

**“Sample Selectivity Bias of the U.S. Chamber of Commerce Employee Benefits Study”**

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**Abstract**

The United States Chamber of Commerce Employee Benefits Study presents annual fringe benefit information that U.S. employers provide to their workers. Forensic economists use this study to estimate fringe benefit losses. This paper demonstrates that the selectivity bias from the sample of firms responding to the Chamber’s survey questionnaire raises serious issues about the reliability of the Employee Benefits Study for litigation purposes.

**Introduction**

Fringe benefit losses are one component of the economic damages that forensic economists estimate.<sup>1</sup> A forensic economist may decide to use fringe benefit survey data when the plaintiff cannot provide information about fringe benefits or when legal constraints prevent obtaining that information in a timely fashion. Survey data may also be used when estimating fringe benefit losses of a child or a young person without a solid work history, or when individuals without labor market experience enter and re-enter the labor force. If an individual’s pre-injury fringe benefit record is not a valid indicator of the value of lost fringe benefits over a working career, then survey data can be used. It has been suggested that the Chamber of Commerce study is appropriate to use when survey data are required.<sup>2</sup> The purpose of this paper is to demonstrate that, when a forensic economist decides to use survey data, the United States Chamber of Commerce Employee Benefit Survey (EBS) ought to be avoided.

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The Chamber's EBS provided odd year data on employees' benefits from 1951 through 1977<sup>3</sup> and annual data since 1978.<sup>4</sup> Prior to 1987, the Chamber was the only study showing annual fringe benefit data for retirement and health care (Slesinger 1992). It was not until 1987 that the Department of Labor's Employee Cost Index (ECI) published annual data on social security, pension and insurance fringe benefits.<sup>5</sup> Electronic technology in the 1980's and 1990's did not allow instantaneous access to government data, as it does today. Unless an economist was engaged in labor economic research, he might not know of, or have access to, this new government data.<sup>6</sup> Purchasing the Chamber study became more efficient. Given today's electronic technology, a forensic economist would be hard-pressed not to have access to current data.

During the early years of the profession,<sup>7</sup> Forensic economists used the Chamber study. One could not be faulted for concluding that, if the Chamber's study was good enough for *The American Economic Review*, *The Review of Economics and Statistics*, and *Industrial and Labor Relations Review*<sup>8</sup>, then it should be good enough for a practicing forensic economist.<sup>9</sup> Brookshire, Luthy and Slesnick (2006) surveyed Forensic economists by asking for their favorite source for fringe benefits data. Their findings concluded that "two sources were given in almost all of the responses, and respondents appear evenly split between the two: the Bureau of Labor Statistics (BLS) Employer costs for employee compensation and the U.S. Chamber of Commerce fringe benefits survey."

Franz, Maglietti and Kalich (1992) evaluated both the Employer Cost Index (ECI) and the Employee Benefit Survey (EBS) and preferred the ECI because its sample population was controlled and the results were released to the public almost one year in advance of the EBS.<sup>10</sup> They found the voluntary nature of compliance of the EBS problematic, resulting in a lack of control for the survey. Thornton (1990) also warned that the Chamber study was not nationally representative.

Both the ECI and the EBS provided fringe benefits as a percent of employee costs. For example, the 2006 Chamber study stated that 10.89 percent of all compensation by the 374 companies that responded to the survey went for medical insurance premiums. While a forensic economist would be inclined to use the 10.89 percent as a proxy for medical insurance losses, using a percent for medical insurance can be problematic regardless of the source. Medical insurance is a quasi-fixed labor cost;<sup>11</sup> that is, it is like a fixed cost in that it does not matter how much income an employee earns or how many hours he works: the cost is fixed per employee. Suppose it costs a firm \$5,924 per employee for medically related benefits<sup>12</sup> and an employee

earns \$25,000 a year. Then 10.89 percent is \$2,723, or less than half the firm's cost of \$5,924. If an employee earns \$55,000 a year, then 10.89 percent is \$5,990, more than the firm's insurance premium. If an employee earns \$100,000, then the lost medical component would be significantly more than the firm's cost. In all three examples, the cost for insurance is constant, yet compensation for medical insurance losses varies by income. The proper method is to estimate employee pre-incident medical costs and subtract that from post-incident medical costs. The difference is the loss to the plaintiff.

The issue is not whether the EBS and ECI are similar.<sup>13</sup> The issue is the imperative need to choose an unbiased data set in order to withstand challenges by the opposite side in litigation.

### **Selectivity Bias**

The selectivity bias of the Chamber study was due to its data collection methodology. The Chamber survey was sent to Chamber and non-Chamber members who voluntarily responded, as well as to those firms or individuals who previously purchased the study.<sup>14</sup> The Chamber's website also solicited firms to fill out the survey.<sup>15</sup> Thus, the select group filling out the survey may not have been representative of the population of interest, nor was it randomly selected.

The Chamber clearly stated its study should be used to benchmark benefits for competitive purposes. Nowhere did the Chamber suggest or imply its use for litigation purposes. The Chamber does not claim to be unbiased in representing its members. In addition to the Chamber's mission<sup>16</sup> to fight for business in Congress, regulatory agencies, courts and the White House, the Chamber tries to influence the legal system with respect to American business through the National Chamber Litigation Center (NCLC).<sup>17</sup> The Chamber is very clear in its attempt to get pro-business candidates elected to public office who support its agenda.<sup>18</sup>

The self-selection bias issue of participants becomes important given the Chamber's mission. What motivated participants to take part in or to ignore the survey? Did participants support Chamber lobbyist assertions that federally mandated fringe benefits are too high? Perhaps they wanted to show that business medical insurance costs are excessive in order to support medical malpractice tort reform. Or participants might have wanted to show that pension costs are prohibitively expensive in order to support the Chamber's efforts for pension reform to lower those costs. The non-random nature of the survey as well as the motivational factors that influenced

decisions to participate in the survey raise important issues about using the EBS in litigation. Given the potential damage to the forensic economist (who uses the Chamber Study) during cross examination, one must be very cognizant of the organization that commissioned the study being used to estimate fringe benefits.

### Survey Data

Table 1 shows the number of participating firms (374 in 2006), the number of workers those firms represented and the percent of respondent firms that provided health care and retirement fringe benefits.

TABLE 1				
U.S. Chamber of Commerce Employee Benefit Survey				
Year	Number of Usable Firms	Number of Workers	Percent providing	
			Health Care	Retirement & Savings
1991	1,000	3,700,000	99	84.8
1992	1,008	3,200,000	98	83.8
1993	1,103	2,600,000	97	82.6
1994	1,057	2,600,000	97	83.6
1995	929	2,400,000	98	84
1996	864	2,400,000	96	82.6
1997	802	2,400,000	97	86.7
1998	No Survey in 1998			
1999	619	600,000	95	84
2000	532	495,372	97	90
2001	456	787,346	99	96
2002	372	465,746	99	95
2003	372	506,578	98	97
2004	623	805,187	97	91
2005	722	652,949	96	89
2006	374	304,416	94	85

Despite the decline of the sample size between 1991 and 2006, almost all participants in the EBS provided health care benefits (usually in the form of

medical insurance) with a lesser (but still large) percentage providing retirement and savings benefits. Why did most participants in the EBS survey provide these benefits and was this consistent with other studies?

One source of the selectivity bias of the Chamber study was the size of the firm. Larger firms had the resources to gather data and fill out the survey, thus spreading out the costs over a much larger base of workers. Smaller firms did not have the resources to fill out the survey since that would require a reduction of productive work.

The results of an unbiased Chamber survey on fringe benefits should be similar to other studies that randomly chose participants. Two other studies that provided health care fringe benefit data were the Kaiser Family Foundation (2006)<sup>19</sup> and the National Compensation Survey (2006).<sup>20</sup> The Kaiser study, which was based on 3,159 randomly selected firms with three or more employees, showed that 61 percent of firms offered health benefits as compared to 94 percent in EBS. The National Compensation Survey (NCS) study, which surveyed 10,370 firms representing 105 million workers, showed that 62 percent of private establishments offered health insurance to their workers. This was consistent with the Kaiser study but significantly less than the 94 percent claimed by the Chamber of Commerce study.

The 2006 Chamber study showed that 85 percent of participating companies offered retirement benefits to their employees compared to 48 percent that offered at least one type of retirement plan in the National Compensation Survey (NCS).

The NCS showed benefits increasing dramatically for firms employing more than 100 workers. Health care increased from 62 percent to 96 percent and retirement benefits increased from 48 percent to 90 percent. Since NCS health care and retirement benefits increased dramatically for larger firms, smaller firms had to provide benefits at a significantly lower rate if the total was smaller.

The 2006 Chamber study showed that 94 percent of all firms provided health benefits while 85 percent provided retirement benefits. Fifty-eight percent of Chamber participants employed more than 100 workers; in other words, 159 firms had fewer than 100 employees. Consequently, both large and small firms must provide these benefits. Why did smaller firms in the Chamber study (42 percent of all participants) offer health and retirement benefits at a much greater level than smaller firms in the other studies that randomly chose participants? An explanation is self selection, volunteers

that participated in the Chamber study tended to provide health and retirement benefits. This did not occur in studies that randomly picked participants; thus, these studies showed small firms offering benefits at a much smaller level.

Another problem of bias in the Chamber study was that the Chamber of Commerce participated in its own survey. The non-manufacturing sector had 267 participants. The sub-category called *Trade Association, Business Federations and Chambers of Commerce* had the second largest number of respondents (33) of the non-manufacturing category. Of these, 31 had fewer than 100 employees and 23 of them were Chambers of Commerce.<sup>21</sup> Thus, the higher rates of benefits by small firms in the Chamber study included the sponsor of the survey. Local Chambers would have undoubtedly be willing to pay their employees to fill out the Chambers own survey whereas other small firms did not have the resources to do so.

Recognizing that the Chamber is an advocate for its business members, the selectivity bias of participants and the Chambers of Commerce that fill out their own survey may raise a red flag during testimony in a court of law that results in the appearance of unreliability and speculation.

BLS percent		Chamber Study percent		Percent Difference			
Year of Survey BLS	Health Insurance Premiums	Retirement & Savings	Year of Survey Chamber	Health Insurance Premiums	Retirement & Savings	Health Insurance	Retirement and Savings
1993	10.41	5.52					
1994	9.88	5.59	1994	8.00	6.60	-0.23	0.20
1995	9.22	5.41	1995	7.10	7.20	-0.28	0.29
1996	8.83	5.56	1996	7.10	7.50	-0.23	0.39
1997	8.16	5.42	1997	7.00	6.30	-0.21	0.13
1998	8.04	5.24	1998				
1999	8.02	5.16	1999	5.50	8.70	-0.32	0.66
2000	8.14	5.01	2000	7.80	6.60	-0.03	0.28
2001	8.40	4.85	2001	7.10	7.30	-0.13	0.46
2002	8.95	4.77	2002	7.40	8.00	-0.12	0.65
2003	9.61	4.95	2003	11.60	6.20	0.30	0.30
2004	10.22	5.59	2004	8.50	6.70	-0.12	0.35
2005	10.59	6.09	2005	9.40	8.00	-0.08	0.43
2006	10.89	6.11	2006	10.90	8.60	0.03	0.41
Maximum variation from year to year						Yearly Average	
	35.88%	28.02%		110.91%	40.32%	-11.75%	37.82%

Table 2 compares the Chamber of Commerce study to costs as a percent of wage and salaries from the Employer Costs for Employee Compensation BLS survey. Both show the percent of employee costs for health insurance and retirement and savings.<sup>22</sup> A careful examination of each study may reveal that definitions of medical insurance and retirement and savings are not exactly the same. However, from a practical point of view, this does not matter since a forensic economist using a general statistical average will either choose the percentages in the Chamber or the BLS study. The difference between the percentages of the two studies is critical given the contention of this paper that the Chamber study is unreliable. The BLS study percentages were more stable than those of the Chamber. The Chamber's health insurance cost as a percentage of total cost varied by as much as 110.91 percent since 1993. (The BLS variation was 35.88 percent). The Chamber's retirement and savings varied by 40.32 percent. (The BLS variation was 28.02 percent).

In comparing the Chamber study to the BLS study, the Chamber's medical care percentages' tended to be lower than the BLS's. (On average it was 11.75 percent lower). However, the Chamber study showed that retirement and savings was on average 37.82 percent more than the BLS findings. Since medical care costs are a quasi fixed cost, the lower Chamber costs may not be relevant. However, higher retirement and savings of the BLS data can become important in estimating reliable damage estimates.

Upon deciding to use survey data for fringe benefit losses in a court of law, an unbiased data set of approximately 11,300 sample establishments in private industry and approximately 800 sample establishments in state and local governments appears to be better than an arguably biased and flawed survey of 374 observations.<sup>23</sup>

Additionally, the BLS provides Relative Standard Errors that measure the estimate's reliability<sup>24</sup> while the Chamber does not provide Standard Errors. This, along with a small sample size that is arguably biased, can become an issue under a Daubert challenge,<sup>25</sup> or whether testimony about fringe benefits should be allowed in a state court.

While the Chamber of Commerce study may be helpful for businesses to compare their fringe benefit packages to those of the participants in the study, the EBS has a selectivity bias problem that cannot be ignored by Forensic economists who are trying to use a broad statistical average on fringe benefits. Given the potential problems of the Chamber study, it may be best not to use it for litigation purposes.

## Endnotes

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<sup>1</sup> For a discussion of the theory of estimating fringe benefits see: Woodbury (1983), Scott, Berger and Black (1989), Romans and Floss (1990) (1992), Rosenman (1991) and Ewing, Payne, Piette, and Thompson (2002).

<sup>2</sup> For a full discussion of this issue see: Franz and Aubertin (1990), Launey (1990), Phillips and Fractor (1990), and Rodgers (2002).

<sup>3</sup> Slesinger (1992), Scott, Berger and Black (1989), Long and Scott (1982).

<sup>4</sup> Franz, Maglietti, and Kalich (1992).

<sup>5</sup> The ECI was first published in 1980.

<sup>6</sup> Academic economists would have an advantage in getting these data if their university libraries were a depository for Federal Government documents. Even then, it would require a good deal of time finding them. The practitioner without access to a library that was also a depository would find it much more difficult and thus use the Chamber Study, which is available to anyone who wants to purchase it.

<sup>7</sup> Volume 1 of the *Journal of Forensic Economics*, the first specialized Forensic Economic journal, was September 1987.

<sup>8</sup> Woodbury (1983) compared the Chamber of Commerce study from 1965 and 1978 to the Bureau of Labor Statistics' study of fringe benefits in the years 1966 and 1976. The results were similar and both showed increases of fringe benefits as a percent of compensation. Long and Link (1983) recommended the 1980 Chamber's Employee Benefits Survey to examine fringe benefits by industry. Scott, Berger and Black (1989) used descriptive statistics from the Chamber study as well as unpublished voluntary data on fringe benefits. Long and Scott (1982) used the Chamber survey to bolster their argument about the importance of universal coverage of group health insurance compared to pension plans. Montgomery (1988) used the 1980 Chamber benefits survey for descriptive statistics.

<sup>9</sup> Not all research into fringe benefits used the Chamber's data. Landsea (1994) ignored the Chamber study when he discussed the entire compensation package that include fringe benefits. He discussed the DOL Employment Cost Index study. Clauretie (2002) also did not use the Chamber study for fringe benefits in his empirical work.

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<sup>10</sup> The EBS report is proprietary and is only available for a fee from the Chamber, while the ECI data can be obtained within minutes for free.

<sup>11</sup> Clauretie (2002) alluded to this when he discussed the cost nature of medical insurance in affecting the age earning profiles of workers. Thornton (1990) also alluded to the quasi nature of fringe benefits.

<sup>12</sup> This was the cost in the 2006 Chamber survey.

<sup>13</sup> That is an issue for future research as suggested by Rodgers (2002).

<sup>14</sup> In 2004 I received a letter from the Chamber asking me to fill out the five page survey. In return they would send me the 2005 survey for free, a \$125 value. Since I am not a member of the Chamber and not a registered business but have purchased the survey for the past ten years, I can only assume the chamber sends the questionnaire to people who have purchased the survey which is certainly not a random sample.

<sup>15</sup> Its website <http://www.usChamber.com/research/benefits.htm> lists the names of firms that have participated in the EBS from 2001-2005. At the end of each list, the Chamber makes the following statement: *"If you would like to volunteer to participate in future editions of the study, please e-mail your company name and contact information to ebstudy@uschamber.com."*

<sup>16</sup> See Mission Statement <http://www.uschamber.com/default>.

<sup>17</sup> See <http://www.uschamber.com/nclc/default>, where the NCLC states that it is the *"Public-policy law firm of the Chamber of Commerce of the United States of America - plays a major role in shaping public policy on important legal questions of national concern to American business while achieving long-range improvements in the legal system. NCLC serves its membership by: Challenging - as party plaintiff or amicus curiae (friend-of-the court) - anti-business statutes, regulations, and common law rulings, Providing litigation support to companies involved in landmark cases, Explaining to the media the business community's position on key business cases. Since its inception in 1977, the Litigation Center has participated in more than 1,000 cases as the voice of business in the courts and regulatory agencies. For nearly 30 years, NCLC has represented the interests of the business community in court on issues of national concern. Read our case list and business alerts to learn how current cases [www.uschamber.com/nclc/caselist/active.htm](http://www.uschamber.com/nclc/caselist/active.htm)) and issues affect your business."*

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<sup>18</sup> See <http://www.voteforbusiness.com/>.

<sup>19</sup> See [www.kff.org/insurance/7527/upload/7528.pdf](http://www.kff.org/insurance/7527/upload/7528.pdf).

<sup>20</sup> National Compensation Survey: Employee Benefits in Private Industry in the United States, March 2006. U.S. Department of Labor, U.S. Bureau of Labor Statistics, August 2006. <http://www.bls.gov/ncs/ebs/sp/ebsm0004.pdf>

<sup>21</sup> See <http://www.uschamner.com/NR/rdonlyres/edhhoaxpegmoelyup53dqfhyhpb6xi3poxx2upye43qktjfrbbpjxvj4onem6tesrxrcr7fxzptdjqqhmas5nt52e/2006EmployeeBenefitsStudyParticipantsforweb.pdf>

<sup>22</sup> Since the Chamber study has a one year lag, table 2 compares the results in the year 1994 to the BLS study in 1993. Thus the survey years are comparable even though the publication dates of the studies are lagged.

<sup>23</sup> See Explanatory Notes of the Employee Cost for Employer Compensation for a very detailed explanation of the sample size and over 53,500 occupational observations.

<sup>24</sup> Estimates with large RSE's are considered unreliable. The RSE can be obtained from the BLS shortly after the data are issued at <http://www.bls.gov/ncs/ect/home.htm>

<sup>25</sup> Since the U.S. Supreme Court's ruling in *Daubert v. Merrell Dow Pharmaceutical (1993) (1995)*, district courts have been charged to act as "gatekeepers" ensuring "than any and all scientific testimony or evidence admitted is not only relevant but reliable." (Daubert 1993 at 2798-99) The purpose of the "gatekeeper" is to prevent wrong or misleading evidence from being allowed at trial. The Daubert standard for admissibility of scientific testimony includes (but is not limited to) the following:

1. Whether the theory or technique employed is generally accepted in the scientific community,
2. Whether the theory has been subject to peer review and publication,
3. Whether the theory can be and has been tested,
4. Whether the known or potential rate of error is acceptable, (these four are from *Daubert 1993 at 2796-97*)

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5. Whether experts are testifying about matter growing directly out of research or have simply developed opinions expressly for the purpose of testifying (*Daubert 1995 at 1316-17*).

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