual expected economic value at each age could be computed as $75,000 × $P(Labor\ Force\ Attachment)_{age}$ + $50,000 × $P(non\text{-}Market\ Work)_{age}$ + $25,000 × $P(Other\ Situations)_{age}$.

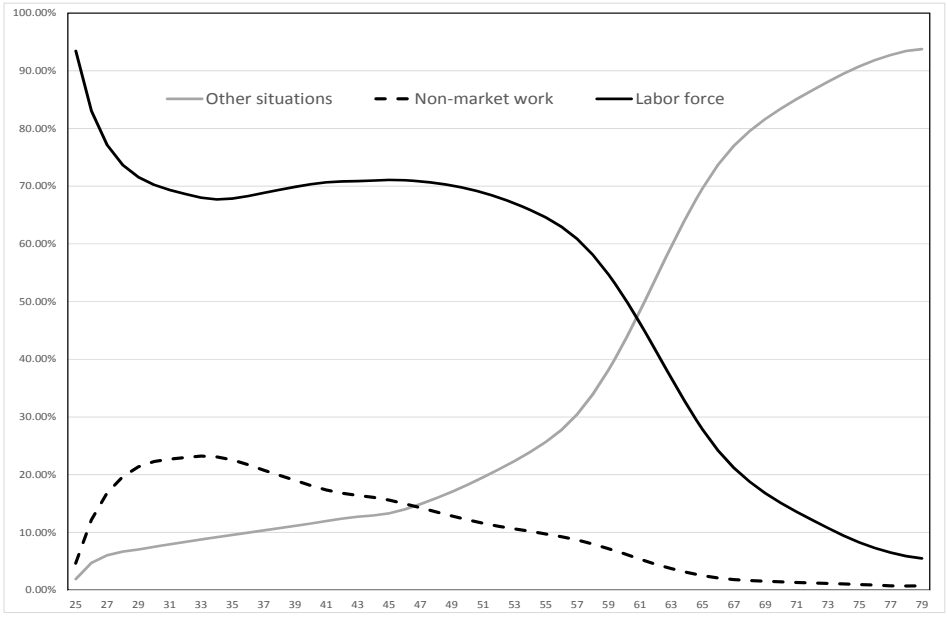

Figure 1. Probability of participation in the labor force, non-market work, and other situations of 25-year-old women with a high school education starting age 25 in the labor force.

VIII. Conclusion

The lifetime total work output of men and women is undervalued by life tables based in years of labor force attachment and non-attachment. In this paper, the standard Markov increment-decrement worklife expectancy life table model has been expanded to include the full years that people forego the labor force in order to perform the non-market work of taking care of their homes or families. When the productivity of non-market work is recognized, the lifetime total working years of men and women nearly equalize which ends the worklife table signal that men are more productive than women.

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