



Disability and the replacement value of household services

How economists calculate the replacement cost of household services in cases of catastrophic injury

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This article describes an important component of damages in a catastrophic injury case: the replacement value of household services. It focuses on how economists calculate the replacement cost of household services if the life-care planner does not include this element in his or her life care plan.

Background

Household services represent a concept that is difficult to precisely define. Many economists define household services as the work done by an individual to

maintain a household and includes cleaning, meal preparation and clean-up, yard care, pet care, vehicle maintenance and repair, shopping, obtaining services, travel for household activity, and home maintenance, repair, decoration, and renovation. Some economists also include in the construct of household services caring for and helping household children and activities related to the household children's education and health.

T. R. Ireland (2014) provides an excellent analysis of the concept from the perspective of both an economist and a life-care planner. As Ireland points out, the majority of economists utilize a

replacement cost methodology in measuring household services by calculating how much it would cost to obtain the lost household services in the labor market.

An analysis of the replacement cost for household services is based on an estimate of the hours the individual would have spent performing various services before injury, what can be done now, and an appropriate wage for estimating the replacement cost. The estimate of pre-injury hours is based on data from the American Time Use Survey (ATUS) collected in 2003 through 2014. The ATUS, sponsored by the U.S. Bureau of Labor Statistics and conducted by the U.S.



Table 1: Hours of Household Work and Dollar Valuation, by Age and Gender (2014)

	Male		Female	
	Hours per week	Hourly Rate	Hours per week	Hourly Rate
Ages 18 to 24	8.98	\$13.75	14.09	\$13.34
Ages 25 to 34	11.63	\$13.69	19.37	\$13.10
Ages 35 to 44	13.54	\$13.72	22.98	\$13.14
Ages 45 to 54	14.66	\$13.88	22.93	\$13.27
Ages 55 to 65	16.45	\$13.97	24.12	\$13.33
Ages 65 to 74	19.26	\$14.05	26.00	\$13.32
Ages 75 and over	17.56	\$14.07	23.90	\$13.37

Census Bureau, is the first time diary study conducted by a federal statistical agency and the largest time survey ever taken in the United States. The average hours for household services are based on gender and age.

When estimating post-injury capacity, consideration is given to the individual's impairment and functional requirements of the household tasks. This is often completed by either a life-care planner or a rehabilitation counselor, and expressed as an overall capacity for household services as a whole. The residual capacity is subtracted from the pre-injury estimate to determine the hours that need to be replaced. The analysis assesses the replacement cost needed, stated in terms of current dollars, based on an estimate for the hourly wage of persons performing similar tasks.

Calculation

The *Dollar Value of a Day: 2014 Dollar Valuation (DVD)* by Expectancy Data is the primary source of values utilized by forensic economists who employ the replacement cost methodology, and as such, it provides a great wealth of information in valuing household services in cases of total disability or death. This publication relies on pooled 2003-2014 time diary data from the U.S. Department of Labor's Bureau of Labor Statistics' (BLS) American Time Use Survey for the estimates of the hours of household services. The data used to make the wage replacement cost valuation for household services are from BLS Occupational

Employment Statistics survey (OES) that tracks 1,121 occupational titles. As a result, DVD provides a market estimate of the cost needed to support or replace time use. However, this annual publication does not consider the loss of household services by the various types of disability that the ATUS considers. Claretie (2010) and Crouse (2014) provide the only analyses known to this author utilizing the ATUS data and considering disability status in a household services analysis.

When an injured individual retains the capacity to perform some household services, either a life-care planner or a rehabilitation counselor often gathers information about the individual with a disability through interviews and evaluations that allow him or her to establish a reasonable approximation of the percentage reduction in household services that is likely to occur over the lifespan. This expert would then be able to easily compute the lifespan value of household services from Dollar Value of a Day, and compute the loss of household services by multiplying the lifespan value by the percentage reduction in household services.

Table 1

DVD presents 200 tables that show the average weekly hours of activities performed by persons with similar demographics as well as the hourly value of the household services according to proxies available from OES. The tables present many different classifications such as: age,

married or unmarried, male or female, working full-time or part-time or unemployed, children of a particular age range in the household, and whether the spouse is employed, among others. Various economists, rehabilitation counselors, and life care planners differ in their approaches in how they utilize these tables.

Table 1 shows the average hours of household work and hourly valuation by gender and age grouping. The average hours per week spent on household work range from 8.98 to 19.26 for males and 14.09 to 26.00 for females. The hourly value of household services based on replacement cost ranges from \$13 to \$14 per hour. The values in this table are taken from DVD Tables 185-191 for males and Tables 194-200 for females. They can be replicated with ATUS and OES data.

Example of a catastrophic-injury claim

Suppose an individual who sustained a catastrophic injury is interviewed by a life-care planner who determines that she does not retain any residual capacity to perform household work. An economist can calculate the lifetime replacement value of household services based upon information in Table 1 along with the individual's age at the time of catastrophic injury. Economists are not qualified to opine on reduced life expectancy and must rely on either a medical professional or the life expectancies calculated from the National Vital Statistics Report, U.S. Life Tables (Arias, 2015).

In this case, let's consider a female who was 50.0 years of age at the time of catastrophic injury. According to the U.S. Life Tables, at age 50.0 she had a life expectancy of 33.2 years. In order to calculate the future loss of household services, we must utilize the appropriate information from Table 1 based on her gender and age. For instance, from age 50 until the end of age 54 (a period spanning 5 years), the basis for the total average weekly hours and the hourly rate will be "Females age 45 to 54." The total average weekly hours are 22.93 and the hourly



Table 2: Example Calculation for 50 yr. old female

Age	Time (Years)	Basis	Total Average Weekly Hours	Hourly Rate	Total Cost of Services
50.0	5.0	Females age 45 to 54	22.93	\$13.27	\$79,493
55.0	10.0	Females age 55 to 64	24.12	\$13.33	\$167,994
65.0	10.0	Females age 65 to 74	26.00	\$13.32	\$180,952
75.0	8.2	Females age 75 & over	23.90	\$13.37	\$136,908

rate is \$13.27. The total cost of services for these 5 years is calculated by 22.93 x \$13.27 x 5.0 which leads to a product of \$79,493. Calculations proceed similarly throughout the rest of the lifespan to arrive at a grand total loss of household services of \$565,347.

Conclusion

The data provided by the American Time Use Survey presents economists with a great source by which to estimate the replacement cost of household services that an individual with a catastrophic injury would require across their

lifespan. In cases of catastrophic-personal injury, it is important to retain an economist who considers the double-whammy effect of disability on earning capacity as well as the loss of ability to perform household services.

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