

Published in *Journal of Legal Economics*, Vol.12, No 1, Spring/Summer 2002, pp7-21.
Copyright © 2004

Loss of Self-Employed Earning Capacity in Wrongful Death or Major Accident of the Self-Employed

By

Lawrence Spizman

Professor

Department of Economics

Oswego State

State University of New York

And

Frederick G. Floss

Professor

Department of Economics and Finance

Buffalo State

State University of New York

Loss of Self-Employed Earning Capacity

Introduction

The purpose of this paper is to establish a framework to evaluate economic damages to small business owners or their survivors. The framework developed here is for estimating economic losses to a self-employed individual or survivor whose income tax records show either a small profit or losses. The problem facing the economist can be seen in Figure 1. A proprietor's income, when compared with that for an hourly worker, is historically lower, even though a proprietor could re-enter the job market and earn a higher wage. This problem persists even after proprietor's income is adjusted for under-reporting on tax returns.¹ The forensic economist must assume either proprietors as a class do not maximize utility and profits, or their tax returns are missing an important part of the earnings puzzle.

This is important because most courts use an earning capacity standard in wrongful death and accident cases² when evaluating economic damages (Horner and Slesnick 1999). However, the earning capacity standard will be rejected when it is based on information that is too general or speculative.³

The fundamental issue for the economist is defining what the legal system means by earning capacity. Horner and Slesnick (1999) distinguish between actual earnings, expected earnings and earning capacity. Romans and Floss (1997) discuss how economic losses can be determined by either the opportunity cost approach, the replacement cost approach or the indirect approach. Brown (1995) argues that the best measure of earning capacity for the self-employed is the cost of hiring someone to perform the same job of the decedent. Hamilton (2000) shows that non-pecuniary benefits for the self-employed are great. His results support the hypothesis that the self-employed pre-accident earnings capacity should be what one could earn as an employee in jobs similar to the one in which that individual were self-employed. His findings suggest that actual earnings, for the self-employed, are likely to understate the person's true earning capacity because a substantial portion of self-employment *compensation* is non-pecuniary. Nonpecuniary compensation offers an explanation as to why individuals remain self-employed when their initial earnings are low and the growth rate of those earnings are lower than that in the paid labor market.⁴

The legal concept of earning capacity considers the ability of the decedent (prior to accident or death) to choose occupations he or she is already qualified to perform or will be qualified to perform at some time in the future. Horner and Slesnick (1999) consider earning capacity to be what a person is able to earn while expected earnings are what a person is expected to earn. Actual earnings are what a person actually earned. It is possible that a person's actual earnings would be lower than his or her earning capacity. In death and permanent injury cases, earning capacity has been forever lost.

The opportunity cost method is one way of measuring earning capacity. That methodology examines the decedent's earnings potential as if the decedent was not self-employed. Brown (1995) develops this approach for a farmer's death and then expands it to any self-employed businessperson's death.⁵ One measure of earning capacity, for the self-employed, is the cost of replacing that individual's labor.

Romans and Floss (1997) imply that other non-pecuniary benefits might not be taken into consideration. They discuss how the self-employed are motivated to capture economic rents, which augment earnings. The company's loss of the business owner eliminates these rents. This is

particularly relevant when rents occur because of the special labor skills, which only the owner can provide. In this situation, in addition to lost earnings, excess returns on capital are also lost. This is a crucial problem because it affects the entire class of self-employed workers. In these types of cases, an economist using the replacement cost method must be careful not to compare another self-employed person's income to the plaintiff's.

Models of Earnings Capacity for the Self-employed

The standard earning capacity model assumes that the labor-leisure choice is independent of other income choices. This is a legitimate assumption for hourly workers but is inappropriate for the self-employed. The self-employed make all business decisions, not just decisions on the number of hours they work. Three earning capacity models are presented below showing the fundamental economic issues in death or permanent injury cases of the self-employed.

Opportunity Cost Model

Hourly Workers

Using the earnings capacity model for the self-employed allows the forensic economist to evaluate the labor leisure choice which he or she otherwise could not do using the standard earnings loss model.

The full income model for an hourly worker is normally:

$$(1) \quad \begin{aligned} & \text{Max } U(X, l) \\ & \text{s.t.: } wT + rK = pX + wl \end{aligned}$$

Where: $U(X, l)$ is the utility function for the injured individual which is a function of a composite good X and l leisure.

T is total usable time, for example, 16 hours per day taking 8 hours for sleep into account.

w the wage rate which is assumed determined in the market and is the value of time.

K is the amount of capital

rK is the income derived from capital.

p the price of a composite good. This can be changed to a multi-good model: $\sum p_i x_i$

L is labor, the amount of time spent working.

1 is leisure, which is assumed to be a normal good and is defined as [T-L].

The key point in these models is that the wage rate (w) is constant and can be obtained from employment documents and labor contracts. It then is comparatively easy to calculate earnings capacity, wT , because both are constants.⁶ Once this is done for the injured hourly worker, a forecast of lost earnings can be obtained in the standard way. These calculations can be found in Becker (1965); Krueger, Ward and Albrecht (2001); and Rodgers (2001).

The equilibrium solution for the hourly worker model yields the standard solution of setting the price ratio equal to the marginal rate of substitution:⁷

$$(2) \quad \frac{\frac{\partial U(X, I)}{\partial l}}{\frac{\partial U(X, I)}{\partial X}} = \frac{w}{p}$$

Self employed

The information required for the calculations in the hourly worker model is not normally available for the self-employed individual. Usually tax returns only show a firm's profits. Even if wage income is reported, there will be an arbitrary distinction between capital and labor income. The difficulty is compounded by the problem of how to determine the number of actual hours worked. The self-employed have latitude in where and how they work and in most cases have not kept track of the hours they work. Without knowing how many hours they can work, neither an *effective wage* rate, w , nor wT can be calculated from tax returns.

The budget constraint for the self-employed is not the same as for an employee. The constraint for the self-employed person must include economic profits, which depend on the number of hours worked:

$$(3) \quad wT + \pi(L, K) + rK = pX + wl$$

where economic profits are defined as:

$$(4) \quad \pi = q \cdot f(L, K) - wL - rK$$

where $f(L, K)$ is the self-employed firm's production function and q is the price of the firm's product. K is the level of capital used by the firm and is fixed at the beginning of any period. Income is then composed of three parts: (1) wage income, (2) economic profits and (3) returns to capital.

Self-employed individuals must not only decide how many hours to work, based on wage income, but they also must determine how that will affect the firm's profits. These profits can be

more important than standard wages. The self-employed individual must maximize utility with respect to the revised constraint. The lagrangian for this decision is:

$$(5) \quad Z = U(X, l) + \lambda \{wT + \pi [(T - l), K] + rK - pX - wl\}$$

Substituting leisure for L in the profit function, the two first order conditions for X and l become:

$$(6) \quad \text{i.} \quad \frac{\partial U(X, l)}{\partial X} - \lambda p = 0$$

$$(7) \quad \text{ii.} \quad \frac{\partial U(X, l)}{\partial l} - \lambda \left\{ w - \frac{\partial \pi}{\partial l} \right\} = 0$$

The equilibrium condition becomes:

$$(8) \quad \frac{\frac{\partial U(X, l)}{\partial l}}{\frac{\partial U(X, l)}{\partial X}} = \frac{w - \frac{\partial \pi}{\partial l}}{p} = \frac{w^*}{p}$$

or the new utility maximizing wage can be written as:

$$(9) \quad w^* = w - \frac{\partial \pi}{\partial l}$$

The marginal utility of leisure is now compared to w^* and not the replacement cost or hourly worker's wage rate w . The term w^* can be thought of as the effective wage rate for the self-employed worker. This wage is composed of two parts. The first part of the wage is the replacement cost wage of the hourly employee. The self-employed must make at least this amount or they would do better by working for someone else. This wage is then adjusted by the effect of

labor on profits, $-\frac{\partial \pi}{\partial l}$, the second part of the effective wage. The magnitude of $\frac{\partial \pi}{\partial l}$ will

generally not be known, but its sign can be determined. $\frac{\partial \pi}{\partial l}$ should be negative, since more leisure would mean less hours worked and less profits.⁸ It follows then that the self-employed worker will

have a higher hourly wage than a similar hourly worker, i.e., $w^* > w$, because $-\frac{\partial \pi}{\partial l} > 0$. This is

irrespective of the level of profits.

The self-employed individual will have two choices, to work as an hourly worker or to start a business. The self-employed will be indifferent between the two employment situations, $w^*=w$,

only if $\frac{\partial \pi}{\partial l} = 0$ and $\pi \geq 0$

Replacement Cost Model

The opportunity cost model above gives the conditions when the standard replacement cost model for the self-employed is appropriate. The two models will only coincide when $w^*=w$. The replacement cost solution for estimating damages for a self-employed worker is to assume either $\pi = 0$ or that π is independent of the labor choice. The economist appropriately could then use hourly wage rates for a comparable position to calculate w^*T . The market wage (w) can be obtained from a number of sources, such as the *Occupational Outlook Handbook*. Under these conditions the replacement cost method will give the equilibrium earnings capacity results. In the event that $\pi > 0$ or that marginal product of K is positively related to L , the replacement cost method will be a lower bound for the self-employed loss, given the results from the last section.

This method is particularly useful if the self-employed worker does not go out of business because of the injury. If the business continues to operate with the self-employed working in some

capacity and if capital stays intact, $\frac{\partial \pi}{\partial l}$ may not be lost. Because the firm is already paying to replace labor, wT compensates for the true loss. If the firm should fail, as may be the situation in many death cases, the replacement cost method will be useful in setting a lower bound for the loss.

Pecuniary Externalities Model

The full income methods all directly adjust for one major pecuniary externality that the self-employed individual enjoys, namely the ability to shift time to its best uses.⁹ These methods still do not correct for other externalities available to the self-employed, such as the ability to shift wage income into the future to avoid current taxes.

These externalities can be incorporated into the model by adding an additional variable to the budget constraint:

$$(10) \quad wT + \pi(L, K) \frac{\partial \pi}{\partial L} + rK = pX + wl + E(l, t, z)$$

$E(l, t, z)$ represents the pecuniary externalities which can be purchased by the self-employed. In most situations these externalities undervalue reported earnings on tax returns for the self-employed because they are purchased pre-tax. E can be a function of leisure (l), taxes (t) or other factors (z), such as the ability to hire other members of the family in one's business.

The new equilibrium condition becomes:

$$(11) \quad \frac{\frac{\partial U(X, l)}{\partial l}}{\frac{\partial U(X, l)}{\partial X}} = \frac{w - \frac{\partial \pi}{\partial l} + \frac{\partial E}{\partial l}}{p} = \frac{w^{**}}{p}$$

or again the wage becomes:

$$(12) \quad w^{**} = w - \frac{\partial \pi}{\partial l} + \frac{\partial E}{\partial l}$$

Where $\frac{\partial E}{\partial l} < 0$, because the less one works the less likely there is a need or opportunity to produce these externalities. For example, when E is the ability to shift current tax liabilities into the future $\frac{\partial E}{\partial l}$ will be negative. This occurs because as hours worked decline and leisure increases, taxable income declines. With less income the tax benefits of shifting decline.¹⁰

Historically, the reported w^{**} , wage rate with externalities as measured by earnings capacity, has been less than w (replacement cost wage) as can be seen in Figure 1.¹¹ However, when $\left(-\frac{\partial \pi}{\partial l} + \frac{\partial E}{\partial l}\right) > 0$ as the model suggests, actual w^{**} must be greater than w . If this were not the case an individual would maximize utility by returning to the work force and would no longer be a proprietor.

The paradox: "Why should self-employed workers stay self-employed when they could earn more as an hourly worker?" This question can be resolved using the pecuniary externality model to explain this apparent contradiction. If $\left|\frac{\partial E}{\partial l}\right| > \left|-\frac{\partial \pi}{\partial l}\right|$ then it will appear that the self-employed worker is making a lower wage rate when in fact the total return to labor with the externality is higher. This explains the fact that proprietor's income is always reported as less than that of hourly workers, even though a proprietor should be able to return to the workforce and receive the same wage as hourly workers.

Nonpecuniary Benefits

One reason a proprietor's income is less than a worker's income is that the self-employed can use these externalities as legal tax shelters (t) against other income. The self-employed are twice as likely not to have health insurance and were more likely to be covered by another household member's policy (Hamilton 2000). It is not unusual to use business losses to offset one household member's income, since it is that member's income and benefits that allow the other partner to be self-employed. The tax offset aspect of self-employment shelters the decedent spouse's sheltered income and it is that shelter which is forever lost upon the death (or permanent separation from the labor market) of the decedent. The greater the surviving spouse's income the more valuable is this component of self-employment losses.¹²

All household members may share in the non-pecuniary benefits of self-employment. Since the self-employed earn less than if they worked in the paid labor market, the increased quality of life must at the minimum offset the lost earnings the decedent forfeited by not working for someone else. The decedent and his or her spouse have revealed that they are willing to accept less income from the decedent for the additional quality of life brought to the household.¹³ The quality of life loss to the survivor can be measured by the income the decedent could have earned in the paid labor market. The increase in the quality of life that the household accepted as a tradeoff for the reduced self-employment income of the decedent is forever lost.

The decedent's household accepted the decedent's lower self-employment earnings because both members of the household realized that if the decedent's spouse became disabled, injured, unemployed or simply wishes to leave the labor force the self-employed spouse could enter the paid labor market and earn a higher income and receive benefits. The death of the decedent precludes this economic option from occurring in the future. Thus, a measurable economic loss occurs for the survivor.

For the survivor or permanently injured businessperson to continue operating the business, employees must be hired at the market wage rate plus fringe benefits. The managerial functions provided by the self-employed also would have to be replaced. This can be accomplished by hiring additional managerial personal or, at the minimum, paying a premium wage for a replacement worker with managerial skills. Since these replacement costs did not exist prior to the death, the survivor should be able to recover them. This is especially important since a regular paid employee would not accept the non-pecuniary benefits that the decedent accepted.

An opposing economist might argue that since the decedent's sole source of labor income was derived from self-employment, that also should be the basis for future income. The opposing economic expert might argue that since tax returns show a small profit (or a loss) the economic damages to the survivor are small. This argument ignores all non-pecuniary self-employment benefits that tax returns do not capture. More importantly, it ignores all future earning capacity. But for the death, the decedent could have worked for someone else if he or she did not think the non-pecuniary benefits received by the household were worth the reduced income due to self-employment. Estimating future income strictly on past tax returns is actually doing what the courts forbid. That is, speculating that the decedent would continue to operate their business at a loss (or earn a small profit) forever. Given the average life of a small business this would be highly unlikely.

Arguing that the decedent would not operate the business forever or that the business might go bankrupt raises the issue of what would the decedent do if they were no longer self-employed? Would the decedent work at a minimum wage job or stay in the occupation which he or she has the most experience and marketability?

The earning capacity approach can be criticized because some experts go too far and speculate what an individual's earning capacity would be. For example, if a very bright high school student was injured and the family claims he wanted to be a medical doctor, then a speculating economist might use an income of \$250,000 per year as the basis for the loss. That, alone, is insufficient and the court would find this to be speculative. Another example is when a very good athlete is injured or killed and the family says he would have become a professional athlete earning millions of dollars. This kind of speculation about future earning capacity is usually rejected. However, if the earning capacity is reasonable and non-speculative courts will accept it. A court has little reason to reject earning capacity on the grounds that it is speculative if a person goes into the

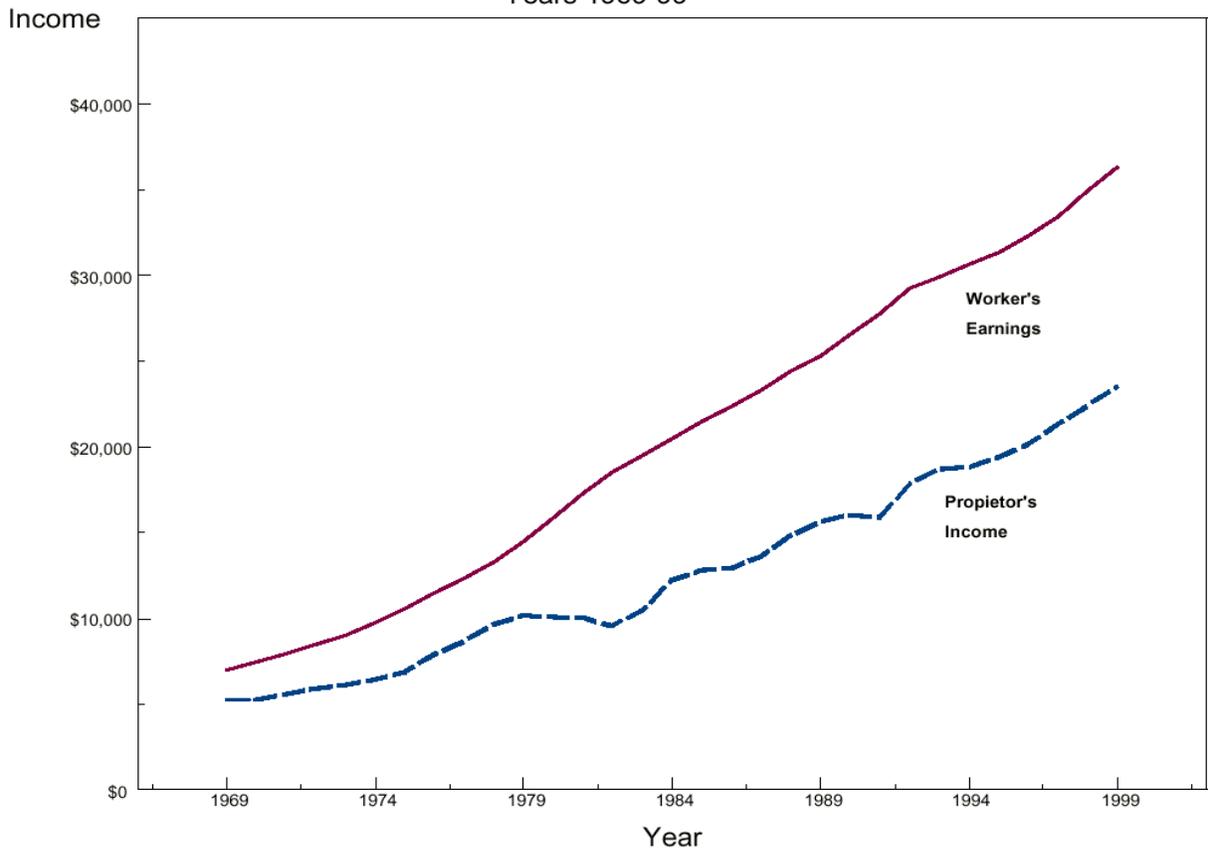
same occupation in which they operated a business provided there is a demand for that labor and they have the necessary skills.

Conclusion

If a self-employed individual is permanently disabled or dies, an economist must obtain an appropriate wage rate to value their loss. This is a difficult task, because the self-employed only provided taxable income with no way of detangling the number of hours worked and the wage rate. Without the correct wage rate, an earning capacity or full income model cannot be calculated.

This paper uses a full income model, in the Becker style, to examine the issues involved with obtaining the wage rate for the self-employed. The results of these models rank the wage relations such that $w^* > w > w^{**}$. Where w is the replacement cost method, w^{**} is the estimated wage rate when externalities are given and represented as taxable wage income. The true wage as measured by the individual's marginal product of labor when externalities are not involved is w^* . Using the taxable wage rate to estimate losses will underestimate the loss because the value of the externality is not included. The replacement cost method also underestimates the loss when labor enters the production function and profits are positive. In each of these cases the individual's preferences have been kept constant. Moving to a full income or earning capacity model does not solve the problem the forensic economist is facing. The underlying problem is one not of full income or hours worked but rather that of determining the most appropriate wage rate in any given case. To make that decision the economist must know more than what is on the tax returns.

Figure 1
A Comparison between Proprietor Income and Worker's Earnings
Years 1969-99



References

- Becker, Gary S. 1965. A Theory of the Allocation of Time. *The Economic Journal* 75: 493-517.
- Brown, Ralph J. 1995. Loss of Earning Capacity in the Case of a Farmer. *Litigation Economics Digest* 1(1):. 1-11.
- Hamilton, Barton H. 2000. Does Entrepreneurship Pay? An Empirical Analysis of the Returns to Self-Employment. *Journal of Political Economy* 108(31): 604-631.
- Horner, Stephen M. and Slesnick, Frank. 1999. The Valuation of Earning Capacity Definition, Measurement and Evidence. *Journal of Forensic Economics* 12(1): 13-32.
- Ireland, Thomas. 1999. Lost Earning Capacity vs. Expected Lost Earnings in Wrongful Death Analysis. *The Earnings Analyst* 2: 73-86.
- Ireland, Thomas. 2001. Categories of Time Use for Forensic Economics. *Journal of Forensic Economics* 14(1): 23-34.
- Krueger, Kurt V., Ward, John O., and Albrecht, Gary R. 2001. Introduction to the Whole Time Concept. *Journal of Forensic Economics* 14(1): 3-8.
- Novko v State of New York*, NY App. Div. 3d 2001
- Rodgers, James D. 2001. The Whole Time Concept in the Context of a Becker Utility Function. *Journal of Forensic Economics* 14(1): 9-22.
- Romans, Thomas J. and Floss, Frederick G. 1997. Measuring Economic Loss for the Self-employed: The Role of Economic Rents. *Journal of Legal Economics* 7(2):1-14.
- Romans, Thomas J. and Floss, Frederick G. 1989. The Evaluation of Homemaker Services: Replacement Cost, Opportunity Cost or Something Else? *The Journal of Forensic Economics* 2(2): 61 - 65.
- Wolfson, Melville Z. 2001. Is Leisure Time Worth More than Working Time? *Journal of Forensic Economics* 14(1): 35-36.

1. The figure uses data on proprietor's income from the Bureau of Economic Analysis, REIS which adjusts IRS data to take into account under-reporting by proprietors. See Footnote 17 in REIS for the definition of proprietor's income.

2. The forensic expert is not opining on causation but rather only the loss to the survivor resulting from the death, or injury of his spouse. This paper will just refer to death without reference to

whether it was wrongful or not or whether an injury is permanent or total disability.

3. Novko (2001) faulted the plaintiff for not taking into consideration the plaintiff's occupation while trying to establish earning capacity.

4. Median earnings for an entrepreneur are always less than the predicted starting wage working as an employee. These wages are thirty-five % less than the predicted alternative wage in the paid labor market after ten years of employment (Hamilton 2000).

5. He maintains that when dealing with self-employed insurance agents or consultants, business tax returns are a more appropriate measure of earning capacity.

6. It should be noted that wT is an economic concept and not a legal concept that is used in a court of law.

7. This assumes that there is a single wage rate for all work, and therefore avoids the problems of the appropriate wage rate to use for overtime, household services and leisure. It also assumes that a composite price or index is constant and independent of leisure. These problems will continue to occur in the self-employed model and are beyond the scope of this paper. For more on these issues see Romans and Floss (1989), Wolfson (2001) and Ireland (2001).

8. Another way to see this result is to note that $\frac{\partial \pi}{\partial L}$ is positive or one would not work additional hours. Noting that l and L are inversely related shows the above result.

9. This is true in the model since we have assumed that there is a single w for all hours.

10. Note $\frac{\partial E}{\partial l}$ may be positively related to leisure in future periods when the tax benefits are being spent but that will not effect the determination of the current equilibrium.

11. Data from figure 1 is from Bureau of Economic Analysis, REIS where workers receive wages plus other labor income or earnings per capita and proprietors receive proprietors' income per capita.

12. If the spouse's income were high enough to push the family into a higher marginal tax bracket then there would be even a greater loss.

13. Ireland (1999) discusses the revealed preference theorem with respect to what he calls excess earning capacity.