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The Preference Claims Puzzle: Wealth Transfer Implications of Controversial Judicial Preference Rulings

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Abstract

Preferences receive a significant amount of attention from bankruptcy lawyers and practitioners. They also have significant financial implications. However, they have received virtually no discussion in the financial or forensic literature. Preferences are payments made to creditors by the debtor within 90 days prior to bankruptcy (one year for insiders). Creditors may be forced to return preferential transfers to the debtor, yet there are several legal defenses against a claim that at a payment was a preference, the most controversial of which is the "subsequent new value" defense. A number of judicial rulings with widely disparate wealth transfer implications have recently been made relating to this defense. This paper describes the financial implications associated with these rulings.

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One area of bankruptcy that has received a significant amount of attention in the legal community, yet virtually no attention in the financial/forensic literature is the topic of preferences. A key characteristic of a preference is that it is a payment made by the debtor within 90 days prior to its bankruptcy filing (one year for insiders). The law was structured to prevent the debtor from giving a particular creditor preferential treatment during a period of imminent bankruptcy. The analysis of preference claims is particularly relevant for both the debtor company that made the payment immediately prior to its bankruptcy and the creditor that received the payment. Should a payment fit the characteristics of a preference, the trustee[1] may initiate an action to negate (or in legal parlance "avoid") the preferential transfers, forcing the creditor to return the preferential transfer to the debtor. Creditors, however, have significant legal defenses against a trustee's preference claim. As such, preferences can have a potentially material impact on the wealth position of both firms.

A bankruptcy trustee's ability to avoid preferential transfers clearly makes the analysis of preferences relevant after a bankruptcy filing. Analysis of preferences in the pre-petition period is also relevant as the manner in which creditors conduct transactions during this critical period will determine their

[1]The debtor-in-possession may also initiate these actions. However, for simplicity, the party initiating a preference action to reclaim funds will be referred to as the trustee.

ability to defend against future attempts to reclaim these payments through preference actions.

For example, prior to a bankruptcy filing, the topic of preferences is relevant to vendors shipping products or providing services to distressed companies, as they may later be forced to return some or all of the compensation they received for their goods or services. While the arguments both for and against considering a transfer as a preference are ordinarily legal ones, the potential consequences directly impact the wealth position of both debtors and creditor firms. Consequently, prior to extending credit to a distressed firm, the savvy vendor should consider the possibility that its compensation may later be classified as a preference. Simultaneously, it should consider alternative defenses to a possible preference claim made by a trustee and the likelihood that it will be able to retain the payment received from the distressed company.

Though it may seem that preference law penalizes creditors for continuing to conduct business with distressed entities, the law was not structured for this purpose. Rather, the law exists to prevent the debtor from giving one particular creditor preferential treatment at the expense of others during a period of imminent bankruptcy. Furthermore, to encourage vendors to continue to extend credit to distressed companies, the law provides these creditors with several legal defenses against a trustee's preference claim.

One of the most controversial of these defenses is the "subsequent new value" defense. This is a widely used defense that allows a creditor to defend against a transfer avoidance by offsetting preference payments with subsequent new value extended to the debtor. To illustrate, a creditor that continues to extend credit and ship goods to a distressed company immediately prior to the company's filing of bankruptcy may have any payments made by the distressed company to the creditor during the 90-day period prior to the filing classified as preferences. However, if the creditor provides additional goods or services to the eventual debtor, then the preference might be offset by the subsequent value transferred in these shipments. Simply put, a trustee generally cannot require a creditor to return a payment if that creditor provided additional value to the debtor after receiving payment. While this may seem clear at first glance, the actual application of the law has varied dramatically depending on the jurisdiction of the bankruptcy filing.

On its face, the language of the new value defense seems uncontroversial. Section 547(c)(4) of the Code states that a bankruptcy trustee may not avoid a transfer that a debtor made prior to the bankruptcy filing:

> "…to or for the benefit of a creditor, ***to the extent that***, after such transfer***, such creditor gave new value*** to or for the benefit of the debtor—
>
> (A) not secured by an otherwise unavoidable security interest; and
>
> (B) on account of which new value the debtor did not make an otherwise unavoidable transfer to or for the benefit of such creditor…"[2]

Though the language of this statute seems straightforward, some judges have added their own judicial interpretations to the law, resulting in significantly different wealth transfer outcomes for firms involved in different jurisdictions. Although the original intent of the subsequent new value provision, like all preference defenses, was to encourage creditors to continue extending credit to debtors on the brink of bankruptcy, the interpretation by the courts has had some unintended consequences. This article reviews the topic of preferences and addresses the financial implications of alternative judicial interpretations of the subsequent new value defense for both creditor and debtor firms' wealth transfers.

Literature Review

Though bankruptcy has been extensively discussed in the financial press, the issue of preferences and the impact of the new value defense have received little attention. Since the earliest work by Altman (1968), numerous areas of bankruptcy have been explored. Some of the areas receiving significant attention have been the absolute priority rule (see Beranek, Boehmer and Smith (1996), Betker (1995a), Eberhart, Moore and Roenfeldt (1990), Eberhart and Senbet (1993), Eberhart and Weiss (1998) and Weiss(1990)), costs of financial distress (see Alderson and Betker (1995), Altman (1984), Andrade and Kaplan (1998), Betker (1997), and Gilson (1997)), the bankruptcy process (see Branch (1998), Franks and Torous (1994), Gertner and Scharfstein (1991), LoPucki and Whitford (1990), and Mooradian (1994)), prepackaged bankruptcies (see Betker (1995b), Chatterjee, Dhillon, and Ramirez (1996), and Tashijian, Lease, and McConnell (1996)), and post-bankruptcy performance (see Hotchkiss (1994), Alderson and Betker (1999), Hotchkiss (1995), Michel, Shaked and McHugh (1998), and Michel, Shaked and McHugh (1999)). Although many of these topics relate to preferences, few have explored the financial implications of this intricate and controversial aspect of bankruptcy law.

Preference Claims

To better understand the nature of preferences, a brief summary of Section 547(b) of the Bankruptcy Code, which governs these actions, is presented. This section contains five elements that the trustee must demonstrate to classify a payment as a transfer and reclaim the value for the estate:

1. The transfer must have been made for the benefit of the creditor.
2. The transfer was made as a result of prior debt.
3. The transfer was made while the debtor was insolvent,
4. The transfer was made within 90 days (or one year for insider creditors) of the debtor filing for bankruptcy, and
5. The transfer allowed the creditor to receive more than it would have in a Chapter 7 liquidation proceeding.

[2] 11 USCS 547(c)(4) (emphasis added)

Though every transfer that falls within the preference period outlined in point four will certainly be reviewed as a possible preference payment, not all such transfers qualify as preferences. Controversy and litigation often surround the third item above. Before a transfer qualifies as a preference, the trustee must persuade the bankruptcy court that the preponderance of the evidence indicates the firm was insolvent on the date of the transfer. Based on Section 101 (32) of the Bankruptcy Code, this requires the trustee to prove that "the sum of such entity's debts is greater than all of such entity's property, at fair valuation…" Typically, the trustee will rely on the testimony of an expert witness to establish the fair value of the debtor's assets and liabilities at the time of the payment to the creditor for goods and/or services. Yet, the determination of insolvency by the trustee is frequently contested by the creditor and the creditor's own valuation experts.

Even if the hurdle of proving insolvency is met by the trustee in addition to the other four requirements of Section 547 (b), creditors may still defend against the preference using any of seven possible defenses allowed by the law. While there has been litigation surrounding each of the defenses, the one generating the most significant controversy involves wide-ranging judicial interpretations and substantially different wealth transfer implications. It is known as the "subsequent new value" defense. The following sections describe the alternative interpretations of this defense and the associated financial implications.

Alternative Interpretations of New Value: an Illustration

To best understand the different applications of Section 547 (c)(4), which outlines the substantive new value defense, the various interpretations of this defense are applied to the transfers between a hypothetical manufacturer, Argus Manufacturing, Inc. ("Argus") and one of its suppliers, Capital Supply Company ("Capital"). Argus has been on the verge of bankruptcy, finally filing on December 21st. Table 1 depicts a series of transfers between Argus and Capital during the 90-day period preceding Argus' filing for Chapter 11. Subsequent to the petition, a preference action was initiated against the creditor, Capital, to reclaim value for the debtor, Argus. Different interpretations of the subsequent new value concept lead to different wealth transfer impacts on the firms involved.

Table 1. Transactions During the Preference Period

Transfer Date	Transfer Number	Invoice Number	Payment Amount	Goods Shipped
09/22	1	86020	$ 69,000	
09/28	2	89956		$ 75,000
09/30	3	86301	68,000	
10/01	4	89620		147,000
10/08	5	87600	63,000	
10/10	6	90115		61,000
10/13	7	87750	54,000	
10/17	8	90120		65,000
10/22	9	87998	68,000	
10/26	10	91698		78,000
10/28	11	88023	71,000	
11/03	12	93357		86,000
11/05	13	89506	134,000	
11/07	14	94250		79,000
11/08	15	90115	61,000	
11/13	16	94863		60,000
11/17	17	90120	65,000	
11/19	18	95106		122,000
11/21	19	91698	78,000	
11/28	20	96215		28,000
12/05	21	97006		35,000
12/14	22	93357	86,000	
			$ 817,000	$ 836,000
Additional Credit Extended Beyond Payments Received				$ 19,000

As presented in Table 1, during the preference period, Capital shipped materials valued at $836,000 to the financially distressed Argus. Over the same period, Argus paid Capital only $817,000. The $19,000 net credit extended to the debtor is the amount in excess of payment received by the creditor. Equation (1) illustrates the calculation of the net credit extended to the debtor by creditor j. The net credit is the sum of all transfers during the preference period from creditor j to the debtor, less all transfers from the debtor creditor j to the debtor.

$$NCE_i = \sum_{t=1}^{N} TD_{t,j} - \sum_{t=1}^{N} TC_{t,j} \quad (1)$$

where:

NCE_j = net credit extended to debtor by creditor j (i.e. in excess of payment received).

$TD_{t,j}$ = amount of t^{th} transfer between debtor and creditor j during preference period, transfer is to debtor from creditor j.

$TC_{t,j}$ = amount of t^{th} transfer between debtor and creditor j during preference period, transfer is to creditor j from debtor.

N = number of transfers during preference period between debtor and creditor j.

Though intuitively one would expect there to be no preference accrued on behalf of Capital, given that it had sent $19,000 worth of goods to Argus in excess of the payments it received during the preference period, this is not the interpretation courts have adopted for new value. In all jurisdictions, this series of transfers yields a preference liability for Capital despite the positive value of the net credit extended. However, the differences in the dollar value of the preferences to be returned to the debtor may vary greatly depending on the governing law and pattern of transfers.

Cumulative New Value: The "Garland" Approach

Thomas W. Garland v. Union Electric Co. ("*Garland*") was one of the first cases that required the application of Section 547(c)(4). The *Garland* approach, or cumulative approach, allows a creditor to offset payments received from the debtor during the preference period with the additional subsequent advance of new value to the insolvent firm. The distinguishing factor of this approach is that the advances of new value to the company may be applied against ***all*** of the previously accumulated preferences that have been received by the creditor.

Using the data from Table 1, the application of Section 547(c)(4) to Argus and Capital using the Garland methodology for calculating cumulative new value is outlined in Table 2.

Table 2. Cumulative Credit Approach

Transfer Date	Transfer Number	Invoice Number	Payment Amount	Goods Shipped	Preference (Cumulative)
09/22	1	86020	$ 69,000		$ 69,000
09/28	2	89956		$ 75,000	-
09/30	3	86301	68,000		68,000
10/01	4	89620		147,000	-
10/08	5	87600	63,000		63,000
10/10	6	90115		61,000	2,000
10/13	7	87750	54,000		56,000
10/17	8	90120		65,000	-
10/22	9	87998	68,000		68,000
10/26	10	91698		78,000	-
10/28	11	88023	71,000		71,000
11/03	12	93357		86,000	-
11/05	13	89506	134,000		134,000
11/07	14	94250		79,000	55,000
11/08	15	90115	61,000		116,000
11/13	16	94863		60,000	56,000
11/17	17	90120	65,000		121,000
11/19	18	95106		122,000	-
11/21	19	91698	78,000		78,000
11/28	20	96215		28,000	50,000
12/05	21	97006		35,000	15,000
12/14	22	93357	86,000		101,000
			$ 817,000	$ 836,000	$ 101,000
Additional Credit Extended Beyond Payments Received				$ 19,000	
Preference Transfers that Must Be Returned				$ 101,000	

In this example, the preference period began on September 22nd, 90 days prior to Argus filing for Chapter 11 on December 21. On September 22nd, Argus sent Capital a payment of $69,000 on invoice #86020 that Capital had shipped previously. As indicated by Table 2, this payment created a preference in the amount of $69,000 that the trustee could seek to have returned to the estate. On the 28th of September, Capital shipped goods to Argus as indicated on invoice #89956 totaling $75,000. This action generated subsequent new value to Argus and provided Capital a defense against the existing preference amount of $69,000. Once the shipment was made, the preference was eliminated. Furthermore, although the new value exceeded the existing preference amount by $6,000, this amount cannot, according to Garland, be used as credit against any future payments from Argus to Capital. In other words, transfers to the debtor are not cumulative under this approach. In contrast, transfers to the creditors may be accumulated, increasing the size and amount of the cumulative preference. However, this accumulated value may be offset by subsequent shipments from the creditor to the debtor.

As indicated in Table 2, the transfers continued through December 14th. On that date, Argus made a payment of $86,000 on invoice #93357. Before that payment had been made, the preference amount was $15,000. Argus' payment of $86,000 was added to this balance, resulting in a final preference balance of $101,000.

In general, when using the "Garland" approach, the cumulative preference balance at any point during the preference period is calculated as follows:

$$CP_{t,j} = (CP_{t-1,j} + TC_{t,j}) - \min(TD_{t,j}, CP_{t-1,j}) \qquad (2)$$

where:

$CP_{t,j}$ = cumulative preference balance for creditor j at transfer t.

$TC_{t,j}$ = amount of t^{th} transfer between debtor and creditor j during preference period, transfer is to creditor j from debtor.

TD_{tj} = amount of t^{th} transfer between debtor and creditor j during preference period, transfer is to debtor from creditor j.

$CP_{0,j} = 0.$

$CP_{t,j} \geq 0$

For example, the cumulative preference on October 10th, the date of the sixth transfer, can be seen in the following illustrative example. The prior preference was $63,000. To this amount the value of the sixth transfer to the creditor ($0) is added for a total preference of $63,000. The minimum of the transfer to the debtor at transfer six ($61,000) and the prior cumulative preference of ($63,000) is then subtracted from $63,000 yielding a cumulative preference value at transfer six of $2,000. Subtracting the $\min(TD_{t,j}, CP_{t-1,j})$ insures that the preference credit received by the creditor for new value provided to the debtor cannot exceed the prior amount of the preference balance.

It is important to note that overall, Capital extended $19,000 of credit in excess of payments received from the debtor ($836,000 - $817,000). Yet, under the *Garland* approach, Capital would carry a $101,000 preference liability. Should these funds be sought in a preference action, Capital might well be unable to defend against the identification of $101,000 in preferential payments it received and would be forced to return those funds to the estate.

Several circuit courts, namely the Fourth, Fifth and Ninth Circuits, have upheld the *Garland* methodology by employing it in recent decisions. As unfair to the creditor as this may seem, a creditor who continues to do business with a distressed customer in other jurisdictions might fare even worse.

Transactional New Value: the "Leathers" Approach

The judge in *Leathers v. Prime Leather Finishes Co.* ("*Leathers*") interpreted Section 547(c)(4) much differently from the *Garland* court. Table 3 depicts the computation of the preference amounts under the Transaction Approach outlined in the *Leathers* decision. As illustrated in Table 3, using the identical data, this transaction approach yields a dramatically different result than the *Garland* cumulative approach.

In the Leathers case, the judge interpreted the Code in a manner that regarded a preference payment from the debtor to the creditor and the immediately subsequent transfers of new value from the creditor to the debtor as one "transaction." Each new payment to the creditor establishes a new "transaction." If the transfers of new value are not sufficient to eliminate the preference payment in that "transaction," the remaining preference balance is carried forward and cannot be offset by any future transfers. To illustrate, lines were drawn within Table 3 to indicate each "transaction." Additionally, a column has been added that computes the preference amount for each "transaction," along with the cumulative preference, which is shown in the last column.

The cumulative preference amounts were identical under the transaction and cumulative approaches through the payment of invoice #87750 for $54,000 on October 13th. Both Table 2 and Table 3 indicate that as of October 13th, the cumulative preference amount was $56,000. However, from this point forward the two methods diverge.

On October 17th, Capital shipped invoice #90125 for $65,000. This offset the October 13th payment of $54,000 on invoice #87750 and resulted in a zero preference amount for this transaction under *Garland*. Even though the new value that Capital shipped to Argus on October 17th was sufficient to offset both the payment of invoice #87750 and the $2,000 preference brought forward from invoice #87600, offsetting the prior preference balance is not

Table 3. Transaction Approach

Trans-action Number	Transfer Date	Transfer Number	Invoice Number	Payment Amount	Goods Shipped	Pref. - Trans.	Pref. - Cumulative
1	09/22	1	86020	$ 69,000		$ 69,000	$ 69,000
	09/28	2	89956		$ 75,000	-	-
2	09/30	3	86301	68,000		68,000	68,000
	10/01	4	89620		147,000	-	-
3	10/08	5	87600	63,000		63,000	63,000
	10/10	6	90115		61,000	2,000	2,000
4	10/13	7	87750	54,000		54,000	56,000
	10/17	8	90120		65,000	-	2,000
5	10/22	9	87998	68,000		68,000	70,000
	10/26	10	91698		78,000	-	2,000
6	10/28	11	88023	71,000		71,000	73,000
	11/03	12	93357		86,000	-	2,000
7	11/05	13	89506	134,000		134,000	136,000
	11/07	14	94250		79,000	55,000	57,000
8	11/08	15	90115	61,000		61,000	118,000
	11/13	16	94863		60,000	1,000	58,000
9	11/17	17	90120	65,000		65,000	123,000
	11/19	18	95106		122,000	-	58,000
10	11/21	19	91698	78,000		78,000	136,000
	11/28	20	96215		28,000	50,000	108,000
	12/05	21	97006		35,000	15,000	73,000
11	12/14	22	93357	86,000		86,000	159,000
				$ 817,000	$ 836,000		$ 159,000
Additional Credit Extended Beyond Payments Received					$ 19,000		
Preference Transfers that Must Be Returned					$ 159,000		

permitted under the transaction approach. The $2,000 balance is brought forward and no amount of new value may ever eliminate it. Under the *Leathers*, or transaction approach, new value is not applied to the cumulative balance of preference transfers. Rather, it is only applied to the preference immediately prior to the new value transfer.

As indicated in Table 3, the $2,000 preference generated by the October 8th payment of $63,000 and the October 10th shipment of $61,000 worth of goods is brought forward and never offset. On November 5, Capital received a payment of $134,000 on invoice #89506. Capital shipped invoice #94250 for $79,000 on November 7th. The preference amount for this "transaction" was $55,000 ($134,000 - $79,000). After these transfers, the cumulative preference amount rose to $57,000, which consists of the $55,000 preference generated from this "transaction" plus the $2,000 that had been brought forward from a prior transaction. As time progressed during the preference period, these balances were carried forward and additional balances were added to them. By December 14th, the cumulative preference amount totaled $159,000 rather than the $101,000 from the *Garland* methodology.

The formulation of the preference balance for creditor j using the *Leathers* approach is presented in Equations (3a) and (3b). Equation (3a) is used to determine the preference balance for the typical transaction shown in Table 3, where sequential shipments to the debtor do not occur without receipt of payment. If either $TC_{t,j}$ or $TC_{t-1,j}$ is greater than 0, it indicates that receipt of payment to creditor j was received at transfer t or t – 1, and thus two sequential transfers to the debtor did not occur. However, on occasion, as indicated in transaction number ten, sequential shipments to the debtor are made by the creditor without any receipt of payment. Both $TD_{t,j}$ and $TD_{t-1,j}$ being greater than zero indicate sequential shipments are being made to the debtor. Sequential payments to the creditor, should they occur, would constitute separate transactions.

$$CP_{t,j} = CP_{t-1,j} + TC_{t,j} - \min(TD_{t,j}, TC_{t-1,j}) \quad \text{If } TC_{t,j} \text{ or } TC_{t-1,j} > 0 \qquad (3a)$$

$$CP_{t,j} = \max((CP_{t-1,j} - TD_{t,j}), CP_{PT,j}) \quad \text{If } TD_{t,j} \text{ and } TD_{t-1,j} > 0 \qquad (3b)$$

where:

$CP_{PT,j}$ = cumulative preference balance at prior transaction for creditor j.

$CP_{t,j}$ = cumulative preference balance for creditor j at transfer t.

$TC_{t,j}$ = amount of t^{th} transfer between debtor and creditor j during preference period, transfer is to creditor j from debtor.

TD_{tj} = amount of t^{th} transfer between debtor and creditor j during preference period, transfer is to debtor from creditor j.

$CP_{0,j} = 0$.

This example used data that was identical to the data from the prior example. Yet, a creditor with the misfortune of doing business with a debtor in a jurisdiction using the transaction approach could find itself returning $58,000 of additional preference payments to the estate. Thus, as a result of judicial interpretation, whereby the transaction approach rather than the cumulative approach is used, significant additional funds may be returned to the debtor firm.

It is incongruous that the judicial interpretation in *Leathers* pairs the transfers a debtor makes with the immediately subsequent shipments made by creditors. The specific language of Section 547 (c)(4) recognizes the importance of new value provided by the creditors to the distressed debtors and defends transfers from a trustee's avoidance actions "to the extent that, ***after such transfer***, such creditor gave new value to or for the benefit of the debtor."[3] However, nothing in the statute indicates that new value extended by the creditor can only offset the immediately prior transfer from the debtor.

Furthermore, the regular course of business typically flows such that the debtor first places an order with the creditor, then the creditor ships the order, and finally the debtor pays for the shipment. Thus, the matching of payments to subsequent shipments employed by the *Leathers* court defies practical and accounting conventions. As indicated in the above example, the payment of $61,000 that Argus made to Capital on November 8th was for invoice #90115. The goods that comprised invoice #90115 had been shipped from Capital to Argus on October 10th. This is the series of events, not chronological payments and shipments, that should logically be considered a transaction.

From an accounting, finance and business perspective, the transaction approach is simply inappropriate. It fails tests of logic and transaction matching. While this method has been applied in numerous cases, it has recently been rejected in several jurisdictions in favor of the approach employed in *Garland*. However, some jurisdictions have taken this method one step further and added yet another restriction to a creditor's defenses against a trustee's avoidance actions.

[3] 11 USCS 547(c)(4) (emphasis added)

Repayment of New Value: an Additional Requirement

Several circuits, namely the Third, Seventh, Eighth and Eleventh, have created an additional hurdle to the application of Section 547(c)(4) by requiring that any new value extended to the debtor by the creditor must remain unpaid. Table 4 uses the same data as Table 2 to illustrate the impact of a court adopting this constraint with the cumulative approach advanced in *Garland*.

As indicated in Table 4, only four of the shipments that Capital made during the preference period were later paid for by Argus. The four shipments are listed by their Transfer Numbers, as follows:

6. Invoice #90115 for $61,000, shipped October 10th and paid November 8th,
7. Invoice #90120 for $65,000, shipped October 17th and paid November 17th,
10. Invoice #91698 for $78,000, shipped October 26th and paid November 21st, and
12. Invoice #93357 for $86,000, shipped November 3rd and paid December 14th.

When computing the preference amount owed to Argus as a result of preference period transfers, the shipments of these invoices were excluded from the amount of new value extended by Capital to Argus. As seen by comparing Table 2 with Table 4, eliminating these four invoices increased the preference amount from $101,000 to $356,000. Note that the sum of the amounts excluded (i.e. $61,000 + $65,000 + $78,000 + $86,000 = $210,000) does not equal the difference between $356,000 and $101,000 (i.e. $255,000). This result is not unexpected since in Table 2 the value of goods shipped is frequently greater than the existing preference with the resulting difference unable to be used as a potential offset against a preference. As indicated in Table 4, all of the goods shipped associated with the repayment elimination items are utilized as offsets against existing preferences.

The preference increase associated with eliminations due to repayment is described in Equation 4, which is identical to Equation 2, but assumes $TD_{t,j} = 0$ when there is subsequent payment for new value.

$$CP_{t,j} = (CP_{t-1,j} + TC_{t,j}) - \min(TD_{t,j}, CP_{t-1,j}) \qquad (4)$$

where:

$TD_{t,j}$ = 0 if there is subsequent payment for new value; amount of t^{th} transfer between debtor and creditor j during preference period, transfer is from creditor j to debtor.

$CP_{t,j}$ = cumulative preference balance for creditor j at transfer t.

$TC_{t,j}$ = amount of t^{th} transfer between debtor and creditor j during preference period, transfer is from debtor to creditor j.

CP_0 = 0.

Table 4. Repayment Elimination - Cumulation Approach

Transfer Date	Transfer Number	Invoice Number	Payment Amount	Goods Shipped	Elimin. by Repmt.	Cumul. Preference
09/22	1	86020	$ 69,000			$ 69,000
09/28	2	89956		$ 75,000		-
09/30	3	86301	68,000			68,000
10/01	4	89620		147,000		-
10/08	5	87600	63,000			63,000
10/10	6	90115		61,000	(61,000)	63,000
10/13	7	87750	54,000			117,000
10/17	8	90120		65,000	(65,000)	117,000
10/22	9	87998	68,000			185,000
10/26	10	91698		78,000	(78,000)	185,000
10/28	11	88023	71,000			256,000
11/03	12	93357		86,000	(86,000)	256,000
11/05	13	89506	134,000			390,000
11/07	14	94250		79,000		311,000
11/08	15	90115	61,000			372,000
11/13	16	94863		60,000		312,000
11/17	17	90120	65,000			377,000
11/19	18	95106		122,000		255,000
11/21	19	91698	78,000			333,000
11/28	20	96215		28,000		305,000
12/05	21	97006		35,000		270,000
12/14	22	93357	86,000			356,000
			$ 817,000	$ 836,000		$ 356,000
Additional Credit Extended Beyond Payments Received				$ 19,000		
Preference Transfers that Must Be Returned				$ 356,000		

As before, creditors fare worse when the *Leathers* transaction approach is employed rather than the cumulative approach from *Garland.* Table 5 incorporates the same data that was illustrated in Table 3 and demonstrates the impact of removing the same four paid shipments discussed above from new value under the Transaction Approach.

Recall that in Table 3, the total preference amount that Argus was required to return to the estate under the transaction approach was $159,000. If Capital had been unfortunate enough to be subjected to a judicial decision that imposes the repayment elimination on new value in addition to this transaction approach, it would then be forced to return $413,000 to the estate. Using this transaction approach, each of the items eliminated was completely used to offset the existing preference. The cumulative preference balance can be determined by using Equations 3a and 3b, assuming $TD_{t,j} = 0$ if there is subsequent payment for new value.

$$CP_{t,j} = CP_{t-1,j} + TC_{t,j} - \min(TD_{t,j}, TC_{t-1,j}) \quad \text{If } TC_{t,j} \text{ or } TC_{t-1,j} > 0 \qquad (3a)$$

$$CP_{t,j} = \max((CP_{t-1,j} - TD_{t,j}), CP_{PT,j}) \quad \text{If } TD_{t,j} \text{ and } TD_{t-1,j} > 0 \qquad (3b)$$

where:

$CP_{PT,j}$ = cumulative preference balance at prior transaction for creditor j.

$CP_{t,j}$ = cumulative preference balance for creditor j at transfer t.

$TC_{t,j}$ = amount of t^{th} transfer between debtor and creditor j during preference period, transfer is to creditor j from debtor.

TD_{tj} = amount of t^{th} transfer between debtor and creditor j during preference period, transfer is to debtor from creditor j.

$CP_{0,j}$ = 0.

Table 5. Repayment Elimination - Transaction Approach

Trans-action No.	Transfer Date	Inv. No.	Pmt. Amt.	Goods Shipped	Elimin. by Repmt.	Pref. - Tran.	Pref. - Cumul.
1	09/22	86020	$ 69,000			$ 69,000	$ 69,000
	09/28	89956		$ 75,000		-	-
2	09/30	86301	68,000			68,000	68,000
	10/01	89620		147,000		-	-
3	10/08	87600	63,000			63,000	63,000
	10/10	90115		61,000	(61,000)	63,000	63,000
4	10/13	87750	54,000			54,000	117,000
	10/17	90120		65,000	(65,000)	54,000	117,000
5	10/22	87998	68,000			68,000	185,000
	10/26	91698		78,000	(78,000)	68,000	185,000
6	10/28	88023	71,000			71,000	256,000
	11/03	93357		86,000	(86,000)	71,000	256,000
7	11/05	89506	134,000			134,000	390,000
	11/07	94250		79,000		55,000	311,000
8	11/08	90115	61,000			61,000	372,000
	11/13	94863		60,000		1,000	312,000
9	11/17	90120	65,000			65,000	377,000
	11/19	95106		122,000		-	312,000
10	11/21	91698	78,000			78,000	390,000
	11/28	96215		28,000		50,000	362,000
	12/05	97006		35,000		15,000	327,000
11	12/14	93357	86,000			86,000	413,000
			$ 817,000	$ 836,000			$ 413,000
Additional Credit Extended Beyond Payments Received				$ 19,000			
Preference Transfers that Must Be Returned				$ 413,000			

There is no language whatsoever in the US Bankruptcy Code Section 547 (c)(4) that stipulates that new value must remain unpaid. Prior to the current Code's enactment, there was some rationale in case law for considering the net amount of new value extended to the debtor rather than the gross amount. However, when the new Code was written and passed into law, this concept of "net new value" and the requirement that new value must remain unpaid were specifically excluded from the US Bankruptcy Code. Given the history and plain language of the existing Code, it appears that, once again, judicial interpretation has detrimentally affected the creditor's position.

The Cumulative Approach Revisited

Based on the myriad of possible outcomes in court for the creditor, the best-case scenarios fall under the jurisdiction of the circuit courts that use the cumulative approach and shunned the repayment requirement. Fortunately, this seems to be the position of the majority of the circuit courts. Yet, even the cumulative approach is quite flawed, leaving the creditor's outcome deeply dependent upon the timing of the transfers.

Recall that Table 2 demonstrated that the amount of preference claims Capital would be liable to return to the estate was $101,000 under the cumulative approach. For illustration purposes, Table 6 presents the same invoices and amounts that were presented in Table 2; the only difference is in the pattern of the transfers. An absurd aspect of the preference concept is that by simply changing the sequence of the transaction (from Table 2 to that of Table 6), the preference that Capital owed to the estate is zero, instead of $101,000. Moreover, in Table 6, the amount of goods shipped is still greater than the payments made during the period ($836,000 v. $817,000). By simply making shipments that were at progressively higher values and receiving progressively smaller payments, Capital could have eliminated owing any preference payments back to the estate.

Table 6. Cumulative Credit Approach - Best Case

Transfer Date	Transfer Number	Invoice Number	Payment Amount	Goods Shipped	Preference (Cumulative)
09/22	1	89506	$ 134,000		$ 134,000
09/28	2	96215		$ 28,000	106,000
09/30	3	93357	86,000		192,000
10/01	4	97006		35,000	157,000
10/08	5	91698	78,000		235,000
10/10	6	94863		60,000	175,000
10/13	7	88023	71,000		246,000
10/17	8	90115		61,000	185,000
10/22	9	86020	69,000		254,000
10/26	10	90120		65,000	189,000
10/28	11	87998	68,000		257,000
11/03	12	89956		75,000	182,000
11/05	13	86301	68,000		250,000
11/07	14	91698		78,000	172,000
11/08	15	90120	65,000		237,000
11/13	16	94250		79,000	158,000
11/17	17	87600	63,000		221,000
11/19	18	93357		86,000	135,000
11/21	19	90115	61,000		196,000
11/28	20	95106		122,000	74,000
12/05	21	87750	54,000		54,000
12/14	22	89620		147,000	-
			$ 817,000	$ 836,000	$ -
Additional Credit Extended Beyond Payments Received				$ 19,000	
Preference Transfers that Must Be Returned				$ -	

The importance of the transactions' sequence per se can be illustrated by considering the worst-case scenario. In Table 7, the payments Argus made to Capital were simply put into ascending order while the shipments were put into descending order.

Again, Table 7 is comprised of the same data as found in Table 2 – only the timing of the transfers has been altered. Based on the Garland approach, Capital was unfortunate enough to have made increasingly smaller transfers of goods to Argus while receiving increasingly larger payments, it would have owed the estate $257,000 in preference transfers instead of $101,000.

Although the cumulative approach is flawed in its overemphasis of the chronological timing of the payments, Tables 6 and 7 demonstrate the rationale behind this interpretation of the new value defense. Table 6 illustrates the benefit to creditors, in the form of reduced preference liabilities, that results from continuing to advance sizable shipments to distressed companies while receiving decreasing payments. Thus, while the preferences are reduced in size, the credit risk may increase substantially. Likewise, Table 7 depicts the potentially large preferences that accrue to creditors who receive abnormally large payments on diminishing shipments. Creditors receiving sizeable payments may decrease their credit risk, yet simultaneously increase the potential size of future preferences. Due to the significant wealth transfers associated with these preference decisions, both the debtor and creditor would be well served to monitor the pattern of transfers in the face of impending bankruptcy, even if they conduct business within a "favorable" jurisdiction.

Conclusion

Despite what appears to be clear and concise phrasing in the US Bankruptcy Code, creditors have been subjected to a wide range of judicial interpretations of Section 547(c)(4). These interpretations have potentially major implications for wealth transfer between debtors and creditors. The "cumulative" approach first illustrated in the *Garland* case allows debtors to cumulate payments to creditors, but does not allow creditors to cumulate shipments to debtors. As a result, a creditor can be forced to return payments received, even if that creditor has shipped a higher value of goods during the preference period. While this approach may

Table 7. Cumulative Credit Approach - Worst Case

Transfer Date	Transfer Number	Invoice Number	Payment Amount	Goods Shipped	Preference (Cumulative)
09/22	1	89620		$ 147,000	$ -
09/28	2	87750	$ 54,000		54,000
09/30	3	95106		122,000	-
10/01	4	90115	61,000		61,000
10/08	5	93357		86,000	-
10/10	6	87600	63,000		63,000
10/13	7	94250		79,000	-
10/17	8	90120	65,000		65,000
10/22	9	91698		78,000	-
10/26	10	86301	68,000		68,000
10/28	11	89956		75,000	-
11/03	12	87998	68,000		68,000
11/05	13	90120		65,000	3,000
11/07	14	86020	69,000		72,000
11/08	15	90115		61,000	11,000
11/13	16	88023	71,000		82,000
11/17	17	94863		60,000	22,000
11/19	18	91698	78,000		100,000
11/21	19	97006		35,000	65,000
11/28	20	93357	86,000		151,000
12/05	21	96215		28,000	123,000
12/14	22	89506	134,000		257,000
			$ 817,000	$ 836,000	$ 257,000
Additional Credit Extended Beyond Payments Received				$ 19,000	
Preference Transfers that Must Be Returned				$ 257,000	

seem to represent a strong bias of wealth transfer toward the debtor, it is by far more advantageous to the creditor than the "transaction" approach implemented in the *Leathers* case.

The "transactions" approach arbitrarily initiates a transaction when the creditor receives of a payment from the debtor. Each "transaction" is concluded by a subsequent shipment of goods to the debtor. If the value of a shipment of goods exceeds the prior payment, the creditor cannot use the excess shipment to offset against any future payments received. Nor can a creditor use any excess value of goods shipped to offset cumulated preferences from prior "transactions". Business transactions typically follow a far different pattern than the one imposed by the *Leathers* ruling. Initiating a transaction with a receipt of a payment appears to be arbitrary and contrary to standard business practices.

Some jurisdictions have made both the *Garland* and the *Leathers* approaches even more stringent by requiring that any subsequent new value shipped to the debtor must remain unpaid during the entire preference period. This additional requirement results in a more disadvantageous wealth transfer position for a creditor that in either *Garland* or *Leathers*.

The "cumulative" approach employed in the *Garland* case appears to offer the most equitable and least arbitrary results among the interpretations and approaches analyzed. However, even the *Garland*, or cumulative, approach is sensitive to timing of transfers. As such, even this approach yields wealth transfer results that differ depending on the timing and amount of the transfers of goods and payments. Although the intent behind the provisions of Section 547(c)(4) was to provide creditors incentive and a safe haven for continuing to do business with a distressed company, the actual application of the law frequently provides neither.

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The Cost of Carry and Prejudgment Interest

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Abstract

A uniform application of prejudgment interest associated with tortuous financial takings by defendants has yet to be developed in the law. Legal and economic experts continue to debate the appropriate calculation of prejudgment interest and the courts have endorsed a variety of methods (see Knoll). In this paper, we offer an efficient and consistent method to assign prejudgment interest utilizing the concepts of futures and forward transactions and Keynes' cost of carry premise. While we focus on corporate litigation, the concept can be applied to financial takings between individuals. We begin the paper with the succinct legal precedent for the need of prejudgment interest. We follow by presenting a variety of traditional prejudgment interest rate approaches. Then we turn to the analysis of the cost of carry principle and its application to prejudgment interest. We conclude that applying the cost of carry principle, revealed in the plaintiff's cost of capital, leads to the calculation of prejudgment interest that creates financial parity between the plaintiff and defendant, and hence, an efficient method of assigning prejudgment interest.

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The rationale of prejudgment interest in litigation was succinctly stated Inre Pago Pago Aircrash of Jan. 30, 1974, 525 F. Supp. 1007 (C.D. Cal. 1981) as:

> "An individual who must litigate to recover damages should be placed in the same position, when he recovers, as the individual who recovered the day he suffered an injury. Otherwise, the tortfeasor benefits from denying liability and continuing to litigate, while he retains the use of money to which the plaintiff is entitled, and the plaintiff is deprived of the benefit he should have derived from an immediate recovery."

The U.S. Supreme Court in General Motors Corp. v. Devex Corp., 461 U.S. 648 (1983) defined the purpose of prejudgment interest as:

> "In the typical case an award of prejudgment interest is necessary to ensure that the patent owner is in as good a position as he would have been if the infringer had entered into a reasonable royalty agreement. An award of interest from the time that the royalty payments would have been received merely serves to make the patent owner whole, since his damages consist not only of the value of the royalty payments but also of the forgone use of the money between the time of infringement and the date of the judgment."

The 'make whole' principle stated in U.S. Supreme Court in General Motors Corp. v. Devex Corp., 461 U.S. 648 (1983) indicates that a plaintiff's damages includes two components:

1) the value of the goods not received, and 2) the foregone cost of money. While the 'make whole' principle is often cited in case law involving prejudgment interest,[1] the exact goal of prejudgment interest is inconsistently presented—prejudgment interest is awarded either to remove defendant's profits from the financial taking from the plaintiff or to restore the plaintiff's financial position.

In any case involving prejudgment interest, we can formulate the court award to a plaintiff due to a past economic harm as:

$$A = D(1+r)^n . \quad (1)$$

where, A is the award, D is the past economic damage, r is an annual prejudgment interest rate, and n is the number of years from the occurrence of the damage D to the payment of the award A. Once D is determined and the passage of time to final judgment, n, has occurred, the contested issue to compute A is the selection of the prejudgment interest rate r. Argument for the selection of the interest rate is often couched in terms of what the judgment is intended to accomplish (i.e., compensation to the plaintiff or prevention of unjust enrichment to the defendant).[2] Other precedent considerations include the past and current financial conditions of the plaintiff and defendant, prevalent interest rates in the debt market during the damage period, and the historical financial arrangements, if any, between the plaintiff and defendant.

The selected interest rate can substantially affect the dollar-level of A, especially when the economic harm occurred many years ago. Plaintiffs generally argue for high annual rates of prejudgment interest and defendants generally argue for low annual rates of prejudgment interest. A variety of interest rates are often cited by plaintiffs and defendants including the use of risk-free interest rates, interest rates paid on demand deposits, market interest rates on corporate debt (prime rates or commercial paper), the plaintiff's or defendant's own borrowing costs, and past market returns on stocks, etc.

Traditional Prejudgment Interest Views

The general approach to the awarding of prejudgment interest has been that the plaintiff should receive interest at the defendant's cost of unsecured borrowing (often referred to as the coerced loan theory). The judgment establishes an obligation from the defendant to the plaintiff that dates back to the financial injury or time-of-taking by the defendant. To justly compensate, the plaintiff is entitled to interest from the date of the harm 1) on the money the defendant improperly retained, or 2) on the lost profits that were incurred by the plaintiff. Although we cannot know specifically what the plaintiff would have done with that money if it had been received earlier, because of the taking, the plaintiff has invested it, albeit unwillingly, in the defendant. Even if the plaintiff should succeed in establishing its claims and the amount of its damages, it still might not recover all that it is owed[3]. Should the defendant declare bankruptcy, the plaintiffs' claims (judgments) are treated on par with unsecured debt. Therefore, to compensate the plaintiff for defendant's withholding of this money, the coerced loan theory states that the plaintiff should be paid the same return that would be paid to a voluntary creditor of the defendant. That return is the return on defendant's unsecured debt and assignment of prejudgment interest rates would follow the historical pattern of the defendant's cost of capital.

An alternative viewpoint exists when the infraction occurs because of a breach of fiduciary duty. There is precedent to support that the remedy for a breach of fiduciary duty affected to a trust is to restore the trust to the position that they would have occupied but for the breach of trust.[4] Additionally, the party committing the infraction is liable for any profit that would have accrued to the trust if there had been no breach, and such determination of loss should presume the most profitable of strategies for the plaintiff.[5]

Fisher and Romaine (1990) espouse the view that prejudgment interest may actually combine multiple rates if the infraction occurs over time, a discount rate for each infraction and the risk-free rate for compounding cash flows. They write:

> "The change in the profit stream brought about by each violation is discounted back to the time of that violation and then compounded forward at the risk-free rate."

Additionally, Fisher and Romaine argue for the use of the plaintiff's opportunity cost of capital in the discount factor. When prejudgment interest is set by statute or assigned automatically to the defendant's financing cost, prejudgment interest as a distinct component of the award is determined aside from the economic reality of the case[6]. Such approaches to prejudgment interest focus on what the judgment is intended to accomplish (e.g. prescribed penalty or deterrence or supposedly removing the defendant's gain from the financial taking), and these approaches seek their justification in fairness to both parties as well as encouragement of timely and efficient litigation. While these may represent ideals, they serve to dilute the objectiveness related to the loss and create the opportunity for an inefficient economic solution by avoidance of the 'make-whole' principle of restoring the plaintiff.

The Cost of Carry

John Maynard Keynes in chapter 17 of his work *The General Theory of Employment, Interest and Money* initiates the following discussion of the cost of carry:

> "It follows that the total return expected from the ownership of an asset over a period is equal to its yield (q) minus its carrying cost (c) plus its liquidity-premium (l), i.e. to $q - c + l$. That is to say, $q - c + 1$ is

[1] See Saunders v. State, 70 Nev. 480, 485, 273 P.2d 970 (1954). Royal Electric Construction Corp. v. Ohio State University, 73 Ohio St. 3d 110, 652 N.W.2d. 687, 1995 Ohio LEXIS 18905 (Ohio Sup. Ct. Aug. 15, 1995). City of Sparks v. Armstrong, 103 Nev. 619, 623, 748 P.2d 7 (1987). U.S. Supreme Court ,General Motors Corp. v. Devex Corp. , 461 U.S. 648 (1983).

[2] See Knoll (1996).

[3] Expenses related to legal proceedings such as appeals processes will offset damages.

[4] Matin v. Fielen, 965 F.2d 660,671 (8th Cir. 1992).

[5] Donovan v. Bierwirth, 754 F.2d 1049, 1053 (2d Cir, 1985).

[6] See Watts (2002) for a list of states and review of prejudgment interest rates.

the own rate of interest of any commodity, where *q*, *c*, and *l* are measured in terms of itself as the standard."

We can equate the plaintiff's claim for lost profits to ownership of an asset. Based upon Keynes' position, the return to the plaintiff on its assets includes the cost of carry. As constructed by Keynes, the cost of carry is not general opportunity cost but is a measure of financial parity which is incorporated into futures and forward pricing equations and the application of such equations in the financial markets.

Cost of carry measures the storage cost plus the interest paid to finance the asset less the income earned on the asset. In the case of an asset claim of lost profits, the cost to finance the asset is the limited component of the cost of carry. The importance of the cost of carry premise in the prejudgment interest arena is that it transfers the discussion from what the judgment is intending to accomplish to the recognition that prejudgment interest is innately a part of the lost profits of the plaintiff. It is not a separate component warranting external rationale or determination and discussion as to what prejudgment interest rate applies. Determination of prejudgment interest under the cost of carry concept requires focusing on the actual infraction and the plaintiff's lost yield following Keynes' cost of carry function.

Cost of Carry and Beyond

Using the cost of carry concept, we extend the view of prejudgment interest to existence of an implicit trade relationship between the plaintiff and defendant similar to a futures contract. Williams (1986) argues that futures markets exist to provide an efficient means of intermediating credit risk. The futures market operates with forward and future contracts that are trade agreements that specify a future price of a transaction. The essence of a trade agreement is demonstrated where Party A enters knowingly or unknowingly into a transaction with Party B where both parties stand to benefit.

If an implicit transaction were to lock in a price between the parties, the transaction appears like a forward or futures contract. Take the example of a retailer that purchases goods or services from a wholesaler. Should the wholesaler wrongfully create excess profits by violating the contracted price of goods or services charged to the retailer, the existence of these excess profits represent a commodity and the pricing of this commodity aligns with futures and forward concepts. The premise that a parity relationship exists between the current and future prices of a commodity is the basis of futures and forward pricing models. Holbrook Working extended the cost of carry model to price futures contracts in 1949.[7] The parity premise indicates that the current price (spot) and the futures price should be equivalent except to the extent of the cost of carrying the commodity which includes the interest cost of financing the transaction plus any other expenses such as transportation or storage costs, offset by any dividends received.[8] If the parity does not hold, then an arbitrage situation exists where one party of a transaction will unduly benefit. If the goal of the assignment of prejudgment interest is to create financial parity, then the cost of carry model to price future contracts is applicable.

The futures price parity relationship is.

$$F_{0,T} = S_0 + SC_{O,T} = S_0(1 + p + i + y) \qquad (2)$$

where

- F represents the cost of the asset in the futures transaction entered at time 0, enduring until time T.
- S_0, represents the cost of the asset at time 0 (the current cost or spot price).
- $SC_{0,T}$ represents the total carrying costs and premiums received until time T associated with acquiring the asset at time 0.

SC has the components:

- p representing the time cost rate of the physical carrying costs of the asset from time 0 to T (i.e. what percent of the spot price will be required to physically carry the asset to time T);
- i representing the time cost rate of financing the purchase of the asset from time 0 to T (i.e. what percent of the spot price will be required to financially carry the asset to time T); and,
- y represents the time cost rate of the cash flows received by owning the asset during time 0 to T (i.e. what percent, positive or negative, of the spot price will be achieved by the owner of the asset as they carry the asset to time T).

In a litigation setting, the asset is the lost profit position existing for the plaintiff. The asset is created as a result of the financial taking that accrues to the benefit of defendant, referred to as *S*. The parity premise indicates that the current price (spot) and the futures price should be equivalent except to the extent of the cost of carrying the asset which includes the interest cost of financing the transaction plus any other physical carrying costs, offset by any dividend income received. Parity ensures that the plaintiff is compensated for its own cost of carry.

By an unlawful taking, a defendant willingly enters into a parity relationship with the plaintiff. Utilizing the enforcement of the law, the plaintiff seeks restoration of their parity with the defendant. Therefore, the appropriate risk-weighted compensation can be determined for both plaintiff and defendant as though they comply with the cost of carry parity equation's assumption that all parties have entered willingly. In this case, the application of economic value to determine the price of the asset today is the risk-free rate plus or minus other carrying costs or cash flows received during the transaction. However, in the event that there is risk present in the transaction, the risk-free rate requires modification to reflect those risks. According to Bodie, Kane, and Marcus (1996),

> "the futures price must exceed the spot price by the net cost of carrying the asset until maturity."

Reilly and Brown (1997) explain this further. Discussing the concepts we show in our equation 2, they indicate that

> "even if funds needed to purchase the commodity at date 0 are not borrowed, *i* accounts for the opportunity cost of committing one's own financial capital to the transaction".

[7] See Working (1949).
[8] See Bodie, Kane and Marcus (1996).

In financial litigation cases, the plaintiff has entered into a futures transaction with the defendant; plaintiff's capital is committed to uphold parity with the defendant; so, therefore, the appropriate carrying cost, or the economic damage of prejudgment interest, should be determined by assessing the cost of capital of the plaintiff. This reasoning is also intuitive. The plaintiff, albeit unwillingly, has committed their own capital as they entered into a trade agreement with the defendant. Accordingly, whether the plaintiff borrows money or not to enter into this trade agreement, they require compensation, at a minimum, at its implied financing cost. Without compensation, a speculative or arbitrage situation occurs between the defendant and plaintiff that force the plaintiff to incur further economic losses.

Arbitrage pricing theory predicts that the futures price of an item should just equal the price of the underlying item plus net carrying costs. This result is known as the cost of carry pricing relation. In the situation of plaintiff's claim for lost profits, we can rewrite equation (2) as the cost of carry pricing relation setting the physical carrying costs and cash flow income equal to zero:

$$F_{0,T} = S_0 + iS_0 . \quad (3)$$

In our situation, the plaintiff recovers its profits that the defendant held S_0, and prejudgment interest is represented as the total amount iS_0 that is reflected by the plaintiff's cost of capital.

Application

Practical application of the cost of carry parity concepts results in appropriately determining an award for plaintiff's total economic losses. Ascertaining the plaintiff's appropriate cost of carry is the crucial calculation in order to determine a suitable rate of prejudgment interest and accordingly, a sufficient award.

In Table 1, we view the effect of this approach through four scenarios with respect to both the plaintiff's cost of carry and the defendant's relative financing costs. Under each of the four possible scenarios, by awarding prejudgment interest at the plaintiff's cost of capital, we return the plaintiff to whole and their parity relationship with the defendant is maintained. However, the defendant will ultimately achieve a variety of net financial yield positions associated with their own borrowing costs.

As Table 1 demonstrates, when the plaintiff's cost of carry and the defendant's financing cost are relatively equivalent to each other (whether they are higher or lower than market norms), the defendant's yield position on the financial taking is neutral when applying the plaintiff's cost of capital to prejudgment interest. This coincides with Knoll's argument that for two publicly traded companies with ready access to capital markets the view can be taken that these transactions are forced loans and therefore use of the defendants cost of borrowing is applicable. In this coincidental situation, it can be generally inferred that the plaintiff's cost of borrowing would be nearly equivalent to the defendant's cost of borrowing.

The two remaining quadrants of Table 1 warrant further analysis as addressed in this paper. Take the case when the plaintiff's cost of carry exceeds the defendant's financing costs. This may occur when a large public corporation defendant is litigating with a plaintiff that is a smaller public or privately held company. In fact, many disputes arise from such relationships as the defendant is strategically positioned to significantly influence the economic situation of the plaintiff. A franchise or distributor relationship may have these attributes when the independent retailer or franchisee is largely dependent on the large distributor for both distribution of goods and completion of services. By applying the plaintiff's cost of carry as a direct economic loss, the plaintiff is made whole in line with Keynes' cost of carry principle and the futures parity condition. The defendant incurs a loss in excess of its own financing cost. Hence, the consistent imposition of this cost in practice serves as a deterrent to tortuous activity and provides the appropriate relief as prescribed in the General Motors v. Devex case.

Some may argue that the imposition of a rate that benefits the plaintiff may cause the plaintiff to refrain from litigating claims in a timely manner. Others may argue that the defendant should not be responsible for the business prospects of the plaintiff as it relates to the plaintiff's cost of carry. However, this reciprocal relationship deters inappropriate activity between both parties in a transaction, as neither has a net economic advantage. The application of Keynes' cost of carry condition does not separate the initial loss from the

Table 1

Applying **Plaintiff's Carry Cost** in loss calculations and the *Resulting Relative Cost to the Defendant*

If, the		then the	
Defendant's financing cost is	*High*	Defendant's net yield improves.	Defendant's net yield is neutral.
	Low	Defendant's net yield is neutral.	Defendant's net yield worsens.
		Low	**High**
		Plaintiff's Cost of Carry is	

appropriate amount of prejudgment interest. The defendant should bear the risk of the transaction because it knowingly committed the infraction, not the plaintiff. Larger firms would not benefit from engaging in infractions against smaller companies (with relatively higher cost of carry) as arbitrage opportunity is eliminated. Additionally, punitive action because of defendant's financial advantage in carrying the taking is not required because with prejudgment interest assigned at the higher plaintiff's cost of carry, the plaintiff is sufficiently 'made-whole' and the defendant is sufficiently punished according to their own knowledge of plaintiff's financial position.

Alternatively, given a higher financing cost on the part of the defendant and a lower cost of carry by the plaintiff, the defendant's net yield will improve with the assignment of the lower plaintiff's cost of carry to the parity relationship. This is demonstrated in the upper, left-hand quadrant in Table 1. Applying the risk/return attributes to determine the cost of carry, this situation occurs when the defendant's financial position is considered as more risky relative to that of the plaintiff. In this case, the defendant has an opportunity to arbitrage. They can commit the infraction and benefit from that, however, the plaintiff is able to recover its carrying costs and then have those costs restored to them in final judgment. In the end, the plaintiff is indifferent to the defendant's gain because they are whole with prejudgment interest assigned to their cost of capital.

Conclusion

Throughout this paper, we compare the traditional defendant cost of capital arrangement and statutory interest prescription to prejudgment interest with the cost of carry approach. Central to our view is the merging of Keynes' cost of carry position with futures and forward transaction parity calculations. Under this approach, we form two conclusions. First, the plaintiff's injury should couple the actual infraction with the plaintiff's carrying cost of the action. Accordingly, discussions of the reasons for prejudgment interest are not necessary. Prejudgment interest is implicit to the plaintiff's loss. Second, the carrying cost represents the implied cost of the plaintiff to fund its loss position. We argue that while the defendant's cost of capital may be equivalent to the plaintiff's cost of carry (cost of capital), which in itself is coincidental, the cost of carry argument may provide parity in other cases irrespective of whether or not penalty from tortuous behavior is considered.

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

W. Cris Lewis, Frank Caliendo and Tyler J. Bowles[A]

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.

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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

[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) 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.

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 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

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

where a = (21 – age of child A)
b = (21 – age of child B)
c = (21 – age of child C)
d = (21 – age of child D),

and r = real interest rate = $((1+i)/(1+g) - 1)$

[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.

[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

	Child A			Child B			Child C		
Year	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
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			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%**

				AWARD			
Family Member	**Date of Birth**	**Age at Accident Date**	**Real Discount Factor**	**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) $x = (z\text{-}y)/[1+q+q+p/(1+r)^a+p/(1+r)^b+p/(1+r)^c+p/(1+r)^d]$,

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.

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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

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

where a = (21 – age of child A)
b = (21 – age of child B)
c = (21 – age of child C)
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and r = real interest rate = $((1+i)/(1+g) - 1)$

[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.

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	Child A			Child B			Child C		
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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			
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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
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			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%**

				AWARD			
Family Member	**Date of Birth**	**Age at Accident Date**	**Real Discount Factor**	**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) $x = (z\text{-}y)/[1+q+q+p/(1+r)^a+p/(1+r)^b+p/(1+r)^c+p/(1+r)^d]$,

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.

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A History of the National Association of Forensic Economics, 1986–2001

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Abstract

The National Association of Forensic Economics (NAFE) has over 800 members across the United States and in several, other countries. The Association stands out as an active group at the annual meetings of the Allied Social Science Association and at regional meetings of economists, and it is a recognized voice for the issues and concerns of expert witnesses, in general. This paper provides a year-by-year history of NAFE, from its inception in 1986 through 2001. Sources of information include all official minutes and documents of the NAFE Board of Directors, all issues of newsletters to members, and issues of both of the refereed journals.

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The purpose of this paper is to provide a 1986-2001 history of the National Association of Forensic Economics (NAFE). This history is not meant to be exhaustive, especially with regard to substantive issues of NAFE papers and articles in NAFE journals. It is intended to be accurate and useful to those who may not understand substantive issues in forensic economics. The paper should also be of use in reflecting upon the professional challenges facing practicing forensic economists over this period, as well as providing one piece of the development of the expert witness industry, in general.

The primary sources of information were NAFE newsletters in each year, minutes of Board and Membership meetings, committee reports and other *ad hoc* publications, and issues of the NAFE journal(s). What follows is a year-by-year account of 1986 through 2001—the first 16 years of NAFE history. The 153 charter members are shown in Appendix 1. Members of the Board of Directors are shown for 1986-2001 in Appendix 2, and journal editors and members of the Board of Editors are listed for each year in Appendix 3. Recipients of the past presidents' award for outstanding service to the Association are listed in Appendix 4.

NAFE Year-by-Year

1986

Efforts before 1986 to move toward a national association of forensic economists had involved one-on-one and small group discussions by existing practitioners. Few forensic economists

knew colleagues outside their market area, which rarely reached beyond their own state or, perhaps, contiguous states. Economics professors John (Jack) Ward and Jerry Olson spearheaded the organizational effort from the Economics Department of the University of Missouri-Kansas City, and the University provided direct and indirect financial support. Ms. Nancy Eldredge also served in a critical support role, beginning with years of part-time work, as the administrative secretary for the Association. Her excellent work has continued from 1986 through the present, and she was recognized with the Association's "Outstanding Service" award in 2000.

Newsletters from Drs. Ward and Olson during 1986 facilitated the identification of 153 charter members (Appendix 1) and the collection of $60 in annual dues. The rapid collection of so many charter members also resulted from a "chain letter" process begun by Drs. Ward, Olson, John Adams, Tom Depperschmidt and a handful of others whom they had come to know. Those contacted were asked, in turn, to contact other professors and practitioners whom they knew to be involved in expert testimony involving economics. It is fair to say that most of those contacted were very positive about the formation of a national association, and many helped in contacting others and extending a call to membership.

On the other hand, one newsletter described the early growing pains: "Membership inquiries continue to far exceed membership dues…" Early plans were made for a Journal, calls for papers were made for several regional meetings of economists, and an initial Board of Directors was put together. An organizational meeting was held on December 29, 1986 at the New Orleans meeting of the Allied Social Science Association and American Economic Association (ASSA/AEA). By the end of 1986, a National Association of Forensic Economists (NAFE) had been incorporated under Missouri law, an initial set of by-laws had been approved, a Board of Directors was functioning, and Dr. Ward had been elected as the first NAFE president. Sessions sponsored by NAFE had also been accepted for the December 1987 meeting of the ASSA/AEA in Chicago.

1987

An April *Newsletter* from Jack Ward and Jerry Olson discussed proposed formats for a *Journal of Forensic Economics* (*JFE*). NAFE sessions were actively being held at various regional meetings of economists, and future President John Adams organized several NAFE sessions at the July 1987 meeting of the Western Economic Association (WEA) in Vancouver; the precedent was set for the WEA sessions of the Association to be the best attended each year. By August 1987, there were 160 paid NAFE members representing 43 states; the checking account balance was $8,200.

The first issue of the *Journal of Forensic Economics* was published in September 1987. At the December 27-30 annual meetings of the ASSA/AEA in Chicago, the format for the annual NAFE meetings was established. On December 28, a Board of Directors meeting was held, followed by an annual meeting of the Board of Editors. The annual membership meeting and a reception were held in late afternoon and early evening; academic sessions then took place on the next day. The Board discussed such issues as the governance structure with four regional vice-presidents, terms of office, the operation of the *Journal*, and the finances of the young organization.

1988

By 1988, the Association was a listed participant in the annual meetings of the ASSA/AEA and was sponsoring sessions at six regional meetings of economic associations. Periodic newsletters from the Kansas City office contained both calls for papers and program details for upcoming sessions. The *JFE* was moving toward a target of three issues per year, and two issues were produced during 1988. With the exception of two articles in the commercial/antitrust damages area, both session papers and *JFE* articles dealt with economic damages issues in personal injury and wrongful death cases.

The Association realized solid growth, with over 200 members representing 49 states and 150 organizations and consulting firms. Nevertheless, the Board still struggled with a marginal net income and cash position; the staffing and other subsidies from the University of Missouri at Kansas City were very important. The Board also dealt with the issue of whether the NAFE organization should serve as a vehicle for certifying the qualifications of individuals to serve as expert witnesses in economics. Members at the 1987 Chicago meetings had expressed opposition to such a role by NAFE. At the December 1988 meeting in New York City, the Board reviewed a questionnaire study on this issue, which had been prepared by Dr. Frank Slesnick and sent to members. The reaction of members to the certification issue remained negative, and the Association never assumed a responsibility for the certification of forensic economists.

1989

In 1989, the structure of the Board of Directors, which would carry through the next decade, was established in the By-laws. The Board would consist of seven voting members: the president, four regional vice presidents, and two at-large vice presidents. Four *ex officio* members also sat on the Board: the executive director, the *JFE* editor, the past president and the president-elect. The president and vice-presidents served two-year terms, and the vice presidents typically a second term. The president-elect was elected one year before his or her presidential term began. With a July 22 meeting in Chicago, the Board also established its practice of meeting twice per year—in mid-summer and at the annual ASSA/AEA meetings in December (which later, in 1992, became an early January date each year). The formal Board and the membership meetings were held in conjunction with the Atlanta ASSA/AEA meetings on December 28, 1989.

The Board initiated work on a membership directory. It also began planning for four "professional education" seminars aimed at attorneys. (Registrations for these New York, Los Angeles, Chicago, and Atlanta seminars, scheduled for May 1990, were sufficiently low that the seminars were cancelled.) The Association remained active at regional economic meetings, and three issues of the *JFE* were published during 1989 for the first time. Topics of papers and articles included various net discount rate issues, hedonic

damages, worklife expectancy, and the use of disability evaluations.

1990

The Association had increased to 540 members, which meant 540 subscribers to the *JFE*. Since only 41 of these subscriptions were libraries and attorneys, the Board pursued promotional efforts aimed at both groups. The financial situation of NAFE significantly improved, with a one-year tripling of the cash balance to $32,399. Annual dues increased from $60 to $75.

Vice presidents focused much activity on the organization of NAFE sessions at the four regional meetings of the Eastern, Southern, Midwestern, and Western economics associations, and sessions were also held at meetings of the Missouri Valley and the Southwestern Economics Associations. For example, 13 papers were given at NAFE sessions held with the Western Economic Association. Board member Dr. Walter Johnson continued work toward a statement of ethics for the Association. At the December 28-29, 1990 ASSA/AEA meetings in Washington, D.C., NAFE held its "administrative" meetings and three academic sessions of three papers each.

Papers, and articles published in three issues of the *JFE*, covered a range of PI/WD-related topics -- earning capacity, household services, and medical costs. One *JFE* issue was devoted to the topic of hedonic damages. There was one article on lost profits cases and one article on the topic of employment discrimination cases. Those submitting articles to the *JFE* were first required to make submissions in both hard copy and disk.

1991

Because the dates of the annual ASSA/AEA meeting were changed from December to early January, an annual meeting of the ASSA/AEA was not held during the 1991 calendar year. Thus, NAFE administrative and academic sessions were also delayed until early January 1992 in New Orleans. The activities of the Board were not affected. Four newsletters per year were used to keep members informed about NAFE programs at the regional economic meetings. A NAFE "Statement of Ethical Principles" was proposed to the membership in the November newsletter. The co-chairs for the January 1992 annual meeting, who are appointed each year by the president, proceeded with the established schedule of selecting papers for three academic sessions at the New Orleans meetings.

The Board of Directors held its summer meeting on July 27 in Chicago. Among its topics were continuing possibilities for NAFE-sponsored education of lawyers and judges, the final development and approval of the NAFE statement on ethics and/or on qualifications, and membership expansion. The Board also proposed a change in the name of NAFE from "Forensic Economists" to "Forensic Economics," and the membership later approved this change. The name change was made to be consistent with the American Economic Association title and to recognize the growing diversity of new NAFE members. The probability that a new member would be a Ph.D. economist had begun the downward trend that would continue through the present.

Papers and *JFE* articles continued to cover such topics as net discount rates, household services, personal consumption, and fringe benefits, but topics in commercial damages and employment cases were also covered. Other topics included ethics and the results from surveys of NAFE members. The *JFE* also provided members with a bibliography of sources on the topic of lost household services.

Finally, the American Association of Financial and Economic Experts (AAFEE) had been established and published its first issue of the *Journal of Legal Economics* in 1991. A cordial and cooperative relationship between NAFE and this sister organization was established and has continued. Indeed, significant overlap has existed between the membership of these two groups.

1992

The year began with approximately 50 persons attending each of the three sessions at the ASSA/AEA meeting in New Orleans. At this meeting, the Board approved the "Statement of Ethical Principles" language that was then approved by the membership. The Statement covered five categories: Employment; Honesty, Candor, and Fairness; Neutrality; Knowledge; and Responsibility. A committee was appointed to again look at a NAFE role in qualifications and certification. Some discussion occurred on continuing legal education for attorneys, but the discussion also turned to continuing education sessions for NAFE members. Two such sessions were planned as part of the NAFE sessions at the WEA meetings in 1992, and continuing education sessions as part of NAFE programs would carry forward.

At its July 25 summer meeting in Chicago, the Board discussed *JFE* listings by periodical services, further assistance to members with regard to errors and omissions insurance, a cost-reducing move to desk-top printing, continuing education efforts, credentialing, and the content and format of the *JFE*.

The first Directory of Members of the National Association of Forensic Economics was distributed to members in January 1992. Papers and *JFE* articles covered such standard PI/WD topics as net discount rates, age/earnings profiles, tax effects, hedonic damages, and fringe benefits. Yet, focus was also given to employment discrimination models, commercial and antitrust issues, the rehabilitation foundation in PI cases, and special damages issues in the death of a child.

1993

The annual administrative meetings were held on January 6, 1993 at the ASSA/AEA meetings in Anaheim, and three NAFE academic sessions followed the next day. By mid-year, membership had grown sharply and was just below the 700 mark. The cash balance had risen to $45,000, even though the Association was assuming a greater share of the NAFE administrative secretary and other costs of the University of Missouri-Kansas City.

The Board met in Anaheim and July 24 in Chicago. A standing committee on continuing education (CE) was established, and Drs. Pat Gaughan and Stephen Horner led efforts to integrate CE and professional development sessions into NAFE programs at regional meetings. At the June 1993

WEA meetings in Lake Tahoe, for example, a previously published sample case allowed panel members and the audience to discuss calculation methods, data sources, and issues. The Board implemented desktop preparation of the *JFE*. It discussed special issues of women in the Association and in forensic economics generally. Papers and *JFE* articles showed a good balance of PI/WD and commercial damages, especially, during 1993. Topics included wage forecasting issues, statistical issues in discrimination cases, qualifications and ethics, and disclosure in written reports. The acceptance rate for articles submitted to the *JFE* was down to 30 percent.

In July 1993, the U.S. Supreme Court re-wrote admissibility standards for expert witnesses. By the mid-Fall, the effect of the *Daubert* decision upon forensic economists—and related experts—had become the subject of considerable debate among NAFE members. Also under debate was the appropriate role of the Association, itself, in responding to the *Daubert* ruling.

1994

At its January 4, 1994 meeting in Boston, the NAFE Board discouraged the formation of a separate group to deal with perceived issues and problems arising from the *Daubert* decision. Rather, a special Board committee on ethics, qualifications, standards, and disclosure was asked to focus on how the Association might productively respond to *Daubert* and to new federal Rules of Evidence that were effective December 1993. Dr. Tom Ireland chaired this committee of Drs. Walter Johnson, Robert Trout, and Jerry Olson, and one early thrust was toward the education of judges in qualifications and standards for forensic economists. The Board also passed a resolution encouraging members to improve the degree and clarity of disclosure with regard to the formulation of their forensic opinions.

The Association continued its active agenda of academic sessions and continuing education sessions at regional economic meetings. Membership climbed above 700, and dues were raised to $100/year. The Board held its summer meeting in a 1½-day format in Kansas City. A first attempt was made at strategic planning for the Association, as the future mission was defined and future goals were discussed. Among these goals was the possible establishment of a second journal and of an electronic communication system for NAFE members using the Internet. The Ireland committee was encouraged to move forward in preparing an educational document for judges applying *Daubert* guidelines. Also, the By-laws were changed to require that Board members have doctorates in economics or related fields, and the Board required that official surveys of NAFE members be approved by the Board in advance. The Board of Editors was re-organized during the year, with three-year terms and a reduced number of associate editor positions. Editor Jack Ward was asked to pursue possible editors for a second journal. Finally, the NAFE *Newsletter* was used to survey member interest in a second journal, an Internet communications system, and other expansions of NAFE services and their costs. (There was only a small response to the survey.)

The topics of NAFE papers and *JFE* articles during the year ranged from consumption, worklife, fringes benefits, medical costs, and hedonic damages to a set of papers on environmental damages. One *JFE* issue focused upon issues of income tax calculations.

1995

The NAFE annual meetings were held in conjunction with January 6-7, 1995 ASSA/AEA meetings in Washington, D.C. A special feature was a seminar with officials of the Bureau of Labor Statistics, which was arranged by Dr. Charles de Seve. In this morning session on January 6, BLS speakers interacted with NAFE members on such data-oriented topics as the National Longitudinal Survey, CPS earnings surveys, and CPI area surveys. The meeting was very well received as part of the continuing education efforts of the Association. Members were also being given increasing help in accessing various data bases, and computer network workshops were organized for members.

Continuing a NAFE response to the *Daubert* decision, Drs. Stephen Horner, Tom Ireland, and Jim Rodgers were asked to coordinate the writing of several modules for use by the Federal Judicial Center. An initial model was completed on valuing closely-held businesses, and drafts were circulated in the areas of employment discrimination, commercial damages, and personal injury. The modules were initially to be submitted under the sponsorship of the NAFE Board, but a decision was subsequently made that module authors should publish modules on their own.

A *Litigation Economics Digest* (*LED*) was begun as the second NAFE journal, with Drs. Robert Trout and Carroll Foster as co-editors. The first issue of this journal was published in Fall 1995. It was conceived as a journal focusing on applied issues in forensic economics and case studies; two issues were planned per year, and this optional journal cost members $50 per year.

A NAFE e-mail network, to be named the NAFE-L, was organized and begun during the year. Dr. Dennis McConnell at the University of Maine agreed to host the new communications medium available to members. A NAFE web site also was established during 1995. Papers at NAFE sessions and *JFE* and *LED* journal articles emphasized topics and issues relating to personal injury and wrongful death damages. However, session organizers and editors continued their concern about ”balance,” and specific topics in commercial damages, divorce cases, and discrimination cases were also covered.

1996

San Francisco was the site for January 5-6 administrative and professional sessions of the Association. Membership had grown to 750, and the cash balance of the Association had risen to $70,000. Attendance at NAFE academic sessions and continuing education sessions was consistently high, as was audience participation. Seventy or more persons attended each NAFE session at the Western Economic Association, for example.

Board members and other NAFE members spent considerable time writing and reviewing the four modules for judges that had been commissioned by the Board in 1995. Committee work also included continuing education efforts

and a focus on increasing membership and participation by women and minorities.

The Association was greatly saddened by the fatal heart attack of President John Adams on May 23. The Board formally appointed President-elect Luvonia Casperson to fill this role until her own term began in January, 1997.

The topics of papers, and of articles in the two NAFE journals, showed breadth and diversity in the coverage of issues faced by forensic economists. Research covered discrimination and antitrust calculations involving both liability and economic damages issues, intellectual property damages, age-earnings profiles, personal consumption versus maintenance deductions, earning capacity versus expected earnings, ethics, damages calculations in divorce cases, hedonic damages, logit analysis and labor force participation rates, and punitive damages.

1997

The annual administrative and academic sessions were held January 4 and 5, in conjunction with the ASSA/AEA meetings in New Orleans. After 10 years of operation, the Board of Directors felt that the by-laws should be completely reviewed, especially in regard to governance issues. A committee co-chaired by Drs. Jack Ward and Mike Brookshire was asked to conduct this review, consider all suggestions by NAFE members, and report back to the summer meeting of the Board. At this July 25-26 meeting, the Board chose not to make significant changes in the governance structure. Proposed changes in the two-year length of President and V.P. terms, for example, were rejected. The Board did change the By-laws, for example, to provide opportunities for members to nominate persons for Board office other than those recommended on the Board slate. The first nomination ballots were sent to members in the August *Newsletter*.

Indeed, the four-times-per-year Newsletter had proven to be an important communications tool for the President and Board. It provided information to, and solicited feedback from, the membership. Special features were provided, such as Dr. Slesnick's "Issues and Communications" section, upcoming NAFE sessions were previewed, and members were given information on continuing education opportunities, data sources, and errors and omissions insurance providers, as examples. At the same time, the NAFE-L had become an often-used tool for NAFE members to communicate with each other about methodological issues and a range of other issues. Exchanges on the NAFE-L were sometimes "spirited."

As usual, NAFE sessions were held at six regional meetings of economists, in addition to the ASSA/AEA annual meeting. Papers and articles during the year covered such topics as the use of reverse regression analysis, surveys of prevailing methods, net discount rate methods, worklife issues for females, life expectancies for medical cost estimates, wrongful termination damages, and issues with regard to foundation experts—vocational/rehabilitation experts and life care planners.

1998

The annual NAFE meetings and sessions were held on January 3-4 in Chicago, and the Board met again on July 24-25 at Marco Island, Florida. As always, much work of the Board focused upon the planning of NAFE sessions and support for the two journals. The acceptance rate for manuscripts submitted for publication stood at 33 percent and 50 percent for the *JFE* and *LED*, respectively. Board members discussed their concern that the quality of paper and article submissions might decline because of the large number of NAFE sessions and the number of NAFE, and other, journals in the field. The Board also discussed the appropriate relationship of the Association to the NAFE-L list-serve, including liability issues. A resolution was passed to make clear that messages on this list-serve did not reflect the opinions of the Association or its Board of Directors. Finally, Dr. Gerald Olson announced his retirement after eleven years as the Association's Executive Director. An *ad hoc* committee solicited nominations from the membership, and Dr. Michael Brookshire was selected by the Board for a three-year term.

Continuing education sessions at NAFE meetings during the year included an economists/lawyers panel on the impact of the *Daubert* decision, comparative analyses of a sample case, household services damages, and the teaching of academic courses in forensic economics. Papers and articles covered such topics as inflation-indexed Treasuries, the valuation of stock options, earning capacity of the self-employed, net discount rate calculations, reasonable royalty estimates, pain and suffering damages, lost profits estimates, damages in spinal cord cases, and alternative methods and data sources for household services estimates.

1999

The Board and the Association began a busy year with January 3-4 meetings in New York City. Because of continuing concerns about governance issues, President Michael Piette asked Drs. Barry Ben Zion, Stephen Horner, and Jim Rodgers to work with him on another review of the By-laws. A committee chaired by Dr. Mel Fredlund was asked to study the relationship of NAFE and the NAFE-L. Kurt Krueger chaired a committee to study the nature of the NAFE membership. A fourth committee looked specifically at By-law qualifications for Board membership. Finally, Past-President Bob Thornton was asked to begin a formal review of the two journals, and the executive director was asked to respond to the first external audit of NAFE business operations.

At its July 24-25 summer meeting, the Board discussed and took action regarding these topics. By-law changes were approved to limit vice-presidents to one, three-year term, a Nominating Committee was created to recommend a slate of candidates to the Board, and the election process was changed so that members could directly write-in choices in the Fall elections each year. Another change eliminated the requirement that Board members have a Ph.D. in economics or a related field and substituted a more flexible set of qualifications. All of these changes were ultimately approved by the membership in 2000.

The Board also authorized President Piette to hire an attorney and investigate various issues of the relationship between NAFE and the NAFE-L. A formal statement was approved regarding NAFE sponsorship of professional sessions within, and outside of, the U.S. Finally, the Board discussed the appropriate purposes of, and relationships between, the *JFE* and the *LED*, in response to a report by Dr. Thornton. Dr. Bob Trout had indicated a desire to transition out of the editorship of the *LED*, and a search committee was appointed to recommend a new editor, or co-editors.

Continuing education sessions at NAFE meetings covered the relationship of life care planners and economists and sample case discussions. Papers and articles focused upon household production, net discount rates, commercial and antitrust methods, structured settlements, securities fraud transactions, the definition of earning capacity, prejudgment interest calculations, pay discrimination cases, worklife expectancy for the disabled, and simulation modeling.

2000

The Association continued steady growth in the level of its activity. Fifty sessions had been sponsored at economics meetings over the past year. Because attendance and participation at NAFE sessions was noticeable in the context of ASSA/AEA meetings, the NAFE executive director was asked to serve on a small committee to recommend how limited space might be allocated to member groups in future meetings. Based upon the results of attendance surveys, many ASSA groups lost sessions at future ASSA/AEA meetings. NAFE was one of a handful of organizations that was asked to add a session, and the Board approved the preparation of a fourth NAFE session for upcoming, annual meetings of the ASSA/AEA.

The 2000 NAFE meetings were held January 7-8 in conjunction with the Boston annual meetings of the ASSA/AEA. The Board approved Drs. Patrick Gaughan and Steven Shapiro as co-editors of the *Litigation Economics Digest* and discussed the nature and format of future *LED* issues. The final wording of By-laws changes was moved toward membership approval. The Board also approved the response of the executive director to the specific recommendations in the external Audit. The Association implemented all of the recommendations.

At its July 29-30 meeting, the Board again discussed issues relating to the number and quality of NAFE sessions each year and established guidelines on the number and type of sessions to be sponsored at future meetings. Dr. Thornton provided the second segment of his two-part report on the NAFE journals. The entire report was endorsed by the Board, as editors were now provided better guidance on the role and format of each journal. Dr. Ward announced that he would like to transition out of the *JFE* Editor role over the next year (a job that he had held since the first issue of the *JFE*). A search was begun to find a new editor. Dr. Charles de Seve and later Dr. Allen McCausland had chaired the Continuing Education Committee through several years of activity. It had become the longest-standing committee of the NAFE Board, and future plans for continuing education were again a focus of Board attention. New services were approved for development, such as a CD with all past issues of the journals. The Board approved a name change from the "LED" to the *Litigation Economics Review* (*LER*), asked for further legal advice regarding a proposed "List Server Agreement" on the NAFE-L, and prepared for an election process in the Fall under new By-laws. The first Nominating Committee was chaired by Dr. Stephen Horner, the Board accepted the recommended slate, and the election process proceeded smoothly in October and November.

Continuing education sessions at NAFE meetings covered the use of non-government data sources, vocational assessments, legal research, forensic software, the building of a forensic practice, American/Canadian forensic practice, testimony techniques in a mock trial, and Internet research. Papers and articles covered intellectual property damages, the status of hedonic damages after 10 years, small business valuation, employment discrimination, updated personal consumption tables, household services hours for persons over 50, medical care inflation, and lost profits issues.

2001

The NAFE administrative and academic sessions were held on January 5-6, in conjunction with the annual meeting of the ASSA/AEA in New Orleans. President Rodgers appointed search committees to find a successor to Dr. Brookshire as Executive Director and Dr. Ward as *JFE* Editor. Subsequently, Dr. George Schieren and Dr. Michael Piette, respectively, were chosen to fill these two positions after a transition through January 2002.

At the July 28-29 meeting of the Board in Kansas City, the Board further discussed the future of both journals. The executive director presented interim financial statements that showed a 3-year decline in annual net income; an operating loss was likely for the full year. A fee increase was recommended, along with a membership renewal process that was separated from the issuance of journals. An *ad hoc* committee chaired by in-coming Executive Director George Schieren was asked to make final recommendations to the Board in the Fall. The Board thereafter approved a series of recommendations to raise dues and fees, combine both journals and all other services into one, annual cost, and separate the collection of membership dues from the dates that journals are issued. The price for an annual membership was increased to $165.

Nevertheless, the Association and its finances were in sound condition by the end of 2001. There were 828 members (or more accurately *JFE* subscribers). Income for the year was $100,185. Net income for the year was $3,370, and the cash balance had risen to $128,031.

The Board discussed its promotion of continuing education activities. President Rodgers was also asked to pursue the development of a disclaimer/hold harmless agreement in regard to the NAFE-L. A committee chaired by Dr. Frank Tinari was appointed to consider expansions of the NAFE "Statement of Ethical Principles" to such issues as contingency fees and disclosure.

The first issue of the re-named *Litigation Economics Review* was published in Spring 2001. Continuing education sessions during the year covered alternative worklife methods, the calculation of future medical damages, testimony before judges (versus juries), and payment procedures in consulting

cases. Articles covered such topics as premium pay rates and the value of leisure, the valuation of stock options, new methods in business valuation, life care costs of severely disabled persons, the forensic economics of medical monitoring protocols, antitrust measures of the intensity of competition across geographic markets, forensic economics and children, and an evaluation of the labor market access methodology.

Conclusion

The National Association of Forensic Economics has experienced steady and significant growth since 1986 in its membership, financial stability, and in services to members. It has become an organization of both economists and many other types of professionals. The Association stands out as an active group at the annual ASSA/AEA meetings and regional economic meetings, and it is a recognized voice for the issues and concerns of expert witnesses in general.

Appendix 1
Charter Members* of the National Association of Forensic Economists, 1986-1987

Fred J. Abraham, Cedar Falls, IA
John P. Adams, Jr. San Luis Obispo, CA
AGRI ECON, University of Arizona Tucson, AR
Mary D. Baker, Tallahassee, FL
William Gary Baker, Topeka, KS
Ron Smolarski, Ann Arbor, MI
Don Bellante, Tampa, FL
Marc Bendick, Washington, DC
Conrad Berenson, Woodbury, NY
Wayne Boyet, Thidodaux, LA
Marvin R. Braus, Newark, DE
Michael L. Brookshire, South Charleston, WV
Ralph J. Brown, Vermillion, SD
Dr. Robert L. Bunting, Wilmington, NC
Malcolm R. Burns, Lawrence, KS
Michael W. Butler, Florence, AL
Dennis R. Capozza, Vancouver, BC
Luvonia Casperson, Shreveport, LA
James E. Ciecka, Chicago, IL
William E. Cobb, Charleston, WV
Salvatore Comitini, Honolulu, HI
Bryan C. Conley, Pacific Palisades, CA
Robert W. Cook, Richmond, VA
Michael D. Copeland, Bozeman, MT
Frank P. Corcione, Bethlehem, PA
Gary M. Crakes, Wallingford, CT
Nelson Crick, Portland, OR
Darwin Daicoff, Lawrence, KS
Sid Davis, Atlanta, GA
Thomas O. Depperschmidt, Memphis, TN
Everett Dillman, El Paso, TX
Richard Dolin, Louisville, KY
Ronald A. Dulaney, Missoula, MT
Barry L. Duman, Amarillo, TX
James R. Eck, Topeka, KS
N. Fayne Edwards, Richmond, VA
Karl Egge, St. Paul, MN
Pauline Fox, Cape Girardeau, MO
G. Creighton Frampton, Philadelphia, PA
Marvin Frankel, Champaign, IL
Wolfgang W. Franz, Ellensburg, WA
Ralph R. Frasca, Dayton, OH
Dale Funderbunk, Commerce, TX
Dennis M. Funk, Portland, OR
A.M. Gamboa, Jr., Louisville, KY
Paul Garfield, Washington, DC
Patrick A. Gaughan, Summit, NJ
Kent Gilbreath, Waco, TX
Lawrence Hadley, Dayton, OH
John J. Harrington, South Orange, NJ
Joan Haworth, Tallahassee, FL
R. F. Hebert, Auburn, AL
Bruce Herrick, Lexington, VA
Hugo M. Hervitz, Miami Shores, FL
Shalom J. Hochman, Houston, TX
Cornelius A. Hofman, Pocatello, ID
Jerry M. Hood, Thiboaux, LA
Stephen M. Horner, Corpus Christi, TX
James F. Horrell, Norman, OK
Janos Horvath, Martinsville, IN
L. Kenneth Hubbell, Kansas City, MO
Renate Hull, Denver, CO
Thomas R. Ireland, St. Louis, MO
E. William Johnson, Shepherdstown, WV
Robert W. Johnson, Palo Alto, CA
Walter D. Johnson, Springfield, IL
Vincent M. Jolivet, Kenmore, WA
Paul E. Junk, Duluth, MN
Jules Kamin, Los Angeles, CA
Joseph E. Kasperick, Butte, MT
S. F. Kiker, Columbia, SC
Thomas J. Kniesner, Chapel Hill, NC
L. Keith Larimore, Joplin, MO
William H. Lawson, Oxnard, CA
Gerald D. Lee, Clinton, MS
Robert L. Lessne, Miami, FL
Charles M. Linke, Urbana, IL
Thomas A. Loudat, Kaneobe, HI
James W. Marlin, Jr., Boone, NC
Gerald D. Martin, Fresno, CA
Richard S. Martin, West Hartford, CT
Edward J. Mathis, Villanova, PA
Dennis Maupin, Federal Way, WA
Dennis McConnell, Orono, ME
William L. McKee, Denton, TX
Patrick H. McMurry, St. Joseph, MO
Gary E. Melickian, Washington, DC
Gerald Miller, Kansas City, MO
Green R. Miller, Morehead, KY
H. Laurence Miller, Honolulu, HI
Jerry Miner, Syracuse, NY
R.W. Moss, Seattle, WA
Matthew J. Mullett, Bellingham, WA
Thomas A. Natiello, Miami, FL
Larry Nelson, Arlington, TX
Peter H. Nickerson, Seattle, WA
Donald A. Nichols, Madison, WI
Edgar Norton, Lynchburg, VA
Norman Dale O'Bannon, Portland, OR
Robert R. O'Haver, New York, NY
Margo Ogus, Palo Alto, CA
Michael Oldfather, Manhattan, KS
Gerald Olson, Kansas City, MO
Robert T. Patton, Bellingham, WA
Harvey Paul, Baltimore, MD
John F. Pearce, Dahlonega, GA
Harold Petersen, Chestnut Hill, MA
Jerold M. Peterson, Duluth, MN
Rodney Delos Peterson, Fort Collins, CO
Christopher C. Pflaum, Overland Park, KS
Michael J. Piette, Tallahassee, FL
Saul Pleeter, Cincinnati, OH
James L. Plummer, Palo Alto, CA
Frederick A. Raffa, Orlando, FL
James R. Ranney, Fairbanks, AK
John Rapp, Dayton, OH
Clarence G. Ray, Las Vegas, NV
Richard Raymond, Kent, OH
George C. Reavy, Boca Raton, FL
Ronald G. Reddall, South Charleston, WV
Bill K. Richardson, Lewisville, TX
James D. Rodgers, State College, PA
Walter R. Rogers, Murfreesboro, TN
J. Thomas Romans, Williamsville, NY
Jorge Salazar, Miami, FL
George E. Samuels, Huntsville, TX
San Francisco S. Library, San Francisco, CA
Ed D. Sattler, Peoria, IL
David S. Saurman, Auburn, AL
David A. Schauer, El Paso, TX
George A. Schieren, Blowing Rock, NC
Don Schilling, Columbia, MO
Eli Schwartz, Bethlehem, PA
Robert Haney Scott, Seattle, WA
Bruce A. Seaman, Atlanta, GA
Gary Skoog, Glenview, IL
Reuben E. Slesinger, Pittsburgh, PA
Frank Slesnick, Louisville, KY
Anthony H. Stocks, Youngstown, OH
Frederick R. Strobel, Kalamazoo, MI
Werner Sublette, Kirksville, MO
Benjamin Taylor, Norman, OK
Paul C. Taylor, Fairbanks, AL
William Terrell, Wichita, KS
Robert Thornton, Bethlehem, PA
Frank D. Tinari, South Orange, NJ
Robert Trout, Encinitas, CA
Claude M. Vaughan, Richmond, KY
Gene Wagner, Kansas City, MO
James Walker, Sacramento, CA
John O. Ward, Kansas City, MO
Gary R. Wells, Pocatello, ID
Melville E. Wolfson, Metairie, LA

*After this list was prepared, persons were briefly allowed to pay dues and join the Association with a certificate as a charter member. A compilation of such persons has not been found. City and state are as of 1986-87.

Appendix 2
NAFE Presidents and Members of the Board of Directors, 1986-2001

2001: **President**, James D. Rodgers – Penn State University; **V.P.s**, David Ciscel – University of Memphis, Mark Kuga – Delta Economic Consulting, Peter Formuzis – Formuzis, Pickersgill & Hunt, Inc., Robert Male – Vocational Economic Consultant, Stan V. Smith – Corporate Financial Group Ltd., Frank D. Tinari – Seton Hall University; **Ex-Officios**, Michael Brookshire – Marshall University Graduate College

2000: **President**, Michael J. Piette – Analytical Economics, Inc.; **V.P.s**, Peter Formuzis – Formuzis, Pickersgill, & Hunt, Inc., Mark Kuga – Delta Economic Consulting, George A. Schieren – Appalachian State University, Roger Skurski – University of Notre Dame, Stan V. Smith – Corporate Financial Group Ltd., Frank D. Tinari – Seton Hall University; **Ex-Officios**, Michael L. Brookshire – Marshall University Graduate College, John O. Ward – University of Missouri–Kansas City

1999: **President**, Michael J. Piette – Analytical Economics, Inc.; **V.P.**s, Barry Ben-Zion – Sonoma State University, Peter Formuzis – Formuzis, Pickersgill & Hunt, Inc., George A. Schieren – Appalachian State University, Roger Skurski – University of Notre Dame, Frank D. Tinari – Seton Hall University; **Ex-Officios**, Michael L. Brookshire – Marshall University Graduate College, John O. Ward – University of Missouri–Kansas City

1998: **President**, Luvonia J. Casperson – Louisiana State University–Shreveport; **V.P.s,** Barry Ben-Zion – Sonoma State University, Peter Formuzis – Formuzis, Pickersgill & Hunt, Inc., Ralph R. Frasca – University of Dayton, Michael J. Piette – Analytical Economics, Roger Skurski – University of Notre Dame, Frank D. Tinari – Seton Hall University; **Ex- Officios**, Michael L. Brookshire – Marshall University Graduate College, Gerald W. Olson – University of Missouri–Kansas City, John O. Ward – University of Missouri–Kansas City

1997: **President**, Luvonia J. Casperson – Louisiana State University–Shreveport; **V.P.s**, Barry Ben-Zion – Sonoma State University, Ralph R. Frasca – University of Dayton, Michael J. Piette – Analytical Economics, Inc., James D. Rodgers – Pennsylvania State University, Charles W. de Seve – American Economics Group, Roger Skurski – University of Notre Dame; **Ex–Officios**, Michael L. Brookshire – Marshall University Graduate College, Gerald W. Olson – University of Missouri–Kansas City, John O. Ward –University of Missouri–Kansas City

1996: **President**, John Phillips Adams, Jr. – California Polytechnic State University–San Luis Obispo; **V.P.s**, Barry Ben-Zion – Sonoma State University, Ralph R. Frasca – University of Dayton, Michael J. Piette – Economic Research Services, Inc., James D. Rodgers – Pennsylvania State University, Charles W. de Seve – American Economics Group Inc., Robert R. Trout – Foster Associates, Inc.; **Ex-Officios**, Michael L. Brookshire – Marshall University Graduate College, Gerald W. Olson – University of Missouri–Kansas City, John O. Ward – University of Missouri–Kansas City. Dr. John Adams died during his last year in office and President-elect Dr. Luvonia Casperson assumed his duties.

1995: **President**, John Phillips Adams, Jr. – California Polytechnic State University–San Luis Obispo; **V.P.s**, Ralph R. Frasca – University of Dayton, Stephen Horner – Economic Consultant, Michael J. Piette – Economic Research Services, Inc., James D. Rodgers – Pennsylvania State University, Charles W. de Seve – American Economics Group, Inc., Robert R. Trout – Foster Associates, Inc.; **Ex-Officios**, Michael L. Brookshire – Marshall University Graduate College, Gerald W. Olson – University of Missouri–Kansas City, John O. Ward – University of Missouri–Kansas City

1994: **President**, Michael L. Brookshire – Marshall University Graduate College; **V.P.s**, Luvonia J. Casperson – Louisiana State University, Stephen M. Horner – Economic Consultant, Thomas R. Ireland – University of Missouri–St. Louis, James D. Rodgers – Pennsylvania State University, Charles W. de Seve – American Economics Group, Inc., Robert Trout – Foster Associates, Inc; **Ex-Officios**, Gerald W. Olson – University of Missouri–Kansas City, John O. Ward – University of Missouri–Kansas City

1993: **President**, Michael L. Brookshire – Marshall University Graduate College; **V.P.s**, Luvonia Casperson – Louisiana State University, Everett G. Dillman – International Business Planners, Inc., Stephen M. Horner – Economist, Thomas R. Ireland – University of Missouri–St. Louis, James D. Rodgers – Pennsylvania State University, Robert R. Trout – Foster Associates, Inc.; **Ex-Officios**, Gerald W. Olson – University of Missouri–Kansas City, Frank Slesnick – Bellmarine College, John O. Ward – University of Missouri–Kansas City

1992: **President**, Frank Slesnick – Bellarmine College; **V.P.s**, Luvonia Casperson – Louisiana State University, Everett Dillman – International Business Planners, Inc., Patrick Gaughan – Fairleigh Dickinson University, Stephen M. Horner – Economist, Thomas Ireland – University of Missouri–St. Louis; **Ex-Officios**, Michael L. Brookshire – Marshall University Graduate College, Gerald Olson – University of Missouri–Kansas City, Robert J. Thornton – Lehigh University, John O. Ward – University of Missouri–Kansas City

1991: **President**, Frank Slesnick – Bellarmine College; **V.P.s**, John Adams – California Polytechnic State University–San Luis Obispo, Michael L. Brookshire – Marshall University Graduate College, Luvonia Casperson – Louisiana State University, Everett Dillman – International Business Planners, Inc., Patrick Gaughan – Fairleigh Dickinson University, Thomas Ireland – University of Missouri–St. Louis; **Ex-Officios**, Gerald Olson – University of Missouri–Kansas City, Robert J. Thornton – Lehigh University, John O. Ward – University of Missouri–Kansas City

1990: **President**, Robert J. Thornton – Lehigh University; **V.P.s,** John Adams – California Polytechnic State University–San Luis Obispo, Michael L. Brookshire – Marshall University Graduate College, Luvonia Casperson – Louisiana State University, Everett Dillman – International Business Planners, Inc., Patrick Gaughan – Fairleigh Dickinson University, Walter Johnson – University of Missouri–Rolla; **Ex-Officios**, Gerald Olson – University of Missouri–Kansas City, Frank Slesnick – Bellarmine College, John O. Ward – University of Missouri–Kansas City

1989: **President**, Robert J. Thornton – Lehigh University; **V.P.s**, John Adams – California Polytechnic State University–San Luis Obispo, Thomas Depperschmidt – Memphis State University, Everett Dillman – International Business Planners, Inc., Patrick Gaughan – Fairleigh Dickinson University, Walter Johnson – University of Missouri–Rolla, Frank Slesnick – Bellarmine College; **Ex-Officios**, Gerald Olson – University of Missouri–Kansas City

1988: **President**, Gerald W. Olson – University of Missouri–Kansas City; **V.P.s**, John Adams – California Polytechnic State University–San Luis Obispo, Thomas Depperschmidt – Memphis State University, Walter Johnson – Sangamon State University, Robert J. Thornton – Lehigh University; **Ex-Officio**, John O. Ward–University of Missouri–Kansas City

1987: **President**, John O. Ward – University of Missouri–Kansas City; **V.P.s**, Fred J. Abraham – University of Northern Iowa, Thomas O. Depperschmidt – Memphis State University, Walter D. Johnson – Sangamon State University, Green R. Miller – Morehead State University, Gerald Olson – University of Missouri–Kansas City

1986: **President**, John O. Ward – University of Missouri–Kansas City; **V.P.s**, Fred J. Abraham – University of Northern Iowa, Thomas O. Depperschmidt – Memphis State University, Walter D. Johnson – Sangamon State University, Green R. Miller – Morehead State University, Gerald Olson – University of Missouri–Kansas City

Appendix 3
NAFE Editors and Members of the Board of Editors
Journal of Forensic Economics and *Litigation Economics Digest*, 1987-2000

2000 *Journal of Forensic Economics*
Managing Editor, John O. Ward – University of Missouri–Kansas City; **Production Editor**, Nancy Eldredge; **Associate Editors**, Thomas Ireland – University of Missouri–St. Louis, Frank Slesnick – Bellarmine College, Robert Thornton – Lehigh University; **Board of Editors**, Dennis R. Capozza – University of Michigan, Joseph S. D'Antoni – KPMG Peat Marwick, Charles W. de Seve – American Economics Group, Wolfgang Frenz – Central Washington University, Stephen M. Horner – Economic Consulting, Kurt V. Krueger – John O. Ward & Associates, Gerald D. Martin – Forensic Economic Services, Ted Miller – NPS Research Institute, Gerald Olson – University of Missouri–Kansas City, Michael J. Piette – Analytical Economics, Inc., A. Mitchell Polinsky – Stanford University, Roger Skurski – Notre Dame University, Stan V. Smith – DePaul University, Robert Trout – Lit. Econ LLP

2000 *Litigation Economics Review*
Editors, Patrick A. Gaughan – Fairleigh Dickinson University, Steven J. Shapiro – University of New Haven; **Associate Editors**, Kurt V. Krueger – John O. Ward & Associates, James D. Rodgers – Penn State University, A.E. Rodriguez – University of New Haven, Steven C. Salop – Georgetown University, Robert J. Thornton – Lehigh University; **Production Editor**, Kristine A. Johansson. The *Litigation Economics Digest* was renamed the *Litigation Economics Review* in 2000.

1999 *Journal of Forensic Economics*
Managing Editor, John O. Ward – University of Missouri–Kansas City; **Production Editor**, Nancy Eldredge; **Associate Editors**, Thomas Ireland – University of Missouri–St. Louis, Kurt V. Krueger – John O. Ward & Associates, Frank Slesnick – Bellarmine College, Robert Thornton – Lehigh University; **Board of Editors**, Dennis R. Capozza – University of Michigan, Joseph S. D'Antoni – KPMG Peat Marwick, Charles W. de Seve – American Economics Group, Wolfgang Franz – Central Washington University, Stephen M. Horner – Economic Consulting, Kurt V. Krueger – John O. Ward & Associates, Gerald D. Martin – Forensic Economic Services, Ted Miller – NPS Research Institute, Gerald Olson – University of Missouri–Kansas City, Michael J. Piette – Analytical Economics, Inc., A. Mitchell Polinsky – Stanford University, Roger Skurski – Notre Dame University, Stan V. Smith – DePaul University, Robert Trout – Lit. Econ LLP

1999 *Litigation Economics Digest*
Managing Editors, Caroll B. Foster – University of California–San Diego, Robert R. Trout – Lit. Econ LLP; **Production Editor** – Melissa Vitale; **Associate Editors**, Robert C. Baseman – NERA, James E. Ciecka – DePaul University, David T. Fractor – Phillips & Fractor LLC, Patrick A. Gaughan – Fairleigh Dickinson University, W. Cris Lewis – Utah State University, Judith K. Mann, University of Southern California–San Diego, G. Michael Phillips – Phillips & Fractor LLC, Michael J. Piette – Analytical Economics, Inc., James L. Plummer – QED Research, Inc., Anthony H. Riccardi – AHR Associates, William W. Wade – Foster Associates, Inc.

1998 *Journal of Forensic Economics*
Managing Editor, John O. Ward – University of Missouri–Kansas City; **Production Editor**, Nancy Eldredge; **Associate Editors**, Michael L. Brookshire – Marshall University, Thomas Ireland – University of Missouri–St. Louis, Kurt V. Krueger – John O. Ward & Associates, Frank Slesnick – Bellarmine College, Robert Thornton – Lehigh University; **Board of Editors**, Dennis R. Capozza – University of Michigan, Joseph S. D'Antoni – KPMG Peat Marwick, Charles W. de Seve – American Economics Group, Wolfgang Franz – Central Washington University, Stephen M. Horner – Economic Consulting, Kurt V. Krueger – John O. Ward & Associates, Gerald D. Martin – Forensic Economic Services, Ted Miller – NPS Research Institute, Gerald Olson – University of Missouri–Kansas City, Michael J. Piette – Analytical Economics, Inc., A. Mitchell Polinsky – Stanford University, Roger Skurski – Notre Dame University, Stan V. Smith – DePaul University, Robert Trout – Lit. Econ LLP

1998 *Litigation Economics Digest*
Managing Editors, Robert R. Trout – Lit. Econ LLP, Carroll B. Foster – University of Southern California–San Diego; **Production Editor**, Melissa Vitale; **Associate Editors**, Robert C. Baseman – Economic Criteria, Inc., Jeffrey C. Bodington – Bodington & Company, Karl A. Egge – Macalester College–St. Paul, David T. Fractor – Findlay, Phillips and Associates, Thomas R. Ireland – University of Missouri–St. Louis, Gary A. Kovacic – Sullivan, Workman & Dee, Judith K. Mann – University of California, San Diego, John A. McMullen – Cambridge Meridian Group, G. Michael Phillips – Findlay, Phillips and Associates, Michael J. Piette – Analytical Economics, Inc., James L. Plummer – QED Research, Inc., Anthony H. Riccardi – AHR Associates, William W. Wade – Foster Associates, Inc.

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1996 *Journal of Forensic Economics*
Managing Editor, John O. Ward – University of Missouri–Kansas City; **Production Editor**, Nancy Eldredge; **Associate Editors**, Thomas Ireland – University of Missouri–St. Louis, Kurt V. Krueger – Institute of Disability Appraisal, Robert Thornton – Lehigh University; **Board of Editors**, Malcolm R. Burns – Litigation Economics, Inc., Dennis R. Capozza – University of Michigan, Wolfgang Franz – Central Washington University, Ralph Frasca – University of Dayton, Stephen M. Horner – Economic Consulting, Walter Johnson – University of Missouri–Rolla, B.F. Kiker – University of South Carolina, Charles M. Linke – University of Illinois, Ted Miller – Urban Institute, Jerry Miner – Syracuse University, Gerald Olson – University of Missouri–Kansas City, Michael J. Piette – Economic Research Services, Inc., A. Mitchell Polinsky – Stanford University, Roger Skurski – Notre Dame University, Frank Slesnick – Bellarmine College, Stan V. Smith – DePaul University, Robert Trout – Foster Associates

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Services, Inc., James L. Plummer – QED Research, Inc., Anthony Riccardi – AHR Associates, William W. Wade – Foster Associates, Inc.

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1995 ***Litigation Economics Digest***
Managing Editors, Robert R. Trout – Deloitte & Touche LLP, Carroll B. Foster – University of California–San Diego; **Production Editor**, Melissa Vitale, Nancy Eldredge; **Associate Editors**, John P. Adams – Cal Poly–San Luis Obispo, Robert C. Baseman – Economic Criteria, Inc., Jeffrey C. Bodington – Bodington & Company, Karl A. Egge – Macalester College–St. Paul, David T. Fractor – Findlay, Phillips and Associates, Patrick A. Gaughan – Economatrix Research Associates, Thomas R. Ireland – University of Missouri–St. Louis, John A. McMullen – Cambridge Meridian Group, G. Michael Phillips – Findlay, Phillips and Associates, Michael J. Piette – Economic Research Services, Inc., Anthony Riccardi – AHR Associates

1994 ***Journal of Forensic Economics***
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Managing Editor, John O. Ward – University of Missouri–Kansas City; **Production Editor**, Nancy Eldredge; **Associate Editors**, Rick Gaskins – Gaskins Associates, Thomas Ireland – University of Missouri–St. Louis, Walter Johnson – University of Missouri–Rolla, Robert Thornton – Lehigh University; **Board of Editors**, Dennis R. Capozza – University of Michigan, Thomas Havrilesky – Duke University, B.F. Kiker – University of South Carolina, Charles M. Linke – University of Illinois, Ted Miller – Urban Institute, Jerry Miner – Syracuse University, Gerald Olson – University of Missouri–Kansas City, Eli Schwartz – Lehigh University, Roger Skurski – Notre Dame University, Reuben Slesinger – University of Pittsburg, Stan V. Smith – DePaul University, Robert Trout – Foster Associates; **Senior Referees**, Malcolm R. Burns – University of Kansas, Wolfgang Franz – Central Washington University, Ralph Frasca – University of Dayton, Frank Slesnick – Bellarmine College

1992 ***Journal of Forensic Economics***
Managing Editor, John O. Ward – University of Missouri–Kansas City; **Production Editor**, Nancy Eldredge; **Associate Editors**, Rick Gaskins – Gaskins Associates, Thomas Ireland – University of Missouri–St. Louis, Walter Johnson – University of Missouri–Rolla, Robert Thornton – Lehigh University; **Board of Editors**, Dennis R. Capozza – University of Michigan, Thomas Havrilesky – Duke University, B.F. Kiker – University of South Carolina, Charles M. Linke – University of Illinois, Ted Miller – Urban Institute, Jerry Miner – Syracuse University, Gerald Olson – University of Missouri–Kansas City, Eli Schwartz – Lehigh University, Roger Skurski – Notre Dame University, Reuben Slesinger – University of Pittsburg, Stan V. Smith – DePaul University, Robert Trout – Spectrum Economics; **Senior Referees**, Malcolm Burns – University of Kansas, Wolfgang Franz – Central Washington University, Ralph Frasca – Dayton University, Frank Slesnick – Bellarmine College

1991 ***Journal of Forensic Economics***
Managing Editor, John O. Ward – University of Missouri–Kansas City; **Production Editor**, Nancy Eldredge; **Associate Editors**, Rick Gaskins – Gaskins Associates, Thomas Ireland – University of Missouri–St. Louis, Walter Johnson – University of Missouri–Rolla, Robert Thornton – Lehigh University; **Board of Editors**, Dennis R. Capozza – University of Michigan, Thomas Havrilesky – Duke University, B.F. Kiker – University of South Carolina, Charles M. Linke – University of Illinois, Ted Miller – Urban Institute, Jerry Miner – Syracuse University, Gerald Olson – University of Missouri–Kansas City, Eli Schwartz – Lehigh University, Roger Skurski – Notre Dame University, Reuben Slesinger – University of Pittsburg, Stan V. Smith – DePaul University, Robert Trout – Spectrum Economics; **Senior Referees**, Malcolm Burns – University of Kansas, Wolfgang Franz – Central Washington University, Ralph Frasca – Dayton University, Frank Slesnick – Bellarmine College

1990 ***Journal of Forensic Economics***
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1989 ***Journal of Forensic Economics***
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1988 ***Journal of Forensic Economics***
Managing Editor, John O. Ward – University of Missouri–Kansas City; **Associate Editors,** Gerald Olson – University of Missouri–Kansas City, Frank Slesnick – Bellarmine College, Eli Schwartz – Lehigh University **Board of Editors**, Dennis R. Capozza – University of British Columbia, William Cobb – West Virginia College of Graduate Studies, Wolfgang Franz – Central Washington College, Thomas Havrilesky – Duke University, Bruce Herrick – Washington and Lee University, B.F. Kiker – University of South Carolina, Charles M. Linke – University of Illinois, Louis J. Maccini – Johns Hopkins University, Jerry Miner – Syracuse University, Edward Sattler – Bradley University, Roger Skurski – Notre Dame University, Ben Taylor – University of Oklahoma

1987 ***Journal of Forensic Economics***
Managing Editor, John O. Ward – University of Missouri–Kansas City; **Co-Editor,** Gerald Olson – University of Missouri–Kansas City; **Board of Editors**, William Cobb – West Virginia College of Graduate Studies, LeRoy Grossman – St. Louis University, Paul Junk – University of Minnesota–Duluth, B. F. Kiker – University of South Carolina–Columbia, Don Schilling – University of Missouri–Columbia, Eli Schwartz – Lehigh University

Appendix 4
Recipients of the "Outstanding NAFE Service" Awards, 1990 - 2002

YEAR	RECIPIENT(S)
1990	John Adams Eli Schwartz
1992	Rueben Slesinger
1993	Everett Dillman
1994	Gerald Olson John Ward
1996	Frank Slesnick Robert Thornton
1999	Charles de Seve Thomas Ireland
2000	Michael Brookshire Nancy Eldredge
2001	Stephen Horner
2002	Kurt Krueger

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Volume 6, Number 1: 33-35

Measuring the Intensity of Competition Across Geographic Markets: A Comment

Bradley T. Ewing[A] and Michael J. Piette[B]

Abstract

In a recent issue of this journal (LER, Vol. 5, No. 1), Rodriguez and Williams, hereafter RW, examined the geographic extent of gasoline markets. Their analysis involved univariate and multivariate time series techniques to determine whether or not gasoline prices in Arizona, California, and Nevada were empirically linked. In particular, RW set out to test whether California prices "follow" prices in the other states by testing for a long run equilibrium relationship. This is an important and interesting question as California is known for its unique and rather extensive set of environmental standards. Based on results from unit root tests and a vector error correction model, RW concluded that the California gasoline market does not act as a separate market. Instead, RW believe it is linked to the markets of Arizona and Nevada. Their conclusion is in sharp contrast to the Federal Trade Commission's consent regarding Exxon-Mobil which claims that California is a separate market. In this comment, we argue that their reported results may actually contradict their conclusions.

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Rodriguez and Williams (RW) provide a reasonable explanation of antitrust and market definition. Moreover, RW make a good case for the use of time series analysis including unit root tests, cointegration tests, and (possibly) error correction modeling for determining relevant product and geographic markets, especially in the case of antitrust. A number of papers in the industrial organization literature have also used these procedures to examine the level of integration that exists among various markets [e.g., Benson et. al (1995)]. Thus, although their empirical strategy is appropriate for the case at hand, there are several problems with the way in which RW implement the analysis.

The first problem in the RW paper arises in their interpretation of the augmented Dickey-Fuller (ADF) unit root test results (see their Table 1 on p. 25). Simply put, the null hypothesis of the ADF test is that the series contains a unit root. If the null can be rejected, then the series is assumed to be stationary. If the null is not rejected then the series is nonstationary and would require first-differencing to obtain stationarity. The issue of nonstationarity (unit root) is extremely important in the interpretation of gasoline market definition as stated by RW. This is because two or more nonstationary series may form a linear (and stationary) combination in which case the series are said to be cointegrated. The issue of cointegration is tantamount to saying that the gasoline markets share a long run equilibrium relationship. Cointegration implies that the gasoline markets would be linked and therefore, in this case, would not be

considered separate and distinct (often referred to as exogenous in the time series literature). As RW state in footnote 36 , "If we were to find that all the price series were stationary, then ***all*** linear combinations of them would also be stationary, so a cointegration exercise would be inappropriate." (emphasis added) However, Table 1 indicates rejection of the null hypothesis that Arizona and Nevada prices are nonstationary at the 5 percent level or less as well as rejection of the null that California prices are nonstationary at less than the 10 percent level of significance. We believe that RW misinterpreted the results and erroneously concluded that each of these series is integrated of order 1, meaning that they require first-differencing to attain stationarity. Of course, as alluded to in footnote 36, by definition, it is impossible for two (or more) stationary series to be cointegrated. Therefore, these markets can not share a long run equilibrium relationship. If RW believed that these series were "borderline non-stationary" as stated (p. 24), then additional unit root tests, such as the popular Phillips and Perron (1988) test which allows for heterogeneity in the error term, should have been conducted and reported. Further, Perron (1989) and Zivot and Andrews (1992) point out that one may conclude that a series has a unit root when in fact it does not if there has been a structural break during the time period studied. Examining RW's Figure 1, it appears that a structural break may have occurred around 1986. This is a period in which gasoline and energy prices dropped precipitously. Given that accurate unit root test results are critical to a cointegration analysis and thus at the crux of the RW conclusions, the issue should have been investigated further.

A second problem with the RW paper is found in the cointegration test results reported in Table 3. RW used only one of Johansen's two cointegration test statistics. Aside from the fact that a correct interpretation of the unit root tests would rule out testing for cointegration in the first place, RW proceed with the cointegration test and find that there are three cointegrating vectors among the three (k=3) endogenous variables.[1] Of course, it is well known that the number of cointegrating vectors, r, can at most equal k-1 [Enders (1995), Mills (1999)]. That is to say, there can not be three cointegrating vectors among these three price series. Thus, for cointegration to exist among the three gasoline markets one would need to find one or two cointegrating vectors. A finding of zero cointegrating vectors indicates that while each individual series may be nonstationary, there is no equilibrium relationship that the series are attracted to over the long run [Enders (1995)]. A finding of r=k=3 indicates that the "long-run level solution" matrix is of full rank and implies that (1) the model is mis-specified and/or (2) each of the series are stationary to begin with. However, given the discussion concerning the RW unit root test results, we argue that the second alternative is most likely and take this as additional evidence that the markets are not cointegrated.

A third problem in the RW paper can be detected by examining the impulse response functions shown in Figure 2. The impulse responses are derived from the vector error correction model (VECM) described in equation (2). Note that we have already argued that the VECM is inappropriate to estimate based on the unit root and cointegration findings. However, as further evidence that these markets are not cointegrated, we note that in the case of a VECM, at least one impulse response would not return to zero over time (i.e., the model is, by definition, nonstationary). This is because there can be at most r=k-1 cointegrating vectors and therefore r-k stochastic trends. Thus we would see at least one impulse response moving to a new long run equilibrium following a shock [Enders (1995) and Mills (1999)]. The RW impulse responses all return to zero, indicating that the effects of these shocks completely dissipate over time. This will only be the case if there is no cointegration. However, it should also be noted that the VECM collapses to a standard vector autoregression (VAR) in the absence of cointegration and in this case would be a standard VAR in first-differences. Differencing an already stationary series is referred to as "over-differencing" and while it typically results in stationary processes, potentially useful forecasting information is lost and, as such, it is not a recommended practice. Because the impulse responses for each of the differenced price series returns to a baseline value (zero in the figure) following shocks to the other price series, this confirms that absence of cointegration.

The original idea that RW set out to examine is a valid and important one and they deserve credit for undertaking the task. However, caution should be used when interpreting results and applying time series econometrics techniques such as unit root tests, cointegration tests, and error correction modeling. A careful review of the RW paper suggests that, contrary to their reported findings, the California gasoline market is indeed separate (as defined by RW) from the markets of Arizona and Nevada. Thus, the FTC consent in the Exxon-Mobil case appears to be correct.

[1]RW mention that they include other exogenously determined variables as controls in their analyses. Of course, entering exogenous variables in a vector autoregression is allowed; however, it is the number of endogenous variables (here k=3) that matter for the cointegration test.

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The Literature Corner: Recent Publications of Interest to Forensic Economists

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Abstract

This feature of the *Litigation Economics Review* provides an annotated listing of recent publications which may be of interest to forensic economists in their consulting work and research. The articles have been selected by scouring the *non-forensic* economics literature, a literature that because of time constraints or narrow sub-disciplinary interests is not likely to be visited as frequently as many of us would wish.

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In this issue, we highlight articles in the areas of discrimination, disability, earnings, hours of work, occupations, retirement, time use/household work, value of life/happiness and a miscellany category. Articles have been arranged by topical area. Readers are cautioned that the article descriptions appearing below are necessarily brief and cannot convey all the richness of detail, qualifications and caveats appearing in the articles themselves. Most of the works cited have appeared within the last year or two, but we do not follow a strict rule about the date of publication in making our selections.

Discrimination

Adams, Scott, J. "Passed Over for Promotion Because of Age: An Empirical Analysis of the Consequences," *Journal of Labor Research*, Vol. 23, No. 3, Summer 2002, pp. 447-61.

Older workers who are passed over for promotion face a halting of career advancement and potential lower wage growth. They may also become discouraged, leaving the labor force and going into early retirement. Although the problem has attracted much attention and there is anecdotal evidence suggesting that it is not uncommon, little empirical evidence

about the practice or its effects exists. In this study the author uses a sample of individuals in their 50s drawn from the Health and Retirement Study to test whether such promotion practices induce job separation and lead to early retirement. The results suggest that older workers at firms that promote based on age do experience lower wage growth than older workers who are comparable with respect to demographic and job characteristics. Although the probability of job separation does not appear to be affected, there is some moderate evidence that such promotion practices induce early retirement.

Carrington, William J.; Kristen McCue; and Brooks Pierce. "Nondiscrimination Rules and the Discrimination of Fringe Benefits, *Journal of Labor Economics*, Vol. 20, No. 2, Part 2, April 2002, pp. S5-S33.

This article finds that rules that limit within-firm inequality in the provision of fringe benefits, such as health insurance and pensions, alter pay packages and cause high-skill, high-wage firms to hire low-wage workers on a part-time basis. A useful aspect of this article is its brief summary of the salient features of nondiscrimination rules for health insurance and pension benefits.

Ferber, Marianne A.; and Jane Waldfogel. "The Effects of Part-Time and Self-Employment on Wages and Benefits: Differences by Racy/Ethnicity and Gender," *Nonstandard Work: The Nature and Challenges of Changing Employment Arrangements* (Industrial Relations Research Association Series), 2000.

Using data from the National Longitudinal Survey of Youth (NLSY), the authors try to ascertain the effects of current and previous part-time or self-employment on current earnings and benefits. They find that both types of employment tend to have negative effects on wages and benefits in the long run as well as the short run for both women and men. (The one exception is that current self-employment is associated with higher, not lower, wages for men.) Race and ethnicity, interestingly, appear to make surprisingly little difference.

Sager, Laura; and Stephen B. Cohen "How the Income Tax Undermines Civil Rights Law," *Southern California Law Review*, Vol. 75, 2000, p. 1075ff.

This paper explains the way the income tax undermines civil rights law. In the author's words, "Federal statutes entitle the prevailing plaintiff in civil rights litigation to recover attorney's fees from the defendant. The recovery of attorney's fees under these so-called 'fee-shifting provisions' constitutes a deliberate departure from the usual American rule that each litigant must bear her own legal costs. A civil rights plaintiff acts not just for herself alone but also as a 'private attorney general,' vindicating national policy. The fee-shifting provisions enable the plaintiff who cannot pay a private attorney, and whose potential recovery is not sufficient for a contingency fee arrangement, to perform this private attorney general function. This objective has been undermined by recent income tax decisions concerning the taxation of employment discrimination plaintiffs. Under these decisions, a civil rights plaintiff must report her entire recovery as income. However, the attorney's fees, 'the cost of producing the income,' are not fully deductible under the regular tax and are not deductible at all under the alternative minimum tax. As a result, the plaintiff's income is overstated and overtaxed." Permitting a civil rights plaintiff either to deduct fully or to exclude the recovery of attorney's fees would solve this problem.

Disability

Black, Dan; Kermit Daniel; and Seth Sanders. "The Impact of Economic Conditions on Participation in Disability Programs: Evidence from the Coal Boom and Bust," *The American Economic Review,* Vol. 92, No. 1, March 2002, pp. 27-50.

The authors examine the impact of the coal boom in the 1970s and the coal bust of the 1980s on worker participation in disability programs. In a nutshell, do disability program participation rates rise (fall) as economic conditions worsen (improve)? The authors find clear evidence that *permanent* job creation and job destruction have a large effect on program participation, larger than more transitory changes in local labor market conditions. A similar finding has also been observed for workers in the steel industry. The authors stress that their results should not be interpreted as implying that potential disability income claimants are guilty of "malingering." Such a view is predicated on the "incorrect" notion that disability is a dichotomous state, with people either capable or incapable of working. The authors point out that professional athletes, for example, often participate in sports with injuries that would render most people as disabled. Presumably, the earnings associated with working while in a state of pain make the injuries endurable. Using similar reasoning, the authors say that their results could be construed as evidence of strong commitment to the labor market by many disabled workers rather than as evidence of malingering.

Case, Anne; Darren Lubotsky; and Christina Paxson. "Economic Status and Health in Childhood," *Poverty Research News* (The Newsletter of the Northwestern University/ University of Chicago Joint Center for Poverty Research), Vol. 5, No. 5, September-October 2001, pp. 3-5

Poverty Research News is a useful, though not all that well-known, newsletter that comes out six times a year and summarizes the latest research on health-

related issues among low-income families. The topics vary widely, including (inter al.) the costs of caring for adult parents and the effect of health on income (and vice-versa). In this article, Anne Case and her co-authors document the widening health disparity that comes with age among poor and wealthier children. They also show how a family's income can have a substantial effect on children's health, with higher income resulting in more protection from chronic illness and preventing the deterioration of health as children age.

Earnings

Bowles, Samuel; Herbert Gintis; and Melissa Osborne. "The Determinants of Earnings: A Behavioral Approach," *The Journal of Economic Literature*, Vol. 39, No. 4, December 2001, pp. 1137-1176.

This wide-ranging, provocative paper emphasizes the importance of taking a wider view of how individual characteristics affect expected earnings, and of exploring variables that intervene between schooling and earnings. The paper notes that while cognitive performance, schooling and parental economic status provide part of the statistical explanation for interpersonal differences in earnings, most interpersonal differences in earnings remain unexplained by these conventional variables. The paper takes a behavioral approach that examines a variety of variables, including personality traits, the ability to seize on opportunities, housekeeping skills, being slim (like Rodgers and Thornton), aggression, and withdrawal, and how these variables may contribute to assessing why interpersonal earnings differ.

Bratsburg, Bernt; James F. Regan, Jr.; and Zafar M. Nasir. "The Effect of Naturalization on Wage Growth: A Panel Study of Young Male Immigrants," *Journal of Labor Economics*, Vol. 20, No. 3, July 2002, pp. 568-597.

This study uses longitudinal data to examine whether becoming a U.S. citizen leads to higher wages, either immediately or by accelerating wage growth. For young male immigrants, becoming a U.S. citizen has allowed them to gain access to public-sector, white-collar, and union jobs, and hence then wage growth accelerates – consistent with removal of employment barriers. The faster wage growth of immigrants who become naturalized might also have an alternative explanation – greater human capital investment prior to naturalization, stemming from a long-term commitment to the U.S. labor market. However, the evidence suggests that wage growth does not accelerate and job access does not improve until citizenship is attained. A further finding is that the gains from becoming a citizen are greater for immigrants from less developed countries and persist after controlling for unobserved productivity.

Buckley, John E. "Rankings of Full-Time Occupations, by Earnings, 2000," *Monthly Labor Review*, March 2002, pp. 46-57.

This article uses information from the 2000 National Compensation Survey to present and rank mean hourly earnings for 427 occupations. Most forensic economists won't find the *rankings* of occupations particularly useful, except to note that economics teachers were ranked number 3 (after airline pilots and physicians)! However, in addition to the information on mean earnings, information is also provided on mean weekly and annual hours of work as well. One caution: the standard errors of both the earnings and hours data are in some cases quite high.

Carrington, William J.; and Bruce C. Fallick. "Do Some Workers Have Minimum Wage Careers?" *Monthly Labor Review*, May 2001, pp. 17-27.

This article is a "must read" for forensic economists who may be asked to compute lost earnings for young workers with little education or labor market experience. The article addresses the question of whether some workers spend a significant portion of their (post-teen) working years in minimum wage jobs. The authors focus on workers who have finished school and embarked on their careers, and they use the National Longitudinal Study of Youth 1979 (NLS79). The authors identify a "nontrivial" fraction of workers who do in fact spend a substantial portion of their post-school careers in minimum-wage or near-minimum-wage jobs. Not surprisingly, workers with such careers tend to come largely from demographic groups with generally low wages: women, minorities, and those with little education.

Olson, Craig A. "Do Workers Accept Lower Wages in Exchange for Health Benefits," *Journal of Labor Economics,* Vol. 20, No. 2, Part 2, April 2002, pp. S91-S114.

The theory of compensating differentials predicts that workers receiving more generous fringe benefits are paid lower wages. Researchers have not, however, been able to confirm this prediction of the theory with respect to employer-provided health insurance. In his study of working women Olson finds that the average woman in the sample had to accept about a 20% cut in money wages to move from a job not having health insurance coverage to one that did. The implicit value of such benefits was about $4,000 per year in early 1990s dollars. This amount also is close to independent estimates of the cost of health care received by families with private health insurance coverage. Inasmuch as the cost of health care is approximately equal to the cost of the insurance that covers it, which in turn equals the sum of the employer cost and the employee cost, the main result of this paper supports the proposition that the value of employer-provided health insurance is

approximately equal to the employer's cost of providing it.

Strayer, Wayne, "The Returns to School Quality: College Choice and Earnings," *Journal of Labor Economics*, Vol. 20, No. 3, July 2002, pp. 475-503.

The author argues that the quality of a student's *high school* can affect the wages that he or she earns later on in the labor market. This can happen in a number of ways, both direct and indirect. First, the quality of a student's high school can affect the probability that the student will graduate as well as the choice of college or university. Also, smaller class sizes at a student's high school can increase the probability that a student will choose to attend a 4-year, rather than a 2-year, college. And, of course the type of college that a student attends can affect his or her post-school earnings. Secondly, the additional skills accumulated at a high school of higher quality can directly influence earnings. Using a data set that combines the National Longitudinal Survey of Youth (NLSY) with the Integrated Postsecondary Data System (IPEDS), Strayer finds that high school quality influences earnings mainly by affecting college choice behavior, while the direct effect of school quality on earnings is less evident.

Hours of Work

Wong, Ging; and Garnett Picot, *Patterns, Trends, and Policy Implications of Earnings Inequality and Unemployment,* Vol. I, Upjohn Institute, November 2001.

This is volume I of a two-volume set consisting of 22 papers in all offering a Canadian-U.S. perspective on changes in working time and the impact of these changes on employment policies. (Some forensic economists may also be interested volume II, entitled *Life-Cycle Working Time and Nonstandard Work*.) Volume I contains such articles as "The Changing Workweek" (by Mike Sheridan et al.), "Trends in Hours of Work in the United States" (by Philip Rones et al.), "Patterns of Foregone Potential Earnings among Working Age Males" (by Robert Haveman et al.), and "Short-Time Work in the United States" (by Alec Levenson). Other articles deal with daily and weekly hours in Canada, work sharing, and effort.

Occupations

Edland, Lena; and Evelyn Korn. "A Theory of Prostitution," *Journal of Political Economy*, Vol. 110, No. 1, February 2002, pp. 181-214.

Anyone with a case involving a prostitute will find this article useful. Cited are some references, data, and stylized facts regarding the occupation and earnings of prostitutes. The paper endeavors to provide an answer to the question: "How can equilibrium earnings in a profession with only rudimentary skill and capital requirements be such that a woman can make in a day what for most women takes weeks or months?" (p. 182). The answer offered is that, because a woman cannot be both a prostitute and a wife, prostitution must pay more than other jobs to compensate for the opportunity cost of foregone marriage market earnings.

Retirement

Gendell, Murray. "Retirement Age Declines Again in 1990s," *Monthly Labor Review*, October 2001, pp. 12-21.

Gendell discusses two commonly used data series to compute average retirement age. One series, that of the Social Security Administration, is a less-than-perfect measure. Because the earliest age of eligibility for SSA benefits is age 62, it omits workers who have stopped working earlier. Furthermore, some workers continue to work after receiving social security benefits. The other series is that of the median age of retirement, which measures the average age of elderly workers at their exit from the labor force. This series is derived from labor force data obtained in the Current Population Survey, which provides complete coverage of the U.S. labor force. Gendell shows that both series indicate that the average age at retirement declined in the 1990s, after having previously leveled off in the 1970s (according to the SSA series) and the 1980s (according to both series).

Johnson, Richard. "Why the 'Average Age of Retirement' is a Misleading Measure of Labor Supply," *Monthly Labor Review*, Vol. 124, No. 12, December 2001, pp. 38-40.

The essence of this paper is that the average age of retirement is a misleading number because it might be thought to convey information that it does not in fact convey. For example, it is possible to demonstrate that the formulas for average retirement age can show a reduction in the average retirement age when labor force participation rates at all ages are either rising or falling. In fact over the period from 1960 to 2000 participation rates for men fell at all ages whereas those for women rose at all ages, yet the average retirement age fell over this period for both men and women. Hence, the average retirement age statistic must be viewed and used very cautiously.

Time Use/Household Work

Edwards, Linda; and Elizabeth Field-Hendrey. "Home-Based Work and Women's Labor Force Decisions," *Journal of Labor Economics*, Vol. 20, No. 1, January 2002, pp. 170-200.

The authors use data from the 1990 Census to show that homework is an attractive option for women for whom the fixed costs of work are high. These are women who have small children, who are disabled, or who live in rural areas. The authors also forecast that the proportion of women who elect to work at home will increase as technology continues to make such work more feasible. With female labor force participation projected to increase more rapidly than that of males over the next five years, the authors also predict that there will be a disproportionate increase among women with small children needing the labor force flexibility that home-based work provides. The number of women who are constrained by disability or by the presence of an older family member is also likely to rise. Therefore, as predicted by the authors, the attractiveness of home-based work arrangements is expected to increase in the future.

Hersch, Joni; and Leslie S. Stratton. "Housework and Wages," *The Journal of Human Resources*, Vol. 37, No. 1, Winter 2002, pp. 217-29.

It is well-known that women's earnings average about 70 percent of men's, and research has shown that part of the disparity is attributable to gender differences in work experience and tenure. According to the evidence, part of the disparity also appears to be due to gender differences in "home production time" – housework. Furthermore, a substantial literature has shown a negative relationship between housework and wages for married women. However, past research has not investigated whether time spent on housework also affects the wages of non-married persons. Using data from the National Survey of Families and Households (for 1987-88 and 1992-94), Hersch and Stratton find that housework has a negative effect on wages *regardless* of marital status. In other words, the negative relation between housework and wages is not restricted to married women but is of approximately the same magnitude for all women. Results for men also show a negative relation between housework and wages that likewise does not vary by marital status. In short, the findings suggest that it is not marriage that causes the housework effect, but rather the actual amount of time spent on housework. (Rodgers and Thornton moral: Take the Thorstein Veblen approach to housework.)

Johnson, Richard W.; and Anthony T. Lo Sasso. "The Employment and Time Costs of Caring for Elderly Parents," *Poverty Research News* (The Newsletter of the Northwestern University/University of Chicago Joint Center for Policy Research), Vol. 5, No. 5, September-October 2001, pp. 5-8.

As mentioned earlier, *Poverty Research News* is a useful newsletter that comes out six times a year and summarizes the latest research on health-related issues, particularly among low-income families. The authors of this study note that the aging U.S. society is placing new care demands on children. Many of the elderly are poor and live on fixed incomes. The financial cost to children of providing care to their elderly parents can be very high, especially if caregivers must interrupt their careers or even retire early to provide care. Using data from the Health and Retirement Study, the authors examine how the time commitments of caring for elderly parents affect the hours spent in the labor force of middle-aged adult children. Notably, 30% of women and 13% of men aged 57-67 with surviving parents spent at least 200 hours in the prior 24 months helping their parents with personal care, chores, and errands. The authors find that women who helped their parents cut back their work by about 550 hours per year (about 58%) while men cut back their work by about 650 hours (43%). The results suggest that when women and men devote significant amounts of time to helping their parents, they reduce their labor supply substantially.

Schwartz, Lisa K. "The American Time Use Survey: Cognitive Pretesting," *Monthly Labor Review*, Vol. 125, No. 2, February 2002, pp. 34-44.

What kinds of problems arise in attempting to obtain information about time use from a telephone interview? Some of the problems are revealed in this article describing cognitive pre-testing for the American Time Use Survey (ATUS), which is being conducted by the Bureau of Labor Statistics and is scheduled to commence in 2003. Pre-testing was performed for the ATUS summary questions, designed to obtain further information about secondary child care activities, time spent working, and trips resulting in absences from home for two or more nights. The findings of the cognitive pre-tests support the conclusion that the way questions are worded can have important affects on the information obtained. For example, respondents interpreted "looking after" children more narrowly than "caring and being responsible for" children. The pre-tests of working time led to modification of questions about work to improve the accuracy of responses about work activities performed outside standard work environments or outside normal work hours. The article emphasizes that the development of cognitive research laboratories at the Census Bureau, the BLS and the National Center for Health

Statistics has caused more attention to be paid to how respondents think about the content of surveys and the processes that respondents must go though to answer survey questions.

Winkler, Anne E. "Measuring Time Use in Households with More Than One Person," *Monthly Labor Review*, February 2002, pp. 45-52.

This article provides criticism of the American Time Use Survey because the current design of that survey does not include questions intended to measure the use of time by household members other than the individual selected as the "designated person." Collecting such information would allow more to be known about labor force participation of all members of a household and would provide data on how time is allocated to various household tasks within a household.

Schwartz, Lisa K.; Diane Hertz; and Harley Frazis. "Measuring Intrahousehold Allocation of Time: Response to Anne E. Winkler," *Monthly Labor Review*, February 2002, pp. 53-59.

This paper responds to the criticism of Anne Winkler, as described above. It is first noted that response rates could suffer and survey time and costs could rise if an attempt is made to collect data from more than one household member. Additional problems can arise if the interview of the various household members cannot be conducted on the same date. Further, surveys of more than one member of a household have relied on paper diaries, which have important implications for response rates and survey costs. The portion of this paper dealing with the relative value of information obtained from time diaries vs. stylized questions about time use would be of interest to all forensic economists using time use and other survey data.

Value of Life/Happiness

Frey, Bruno S.; and Alois Stutzer. "What Can Economists Learn from Happiness Research?" *The Journal of Economic Literature,* Vol. 60, No. 2, June 2002, pp. 402-435.

We were happy to get a chance to read this paper. It describes some interesting results that may have implications for the assessment of hedonic damages. One is that measured life satisfaction remained the same over the period 1958-91, whereas real GDP per capita increased about five-fold. One reason for this result has to do with a change in aspiration levels following a change in income. Initially, an increase in income raises the level of happiness. However, the increase in income also increases the individual's aspiration level, implying that the increase in income produces a smaller ultimate increase in happiness (or perhaps no increase at all) than what was experienced immediately after the income increase. Comparing happiness across countries, the authors find that there is a positive association between real GNP per capita and satisfaction with life, but this seems to be at least partly due to the fact that richer countries have more political stability, higher levels of average health, and more secure basic human rights.

Shogren, Jason F.; and Tommy Stamland. "Skill and the Value of Life," *Journal of Political Economy*, Vol. 110, No. 5, October 2002, pp. 1168-1173.

The standard logic in the "value of statistical life" (VSL) literature is that the value of a statistical life is biased downward. That argument goes like this. Workers sort themselves into occupations for various reasons. Workers who are least averse to risk sort themselves into the riskiest occupations. The wage premiums provided for bearing risk are therefore lower than would be required by the average worker in the workforce. Shogren and Stamland argue, however, that one must take into account not only heterogeneity in risk preference but also heterogeneity in workers' personal ability to reduce the risk of injury and death. The wage increment paid is based on the wage required to attract the marginal worker, who is the most risk averse and/or who has the least personal ability to reduce risk. When this wage increment is divided by the average risk faced by workers, the resulting VSL is biased upward. The VSL estimates used in federal decision-making therefore probably overestimate the benefits of major regulatory decisions.

Miscellany

Baker, Tom. "Blood Money, New Money and the Moral Economy of Tort Law in Action," *Law and Society Review*, Vol. 35, No. 2, Fall, 2001.

In that first phone call about a personal injury case, an attorney may say, "The insurance limits are $xxx,xxx." This paper describes why that number is so critical to the attorney. In the author's own words, "This paper reports the results of a qualitative study of personal injury lawyers in Connecticut. Building on the results of an earlier study of lawyers in Florida ("Transforming Punishment Into Compensation: In the Shadow of Punitive Damages," *Wisconsin Law Review*, 1998), the study describes and explores the implications of professional norms and practices that govern tort settlement behavior. In particular, the study explores the moral and practical barriers to collecting 'blood money' (money from individual defendants, as opposed to liability insurance companies), as well as the moral and practical explanations for victims' apparent ability to partially trump the claims of subrogating workers compensation and health insurance carriers. The results pose a challenge to the conventional understanding that tort law in action

is a simpler, more streamlined version of tort law on the books. In addition, the results suggest that compensation and retribution concerns figure far more prominently in tort law in action than the deterrence concerns emphasized in much of the theoretical and doctrinal literature."

Devens, Richard M. "FedStats: A Federal Statistics Portal," *Industrial Relations*, Vol. 40, No. 2, April 2001, pp. 344-46. www.fedstats.com

Richard Devens, who is with the U.S. Bureau of Labor Statistics, provides a brief overview of the FedStats federal statistics "portal." FedStats is a website that provides users with a way to more easily sort through the mass of statistical data put out by more than 70 federal agencies with a "significant statistical component." Users can find statistics by subject area (e.g., weekly earnings) as well as by geography (e.g., state and county). And the "Statistical Reference Shelf" contains electronic versions of published collections of statistics on-line, such as the *Statistical Abstract.* Finally, FedStats allows users to search for data by statistical agency and provides access to their many news releases.

Johnson, David S.; John M. Rogers; and Lucilla Tan. "A Century of Family Budgets in the United States," *Monthly Labor Review*, Vol. 124, No. 5, May 2001, pp. 28-45.

This article presents an overview of the way that family budgets and budget standards have been constructed in the U.S. over the past 100 years. The authors make a distinction between "prescriptive" budgets (like the BLS's old Family Budget Series, which determined expenditure levels that would enable families to attain a certain standard of living) and "descriptive" budgets (that represent observed expenditures for particular families, such as those provided by the BLS Consumer Expenditure Survey [CES] data). After reviewing the history of these budgets, the authors then use actual expenditure data to construct descriptive family budgets for the years 1989, 1994, and 1998 along the lines first recommended by the Expert Committee on Family Budget Revisions back in the year 1980. They also compare these budgets with earlier budget standards that were constructed using alternative methods.