

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

ERIC ELDRED, ET AL.)	
)	
Plaintiffs,)	
)	
v.)	Case No. 1:99CV00065 JLG
)	
JANET RENO)	
)	
Defendant.)	
)	

AFFIDAVIT OF HAL R. VARIAN

I, HAL R. VARIAN, make oath and say as follows:

1. I am the Dean of the School of Information Management and Systems at the University of California, Berkeley. I hold joint appointments in the Haas School of Business and the Department of Economics and occupy the Class of 1944 University Professorship. I received my S.B. degree from MIT in 1969 and my M.A. and Ph.D. from UC Berkeley in 1973. I have published numerous papers in economic theory, econometrics, industrial organization, public finance, and the economics of information technology. I have been asked by the plaintiffs to provide my opinion on the extent to which the term extensions provided by the Copyright Term Extension Act of 1998 provide additional economic incentives to authors to produce creative works.

2. The decision to invest in producing a creative work is influenced in part by economic considerations. Investing time and money now produces a cash flow in the future, so one must trade off the time and money invested now with the potential returns in the future.

3. In my opinion, extending current copyright terms by 20 years for new works has a tiny effect on the present value of cash flows from creative works and will therefore have an insignificant effect on the incentives to produce such works.

4. In my opinion, there is no economic rationale for applying copyright extension to pre-existing works. The incentives to produce these works are those that existed at the time of creation. If these incentives were deemed adequate at the time, there is no additional social benefit from extending them retrospectively. I base these opinions on the following.

Present Value

5. The economic concept of "present value" offers a way to evaluate future cash flows. If the rate of interest is 10 percent per year, one dollar invested today has a "future value" of \$1.10 next year. Conversely, \$1.10 next year has a "present value" of one dollar today, and \$1 next year has a "present value" of $1/1.10 = .91$ today. Said another way, 91 cents today will grow into approximately \$1 next year at a 10% rate of interest. One dollar invested today will grow to $1.10 \times 1.10 = 1.21$ in 2 years; hence \$1.21 delivered two years from now is equivalent in present value to \$1 today, and \$1 in two years is equivalent to approximately $1/1.21 = 83$ cents today. More generally, \$1 today grows to $(1+r)^n$ in n years, so that \$1 in the future has a present value of $1/(1+r)^n$ today.

The Value of an Investment

6. At a 10 percent rate of interest, the present value of \$1 dollar received 50 years from now is about 0.0085 dollars, or less than 1 cent. This means that an investment that requires spending more than 1 cent now in return for a dollar 50 years in the future is not attractive from an economic point of view.

7. Most investments return a stream of payments rather than a single lump sum payment at some future date. To calculate the present value of such a stream, we must add up the present values of each individual payment for the year when it will be received

8. As an example, can calculate the value of \$1 received each year for 1-50 years and for the subsequent 51-75 and 76-95 years by summing up the present values of each of these receipts. The following chart summarizes the results of such a calculation, assuming four different interest rates.

Interest Rate	TIME PERIOD		
	1-50 Years	51-75 Years	76-95 Years
.05	\$18.26	\$1.23 (7%)	\$.32 (2%)
.07	\$13.80	\$.40 (3%)	\$.07 (0.5%)
.10	\$9.92	\$.08 (0.8%)	\$.01 (0.1%)
.12	\$8.30	\$.03(0.3%)	\$.00(.00%)

9. At a 10% rate of interest, the present value of the cash flows 51-75 years in the future is .08 cents—or about 0.8% of the value of the cash flow in the first 50 years (since $.08/9.92=0.0081$). The present value of the cash flows from 76-95 years is about 1 cent today—or one tenth of a percent of the value of the cash flow in the first 50 years.

Application to Copyright Extension

10. The above calculations show that the value of investment returns after 50 years in the future has a minuscule present value compared to the early returns. Hence the value of the cash flows during these later periods has a tiny effect on the present economic incentives to invest in creative works.

11. The above calculations are conservative in at least three respects. First, we have assumed a constant cash flow during the entire period under consideration. For most creative works, the earnings in the out years are much, much smaller than the earnings in the near years. Second, we have assumed that the cash flows will be delivered with certainty, even 50 years in the future. In reality, the cash flow associated with creative works in the future is uncertain. It is plausible to assume that the risk increases the further into the future we look, so the expected present value of money delivered in the distant future is even smaller than indicated by the above calculations. Finally, even in the near years, the returns to creative works tends to be relatively risky; interest rates of 10-12% are on the low side for evaluating such risky investments.

Effect of Extending Copyright Term on Already-Created Works

12. Paragraphs 10 and 11 have examined the economic incentive to produce creative works. If the work is already created, then there is no incentive effect at all from lengthening the term of protection. When the work was created the author may have been concerned with the length of the copyright term since it affects the present value of the stream of returns from the author's investment in creating the work. However, once the work has been created, there are no incentive benefits from extending the term. No matter how long we extend the copyright term, we won't get any more works produced by Charles Dickens.

SIGNED UNDER THE PAINS AND PENALTIES THIS ____ DAY OF JULY, 1999.

Hal R. Varian