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4 **IN THE CIRCUIT COURT OF KANE COUNTY**
5 **FOR THE SIXTEENTH JUDICIAL DISTRICT OF ILLINOIS**

6 **FRANK CELAREK, Individually and as**)
7 **Father and Next Friend of EMILY**
8 **CELAREK,**

No. L KA 99 140

8 **Plaintiffs,**)

9 vs.)

AFFIDAVIT OF GARY R. SKOOG,
Ph.D.

10 **RUTLAND TOWNSHIP, DUNDEE**)
11 **TOWNSHIP, RUTLAND?DUNDEE**)
12 **TOWNSHIPS FIRE PROTECTION**)
13 **DISTRICT, DENNIS DEMES, and LYNN**)
14 **M. SCHMIDT as Mother and Next Friend**)
15 **of MICHELLE SCHMIDT, a Minor,**

Defendants.)

15 GARY R. SKOOG, Ph.D., being duly sworn, testifies as follows:

- 16 1. My name is Dr. Gary R. Skoog.
- 17 2. I am a principal of Legal Econometrics, Inc. an adjunct faculty member at De
- 18 Paul University in Chicago and at the University of Missouri-St. Louis, and have attached a
- 19 copy of my curriculum vitae for the Court.
- 20 3. I have familiar with the worklife expectancy tables published by Vocational
- 21 Econometrics, Inc. (VEI) and Dr. Anthony Gamboa, Jr. (Gamboa).
- 22 4. For several reasons, Gamboa's tables are not considered reliable or valid.
- 23 5. VEI and Gamboa have published, 1987, 1991, 1995 and 1998 versions of what
- 24 they call "worklife expectancy" tables for persons with and without a disability. This concept
- 25 differs from the generally accepted definition of "worklife expectancy" as used by the Bureau
- 26 of Labor Statistics and in the forensic economics literature.

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2 6. Gamboa's tables purport to quantitatively differentiate disabled from non-
3 disabled worklife expectancy; to my knowledge the method used to derive these tables has not
4 been replicated in whole or in part by any independent researcher not connected with VEI.

5 7. While I have no reason dispute that the Gamboa tables used data from the March
6 Income Supplement and the core Current Population Survey (CPS) to produce the 1998 or 2002
7 worklife expectancy tables, this does not imply that the data and the their use by VEI justify the
8 distinction between disabled and non-disabled persons or can be used to compile Tables which
9 are valid or have any substantive use. Bad uses may be put to data which is suitable for other
10 purposes.

11 8. I have written an article in 1999 with David Toppino which has been editorially
12 reviewed through standard academic procedures and published in the Journal of Forensic
13 Economics that is highly critical of the methodology employed in these tables. Many of the
14 points of our original 1999 article were later made and published independently by Dr. Thomas
15 Hale ("Hale," below), a senior economist in the Bureau of Labor and Statistics.

16 9. Hale's detailed explanation of why Gamboa's tables are invalid includes the
17 statement that "conclusions by researchers about the employment rate trend for person with
18 disabilities and the underlying causes are not valid," a point we also made.

19 10. The major fatal flaws in the Gamboa tables may be summarized by three
20 technical terms in econometrics and statistics, which will be explained below: sample selection
21 bias, heterogeneity and lack of exogeneity. This terminology was presented in a public forum in
22 Reno, Nevada in May, 2001 in which Gamboa appeared, and borrows from a joint paper co-
23 authored by Dr. Ciecka, Dr. Rodgers and myself, presented at the American Economics
24 Association meetings in Atlanta January 5, 2002. Where present or believed to be present on
25 theoretical or subject matter grounds, economic statistics and econometrics must acknowledge
26 and correct for these problems. The Nobel Prize in 2000 was awarded to Professor James
27 Heckman, in part for his work in the area of sample selection bias and its correction.

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2 11. The first point is sample selection bias – if a sample is not random, inference which
3 does not correct for lack of randomness is flawed. Here, a **subset** of the underlying entire
4 Current Population Survey (“CPS”) sample (and the entire CPS is close to random, with
5 “weighting” corrections), those who self-report that they have a “health problem or disability
6 which prevents them from working or which limits the kind or amount of work they can do” or
7 “who ever retired or left a job for health reasons” or who received a Veterans Administration
8 disability is the definition of “non-severe disability” is used. This is **not** a random sample of
9 those with any kind of impairment or condition, since it will over-sample those with a work-
10 related problem. Consequently the measurement of the probability of a work-related outcome,
11 specifically whether or not one is participating in the labor market and is also employed, will be
12 biased, because those with a similar impairment or condition for whom there is no such “work
13 limitation” will be under-represented in this nonrandom sample. In less careful words, the very
14 definition of “work disability” is partially statistically circular.

15 12. Several researchers, including Dr. Skoog and Toppino, Dr. Hale, Dr. Hamel, and
16 the Ciecka-Rodgers-Skoog authors, have made this point, which may be paraphrased by asking,
17 “if you do not identify those for whom the impairment or condition is **not** work-limiting, how
18 can you ever hope to estimate the effect of the impairment?”. If one polls a group of attendees
19 at a meeting and takes a vote about whether a different location is preferable, the sample will
20 hardly be representative of the general membership, which will include those who could not
21 attend at the present location.

22 13. The population of those with an impairment which is not work-limiting was not a
23 part of the sample design of the CPS because the CPS was not designed to study disability.
24 Rather, disability status was of interest as a source of income, a chief research focus for the
25 CPS. Other U.S. government funded studies are more directly interested in studying disability,
26 notably the Survey of Income and Plan Participation (SIPP) and the Health and Retirement
27 Study (HRS).

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2 14. Even if a sample selection correction could be made, the population of those with
3 a specific impairment, as the plaintiff's in this particular case, is very diverse, or heterogeneous.
4 Because of this heterogeneity, and without seeing the data which groups the U.S. population
5 into "equivalence classes" of those with a similar impairment or condition, it would almost
6 certainly be more appropriate to require that any departure from average worklife expectancy
7 for an individual be first established with specific medical and vocational scrutiny and opinion.
8 Only after such departures are firmly established does it make sense to attempt estimation, and
9 it is quite likely that it will not be possible to reliably and validly create a table.

10 15. The lack of exogeneity of declaring oneself in a disabled state with respect to
11 statistical disturbances in the equation in which employment probabilities are estimated is a
12 third econometric problem which renders the Gamboa tables unsuitable for making probability
13 of labor force participation calculations. Economists have recognized "simultaneous equations
14 bias" for about 75 years: for example, prices and quantities are jointly determined in a system,
15 and regressing quantity on price does not generally properly estimate either the supply curve or
16 the demand curve, but an uninterpretable mixture. In this case, the statistical error in the
17 equation determining the probability of employment will generally be correlated with the
18 decision to declare oneself "disabled", because one has chosen not to seek employment and
19 wishes either to rationalize that decision or to collect disability payments. The latter mechanism
20 is known as a "feedback equation" and, like the supply equation in standard economics,
21 generally renders invalid the statistical procedure of estimating, by averaging or regression, an
22 employment equation, as is done in the Gamboa tables. To be valid, special conditions must be
23 in force; it is incumbent on the proponent to make that argument, theoretically or empirically.
24 The Gamboa tables have not, to date, even recognized this as a problem. Again, Nobel prizes
25 have been associated with resolving these issues – Trygve Haavelmo (1989) and Tjalling
26 Koopmans (1978).

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2 16. The CPS provides no procedure to verify or certify the disability status – it is
3 self-reported, by the subject or family member; it is inferred rather than the subject of a direct
4 question; and it is inherently ambiguous, points made by several researchers cited above.

5 17. The Gamboa tables' definition of "not severely disabled" does not distinguish
6 between a permanent disability and temporary health concerns, and may even include previous
7 problems from jobs in the distant past. Its definition of "not disabled" assumes the subject
8 never will become disabled, an assumption which is manifestly inappropriate economically or
9 legally.

10 18. In writing his affidavit, John McNeil overlooked other evidence in his own
11 professional work which points to reliability and validity problems for the March supplement
12 disability data. At a 1993 conference he suggested that persons with an impairment might
13 answer inappropriately because of their perceptions of environmental considerations – they
14 might be able to work but blame their nonparticipation on lack of transportation to work. Thus
15 the measurements would not be valid indicators of ability to work. In 1998 McNeil ran
16 reliability tables, to check the consistency of responses in the SIPP survey, regarded by most
17 disability researchers as the "gold standard." Versions of these unpublished tables have been
18 distributed – this affiant received his from Dr. Hale. Mr. McNeil also published versions of
19 these reliability studies in his Western Economics Association paper referenced in his affidavit.
20 About 14% of those with a work disability no longer had the work disability in the next period,
21 and about 50% of the blind had regained their sight a year later. These findings reflect either
22 high transition probabilities between disability states, contradicting the Gamboa Tables, or
23 great difficulties with survey data reliability in the health questions. Mr. McNeil wrote in his
24 Western paper that "the major conclusion of this paper regarding measurement over time of the
25 employment status of individuals with disabilities is that there is currently no satisfactory
26 vehicle for producing such a measure." One such vehicle ruled out is the CPS, whose disability
27 data would, if anything, be less valid and reliable than the SIPP. These appear to be reasons
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against using CPS data for disability worklife table construction, among others. Additionally, since worklife tables have been published by another government agency, by demographers rather than statisticians, we note that Mr. McNeil did not offer the opinion that the CPS tables could be so used. Apparently he offers no professional opinion on the subject.

19. For all the foregoing reasons, the great preponderance of experts in the field of forensic economics who have looked at this matter have concluded these tables are utterly unreliable and are ill-suited for the determination of worklife expectancy of the disabled. They are not generally accepted by competent and reputable forensic economists and are used by very few economists at all. Their primary users are associates of Vocational Economics, who like Dr. Gamboa have little or no training in PhD level economics, and so are not qualified by education or training to serve as economics experts, whatever their vocational training.

20. The testimony in this case demonstrates the unreliability of the use of these tables, beyond their lack of validity. Different experts using the same facts applying the methodology of The Tables have reached different conclusions. Rather than merely reflecting a difference of expert opinion, what is demonstrated here is the lack of reliability of the method itself – the hallmark of scientific method – two different experts cannot even agree on how to use The Tables, and their creator does not take them at face value.

21. The proper analysis of worklife of those with a disability is on a case by case basis after a careful consideration of the individual, incorporating optimizing and purposeful behavior for that individual, because the effects of disability are so individual-specific; an average or typical individual may be properly analyzed with reference to a life or worklife table of the larger entire population.

22. If an impairment limits the jobs an individual can perform, that individual is certainly no better off, but may be no worse off, economically, if the optimal jobs before and after the impairment are substantially the same. Labor market access does not equate to earning capacity.

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Further Affiant sayeth naught.

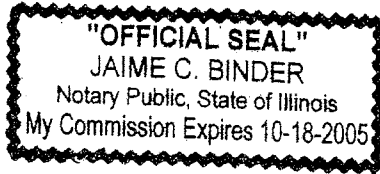
DATED this Sixth Day of December 2002.

Gary R. Skoog
GARY R. SKOOG, Ph.D.

STATE OF ILLINOIS)
 : ss.
County of Cook)

This instrument was acknowledged before me on this 6th day of December 2002, by
GARY R. SKOOG, Ph.D.

(SEAL)



Jaime C. Binder
Notary Public for the State of Illinois
Printed Name: Jaime C. Binder
My commission expires: _____