
Case Study: A Simplified Approach for Equitable Distribution of an Award in a Wrongful Death Action

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Abstract

This paper outlines one approach to an equitable distribution of an award to the survivors (including parents, husband, and children) of a woman killed in a vehicular accident. The notion of equity almost implies one or more arbitrary elements, but the model has the advantage of making those elements explicit. Specifically, the cost of raising the children is determined and that amount awarded to the husband. Then, the court need only determine two parameters: p —the size of the award to the each parent relative to that for the husband and q —the award to each child relative to that for the husband. The model also provides that each child's share has equal purchasing power at the age of majority. Given an award amount and the ages of the children, alternative values of the parameters p and q could be used to provide the court with a set of alternative award structures.

Following the death of a woman in a vehicular accident, the survivors sued for damages. The court awarded a lump-sum amount to be divided among the plaintiffs in an *equitable* fashion with the constraint that this equitable division include a share to each plaintiff reflecting his/her personal loss and an additional component to the husband to account for the cost of raising the children.^{1 2} Obviously, the term equitable has a variety of interpretations, and there is no single answer as to what constitutes an equitable distribution. However, we developed an approach based on a simple algorithm that satisfied the court and may be of interest to economists facing similar situations.

The Utah law regarding such allocations is fairly eclectic as indicated by this from a state Supreme Court ruling:

Generally speaking, there are two methods used by courts when making such a distribution [i.e., from the proceeds from an award

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¹ The amount of the actual settlement and the number and ages of the children have been changed to insure the confidentiality of the actual distribution.

² As the husband probably would have had to bear the cost of raising the children in any event, an award for that component might be considered as double-counting and a windfall to the father. Thus, it might be more logical instead to have included a damage component for the cost of replacing the wife's household services. In this case, however, the court dictated that part of the award be assigned to cover the cost of raising the children and not household services. As shown below, the model outlined could easily accommodate either or both components.

or settlement in a wrongful death action]. The first is in accordance with the particular statutes on descent and distribution in probate proceedings. The second is by a proportional method, the proportion being determined by the loss suffered by each heir. (117 Utah 151, *157, 213 P.2d 657, **660)

In the instant case, the issue of general support during childhood is taken care of with the award to the father for the cost of raising the children. Beyond that, it is not obvious how one would determine differential losses among the children.³ It was finally decided that an approach that provided equal real wealth upon attaining adulthood was at least one that would be difficult to be deemed unfair.

The Problem

Consider a hypothetical set of survivors, including the parents of the deceased, the surviving husband, and four children who have received an award that is to be divided as per the court directive mentioned above. It was assumed that each would be dependent on his/her father to age 21. Thus, the first step is to determine the amount to be awarded to the father to cover the cost of raising the children to age 21. Using data on “estimated annual expenditures on a child by single parent families” as shown in Table 1,^{4,5} an inflation rate of 2.5 percent, and a discount rate of 6.0 percent, these costs are projected annually and then discounted back to present value. In the example used in the next section, the ages of the children are 9, 12, 15, and 18. As shown in Table 2, the present value cost of raising these children is \$228,953. Obviously, this is a straightforward exercise that is done routinely by forensic economists.

Of greater interest is the next step, which is to determine an “equitable” distribution of the balance of the fund to partially compensate each plaintiff for his/her loss. Following the assumption of dependence on the father to age 21, we opted for a method that would provide each child an equitable share that would translate into an equivalent wealth at age 21. Therefore, each child receives a different amount initially, but based on the projected interest and inflation rates each amount would translate into equivalent real wealth at age 21. We also decided to make this future real wealth a percentage of the personal loss compensation paid to the husband. Further, we assumed the award to each of the parents of the deceased mother, who were parties to the action, also would be a percentage of the husband’s personal compensation.

With the algorithm developed below, the calculation of the amount paid to each of the surviving family members, is a function of three parameters: (1) the total award net of the cost of raising the children, (2) the size of the parents award relative to the size of the husband’s personal award, and (3)

³ The authors considered using the number of childhood years lost with the mother as a possible basis for such differential losses but could not find any *a priori* reason why a childhood year is worth more or less than an adult year with a parent.

⁴ See Lino (1999).

⁵ The basic data are reported for a family with a single parent and two children. Various adjustments are called for when there are more or fewer children. These adjustments are described in detail in Lino (1999). Essentially, if there are more than two children, the expenditure is multiplied by 0.77. If there is only one child, the expenditure is multiplied by 1.24.

Table 1. Average Cost of Raising a Child, Rural United States 1999 (Lino, 1999)

Age	Annual Cost (1999 \$)
0	\$ 7,930
1	7,930
2	7,930
3	8,170
4	8,170
5	8,170
6	8,200
7	8,200
8	8,200
9	8,230
10	8,230
11	8,230
12	8,960
13	8,960
14	8,960
15	9,140
16	9,140
17	9,140
18	9,140
19	9,140
20	9,140
21	9,140

the size of the children’s award relative to the size of the husband’s personal award. Determination of these three parameters are left to the discretion of the court and then used in the algorithm to determine the award to each survivor.

The Model

Define the cost of raising the four children as y and the total award as z ; then the net award available for personal loss compensation is $(n = z - y)$. Further let x represent the amount paid to the husband as compensation for his personal loss (which is determined by the model), q is the award to each parent relative to the husband’s personal compensation (expressed as a proportion), and p is the award to each child relative to the husband’s personal compensation (also expressed as a proportion).⁶

Now, we express the n award, (i.e., the gross award less the cost of raising the children) as a function of all the individual personal loss awards

$$(1) \quad n = (z - y) = x + qx + qx + px/(1+r)^a + px/(1+r)^b + px/(1+r)^c + px/(1+r)^d,$$

where $a = (21 - \text{age of child A})$
 $b = (21 - \text{age of child B})$
 $c = (21 - \text{age of child C})$
 $d = (21 - \text{age of child D}),$

and $r = \text{real interest rate} = ((1+i)/(1+g) - 1)$

⁶ The value of the parameters p and q would be dictated by the court, or, alternatively, possibly after hearing testimony from the economist. Of course, several distribution structures each based on different (p, q) combinations could be presented to the court.

Table 2. Inflated Annual Costs of Raising Each Child and Reduction to Present Value

Year	Child A			Child B			Child C		
	Age at 1-Jan	Inflated Expenditure times Family Size Adjustment Factor	Discounted Expenditure	Age at 1-Jan	Inflated Expenditure times Family Size Adjustment Factor	Discounted Expenditure	Age at 1-Jan	Inflated Expenditure times Family Size Adjustment Factor	Discounted Expenditure
2000	9	\$ 8,436	\$ 8,436	12	\$ 9,184	\$ 9,184	15	\$ 9,369	\$ 9,369
2001	10	8,647	8,157	13	9,414	8,881	16	9,603	9,059
2002	11	8,863	7,888	14	9,649	8,588	17	9,843	8,760
2003	12	9,890	8,304	15	10,089	8,471	18	10,089	8,471
2004	13	10,137	8,030	16	10,341	8,191	19	10,341	8,191
2005	14	10,391	7,765	17	10,600	7,921	20	10,600	7,921
2006	15	10,865	7,659	18	10,865	7,659	21	10,865	7,659
2007	16	11,136	7,406	19	11,136	7,406			
2008	17	11,415	7,162	20	11,415	7,162			
2009	18	11,700	6,925	21	11,700	6,925			
2010	19	11,992	6,697						
2011	20	12,292	6,475						
2012	21	12,600	6,262						

Child D						
Age at 1-Jan	Inflated Expenditure times Family Size Adjustment Factor	Discounted Expenditure	Total Expenditure	Total Discounted Expenditure	Family Size Adjustment Factor	Adjusted Total Discounted Expenditure
18	\$ 9,369	\$ 9,369	\$ 36,357	\$ 36,357	0.77	\$ 27,995
19	9,603	9,059	37,266	35,156	0.77	27,070
20	9,843	8,760	38,197	33,995	0.77	26,177
21	10,089	8,471	40,157	33,716	0.77	25,962
			30,820	24,412	0.77	18,797
			31,590	23,606	0.77	18,177
			32,594	22,977	0.77	17,693
			22,272	14,812	1.00	14,812
			22,829	14,323	1.00	14,323
			23,400	13,850	1.00	13,850
			11,992	6,697	1.24	8,304
			12,292	6,475	1.24	8,030
			12,600	6,262	1.24	7,764
Sum						\$ 228,953

Table 3. Compensation of Each Plaintiff

Parameters:	Total of award to be distributed =	\$1,000,000
	Cost of raising children =	228,953
	Remaining award to be distributed =	771,047
	Nominal interest rate =	6.00%
	Inflation rate =	2.50%
	Real interest rate =	3.41%
	Percentage of husband's compensation to be paid to each of the parents (q) =	25%
	Percentage of husband's compensation that each of the children receive at age 21 adjusted for interest and inflation (p) =	100%

Family Member	Date of Birth	Age at Accident Date	Real Discount Factor	AWARD			
				Cost of Raising Children	Equitable Share	Total Share	Equitable Real Award at Age 21
Husband	1-Jan-55	45.0		\$ 288,953	\$ 166,559	\$ 395,512	N/A
Child A	1-Jan-82	18.0	0.90	N/A	150,599	150,599	166,559
Child B	1-Jan-85	15.0	0.82	N/A	136,168	136,168	166,559
Child C	1-Jan-88	12.0	0.74	N/A	123,120	123,120	166,559
Child D	1-Jan-91	9.0	0.67	N/A	111,322	111,322	166,559
Mother				N/A	41,640	41,640	N/A
Father				N/A	41,640	41,640	N/A
SUM						\$ 1,000,000	

i = nominal interest rate
 g = inflation rate.

Solving equation (1) for x yields

$$(2) \quad x = (z-y) / [1+q + q + p/(1+r)^a + p/(1+r)^b + p/(1+r)^c + p/(1+r)^d],$$

which represents the nominal size of the husband's personal award as a function of the size of the total award, the cost of raising the children, and the distributional parameters selected. As the award to each family member is a function of the amount awarded to the husband, the court need only specify the sizes of the award to each child and parent relative to the size of the award to the husband; that is, the court need only specify q and p .

In this case, the award to each plaintiff is:

- Husband: $x + y$
- Mother: qx
- Father: qx
- Child A: $px/(1+r)^a$
- Child B: $px/(1+r)^b$
- Child C: $px/(1+r)^c$
- Child D: $px/(1+r)^d$

It is a straightforward matter to modify the algorithm for any family structure.

While the mathematics are not difficult, they may exceed the understanding of the average judge or lawyer, the court in this case found the concept intuitively appealing, in that once the total award was decided upon, the equitable distribution was only dependent upon parameters p and q .⁷

Hypothetical Example

Recall our hypothetical set of plaintiffs including a husband, four children age 9, 12, 15, and 18, and the deceased's parents. Assume that a lump-sum award of \$1,000,000 after expenses is to be distributed, and that each child is to receive 100 percent of the husband's share (i.e., $p = 1.00$) and each parent is to receive 25 percent of the husband's share (i.e., $q = 0.25$).

Table 3 shows the computed personal compensation to each survivor. In this example, we assume the award is \$1.0

⁷ Of course, an assumption will have to be made about the inflation and discount rate, obviously, these parameters are within the purview of the economist.

million net of the litigation costs. The husband receives \$395,512 (i.e., the sum of the cost of raising the children, \$228,953 plus an equitable share of \$166,559), and each parent is assigned \$41,640 (i.e., 25 percent of the husband's share). The initial amount to each child varies, as shown in Table 3, but if that amount is invested at the assumed nominal discount rate, it will grow to an amount that has equal purchasing power (\$166,559) at age 21 for each child.

Summary

This article has described a computational approach to the equitable distribution of an award to family survivors in a wrongful death action. While any concept of equity necessarily has one or more arbitrary elements, the model described offers the advantage of making the "arbitrariness" explicit in the selection of parameters p and q , and providing

a modicum of logic in conferring equal wealth on each child at the age of majority. Further, the court is only asked to determine three things: the total amount of the award; the share to each parent of the deceased relative to that for the husband/father; and the share to each child relative to that for his/her father. Obviously, each case will have its own number of plaintiffs and the algorithm will have to "fine-tuned" accordingly, but the general approach is offered as one reasonable way to resolve the equitable distribution question.

A particularly appealing aspect of the model is the ease with which alternatives can be developed about the relative size of the distribution to individual family members. Conceptually, the court could be provided with an array of possible awards based on varying combinations of p and q for its consideration.

References

Lino, Mark. 1999. "Expenditure in Children by Families." *Family Economics and Nutrition Review*. U.S. Department of Agriculture. 1999 Annual Report, Washington, D.C.