

**AN EMPIRICAL ANALYSIS OF STUDENTS' KNOWLEDGE ABOUT DUI  
(DRIVING UNDER THE INFLUENCE) COSTS TO SOCIETY**

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**ABSTRACT**

*The majority of Americans profess knowledgeable about social issues and their country. Driving is something that almost all students do while in college and will do essentially all their life. While there are some general warnings of the dangers of drinking and driving on some college campuses, I have never heard any professors ever discuss it in either a business or non-business course. Even ethics courses that I have encountered do not talk about the ethical issues related to drinking and driving. The purpose of this study is to examine students' exposure to DUI (driving under the influence) costs and their attitudes about learning these ideas during their educational process. This research is motivated by the recent death of an accounting student, Tara Hardin. The findings of this study may have important implications for incorporating DUI costs and consequences into either accounting or business ethics education. Many schools may consider integrating their curricula with real life applications of business by communicating costs/consequences of DUI.*

**INTRODUCTION**

The majority of Americans profess knowledgeable about social issues and their country. Driving is something that almost all students do while in college and will do essentially all their life. While there are some general warnings of the dangers of drinking and driving on some college campuses, I have never heard any professors ever discuss it in either a business or non-business course. Even ethics courses that I have encountered do not talk about the personal/social costs related to drinking and driving. The purpose of this study is to examine students' exposure to DUI (driving under the influence) costs and

their attitudes about learning these ideas during their educational process.

The survey instrument in great part is based on statistics found on the [www.MADD.org](http://www.MADD.org) website. This study requires students to (1) estimate the personal/social cost of DUI consequences, and (2) describe the extent of their exposure to this information. One university is used to examine the following research questions:

- 1) Are university students knowledgeable or even aware of the social costs related to DUI?
- 2) Is there a difference between students' (in terms of demographics and majors) knowledge and awareness of these costs and consequences?
- 3) Do students believe that these ideas should be taught as a component of their business education?

This research is motivated by the recent death of Accounting student, Tara Hardin. She was innocently returning home from a student activity on campus when her vehicle was hit head-on by a DUI vehicle going the wrong way on Interstate 10. While education cannot bring Tara back to life, her memory can be honored by educational activities designed to prevent these social problems in the future. The findings of this study may have important implications for incorporating DUI costs and consequences into either accounting or business ethics education. Many schools may consider integrating their curriculum with the real life applications of business by communicating costs/consequences of DUI.

#### **DATA GATHERING PROCESS AND THE SURVEY INSTRUMENT**

One university's students were used for this research project. The respondents were specifically students taking classes in the business school of the university. Each student was given a brief background for the study, was asked to complete the demographic information, and then do his/her best to answer the knowledge questions found in the instrument. No reward or punishment was given for right or wrong answers, nor were there any benefits or consequences associated with answering the opinion questions in a certain way. Each survey was complete in an anonymous fashion.

Because the survey took very little time to complete, there was no problem with experimental mortality or maturation effects. An attempt to discern history effects was made with the question related to driving experience. The subjects were selected randomly after the specific university and specific university classes were chosen for the study. There was no possibility of multiple treatment interaction with the experimental design.

The survey instrument is designed to gather the following: 1) basic demographic information, 2) a test of knowledge of DUI costs, 3) respondents' perceptions associated to the degree of confidence in their answers to the questions, and 4) two questions (one yes/no and one why/why not question) about whether they believe that DUI information should be a part of their business education. The answers and survey are shown below.

**SURVEY RESULTS**

Demographic information, school experience, and driving experience results are found in Table 1.

<b>Table 1: Participants' Demographic Information</b>				
<b>Number of Participants:</b> 89				
<b>Usable Responses:</b> 89 (however, there blanks on some questions)				
<u>Student Gender:</u>	<u>Student Classifications:</u>	<u>Majors:</u>	<u>Age:</u>	<u>Driving Years:</u>
Female: 46	Freshman: 0	Acct: 19	Mean: 22.98	Mean: 6.88
Male: 43	Sophomore: 16	GBus: 19	Std. Dev.: 5.78	Std. Dev: 5.08
	Junior: 51	Mrkt: 14		
	Senior: 21	Mgmt: 10		
	Graduate: 1	Fin: 7		
		MIS: 7		
		HR: 5		
		Other: 8		

There is a nice balance with respect to gender and all classifications were represented with the exception of first-year students. A variety of majors were represented within the College of

Business as well as some non-business students. The respondents were college-age on average and had been driving for several years. Therefore, it is likely that they would be familiar with the ideas presented in the survey and interested in the research.

An analysis of the DUI cost/consequences knowledge responses was conducted and the results are provided in Table 2.

Table 2: Students' Knowledge Results with the Survey

Topic	Correct Answer	Mean Answer	Standard Deviation	Minimum	Maximum
<b>Financial Information:</b>					
1) Average fine associated with DUI	\$2,000	\$2,925	12,267	\$200	\$100,000
2) Average cost of an alcohol-related fatality	\$3.1M	\$297,849	988,926	\$200	\$6 million
3) Total annual cost of DUI in United States	\$114 B	\$1.11 B	7.1 B	\$1,000	\$53 Billion
4) Average DUI cost per mile driven	\$5.80	\$17,878	71,388	\$2.00	\$500,000
5) Average cost of care for injured survivors	\$70,000	\$186,513	566,684	\$800	\$3,000,000
6) Total annual costs of DUI drivers under 21	\$21 B	\$1.21 B	7.4 B	\$200	\$53 Billion
<b>Holiday Incidences:</b>					
New Years Eve	8	2.00	1.66	1	8
New Years Day	4	4.61	1.96	1	8
SuperBowl Sunday	5	4.36	1.65	1	8
St. Patrick's Day	6	5.77	2.14	1	8
Memorial Day	3	4.16	1.87	1	8
July 4 <sup>th</sup>	1	6.32	1.52	1	8
Thanksgiving	2	5.89	1.54	1	8
Christmas	7	2.87	2.06	1	8

While the respondents did well in estimating the average DUI fine (Question 1) with respect to the mean, the standard deviation reflects the volatility in the answers. Overall, respondents systematically underestimated the fine. The average of cost of an alcohol-related fatality underestimated on average and, again, the high standard deviation results indicate that there was high variance in the respondents' answers. The largest measure of error in the respondents' results was actually in the estimate of total annual cost of DUI in the United States (Question 3). The difference between the correct answer and the mean response was greater than \$112 Billion! The very large standard deviation also reflects the uncertainty associated with the estimates. Respondents may not have read Question 4 (average DUI

cost per mile driven) carefully, for there were many very large amounts and the respondents significantly overestimated this figure while significantly underestimating the total cost questions in Questions 2 and 3. Again, the standard deviation and the minimum/maximum statistics indicate a high level of volatility in the responses. The respondents' most accurate answers involved the average cost of care for injured survivors (Question 5), yet they overestimated the costs in most instances. Overall, their answers to this question were very close to the correct answer. Finally, respondents underestimated the total annual costs of DUI drivers under 21 again (Question 6). However, their estimates were closer than the overall annual cost responses found in Question 3. The large variances in their responses also indicate a significant level of uncertainty.

Responses related to the order of risk with different holidays were very mixed. Many respondents perceived the July 4<sup>th</sup> holiday as not so risky, yet it is actually the deadliest DUI holiday in the United States. On the other hand, respondents considered New Years Eve to be very risky when, in fact, that holiday precedes the more risky New Years Day holiday. Respondents did well in identifying the medium level risk associated with New Years Day, SuperBowl Sunday, and St. Patrick's Day. Again, the high standard deviations in their responses and the extremes chosen for every holiday (minimum and maximum results) indicate that there was very much uncertainty related to their responses for the holiday risk assessments.

Table 3 provides results of the participants' perceptions related to confidence in their answers.

Table 3: Students' Degree of Confidence Results on the Survey				
(1 = Very Confident, 2 = Somewhat Confident, 3 = Not Sure, 4= Not Really Aware of This Concept, 5= Never Learned This)				
Topic	Mean	Standard Deviation	Minimum	Maximum
1) Average fine associated with DUI	3.14	1.01	1	5
2) Average cost of alcohol-related fatality	3.60	.941	2	5
3) Total annual cost of DUI in United States	3.66	.876	2	5
4) Average DUI cost per mile driven	3.90	.910	3	5
5) Average cost of care for injured survivors	3.70	.934	2	5
6) Total annual costs of DUI drivers under 21	3.71	.921	2	5
7) Holiday order	2.87	.854	1	5

The mean responses indicate that financial facts related to DUI have simply not been a part of these respondents' education, in any aspect of their educational experience. Every mean reflected confidence of either "Not Sure" or "Not Really Aware of This Concept". The most confidence was found in the microeconomic question related to the DUI fine (Question 1) and this was also the question that resulted in the most accurate response. The extremes are noted in the minimum and maximum results; however, it should be noted that many respondents answered "Never Learned This" on the majority of the survey questions. The end-of-survey questions measure the respondents' attitudes about learning these societal facts. "Yes/No" responses and reasons are presented in Table 4. It was interesting to note It was encouraging to find that a significant number of respondents thought these DUI consequences/costs should be included in business education.

<b>Table 4: End-of-Survey Questions and Responses</b>	
<b><u>Yes/No Question Regarding Curriculum</u></b>	
<b><u>Yes</u></b>	<b><u>No</u></b>
<b>Do you think that your business education should include this information?</b>	
70	16
(3 people left this question blank)	
<b><u>Answers to the “Why or Why Not?” Question for Respondents answering “Yes”</u></b>	
“To keep students vigilant with bad driving consequences”	
“Because it has to do with figures”	
“Because it’s general knowledge and we, as drivers, should know it”	
“If not in business education, at least somewhere – everyone should be somewhat aware”	
because of the sensitivity of the subject”	
Going up because of these drunk drivers”	
“This could be useful information”	
“I think everyone should have to learn about this”	
“Because the costs related to DUI accidents affects many businesses that most people do not	
Realize that they are affected”	
“Although tragic, insurance companies and other people spend a lot of money in this area.	
I need to know how much and why”	
“Important for everyone to know!”	
“Awareness is key to prevention. It could easily be worked into accounting”	
“Very important for everyone to know. Just making people aware of this info will help	
Prevent DUI”	
“The amount of money spent every year has a great impact on our economy”	
“Knowing stats can always help you to prevent major mistakes”	

**Table 4: End-of-Survey Questions and Responses**

<p>“To become well-rounded member of society, information like this is essential”</p> <p>“These costs relate to the economy”</p> <p>“I think a lot of students are unaware of how much the consequences can cost”</p> <p>“Some people like myself aren’t aware of the costs/dangers associated with DUI”</p> <p>“Because it is important to everyone’s well-being”</p> <p>“To make others aware of DUI”</p> <p>“It is always an advantage to be knowledgeable in all aspects of society”</p> <p>“I think that this is very important information to know”</p> <p>“I think that, in general, people should be aware of this info”</p> <p>“It is an important idea”</p> <p>“Shows the irresponsibility of the person and to see what they have done to prevent this</p> <p>From happening again. Gives the person character”</p> <p>“To make us aware of how dangerous drinking and driving really is”</p> <p>“I think every major should take a class on the effects of DUI in society”</p> <p>“This is information everyone should be aware of”</p> <p>“To make students aware”</p> <p>“All knowledge about things is educational”</p> <p>“To remind people how costly and dangerous alcoholism is”</p> <p>“So that people could be aware of the dangers of DUI”</p> <p>“We should be more informed and take a stronger stance on this issue with laws and as a Society. I think we are too easy on people convicted of DUI”</p>
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People who liked the idea of integrating the DUI consequences/costs into the business curriculum gave reasons related to improving ethical behavior, corporate governance, respect for



society, and the need for a basic responsibility with respect to personal behavior and taxpayer vigilance. However, there were concerns linked to relevance as well as curriculum placement expressed by the students. Unfortunately, one person in the minority saying "no" seemed very offended by simply completing the survey.

#### **CONCLUSION, LIMITATIONS, AND POSSIBLE FUTURE RESEARCH**

The results of this survey research indicate that students were somewhat weak with respect to the broad-based knowledge related to DUI costs to society, but were relatively accurate with the personal cost estimate. Their perception results signify a possible weakness in their education, for most of the people noted that they had never learned these DUI consequences/costs despite spending many years driving and attending business school.

Generalizations about DUI consequences and cost education should not be made based on this study. The results are limited to some classes at one particular school in one specific location. Also, it would be difficult to determine whether the results are robust with respect to time even though there were respondents of many different ages involved. One final limitation is that there may not be any significant relationship between knowledge of these facts and ethical behavior in modern business life.

Future research may be necessary to study the research questions more carefully. It would be interesting to perform a gender analysis since there are more males involved with DUI consequences and costs than females. Finally, it would also be interesting to make comparison/contrasts with respect to majors to see how knowledgeable and receptive people would be with this other information.

#### **REFERENCES**

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**APPENDIX**

**ANSWERS (Source: [www.madd.org/stats](http://www.madd.org/stats))**

- 1) What is the average fine associated with DUI offenses in the United States? \$ **2,000**
- 2) What is the average cost of an alcohol-related fatality in the United States? \$ **3.1 million**
- 3) What is the total cost (on average each year) to society of DUI events in the United States? **\$114 billion**
- 4) What is the average cost to society for every DUI mile driven? \$ **5.80**
- 5) What is the average cost of care for each injured survivor of a DUI accident? \$ **70,000**
- 6) What is the total cost (on average each year) to society of DUI drivers under 21 accidents? \$ **21 billion**

7) Please order the following holidays (1 = most fatalities; 8= least fatalities) in terms of DUI danger risk.

- |    |                   |    |                      |
|----|-------------------|----|----------------------|
| #8 | New Years Eve     | #3 | Memorial Day         |
| #4 | New Years Day     | #1 | July 4 <sup>th</sup> |
| #5 | SuperBowl Sunday  | #2 | Thanksgiving         |
| #6 | St. Patrick's Day | #7 | Christmas            |

**What You Know about the Cost of DUI**  
(in memory of Tara Hardin)

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The purpose of this experiment is to test people's awareness of the cost of DUI in the United States. Please 1) complete the demographic information, 2) do the following experiment - complete the statements to the best of your ability and then 3) indicate your degree of confidence in the answer. Thanks.

**Demographics:**

- 1) Gender  Female  Male
- 2) Age \_\_\_\_\_
- 3) School Classification:  Freshman  Sophomore  Junior  Senior  Graduate
- 4) Major: \_\_\_\_\_
- 5) Number of years as a driver: \_\_\_\_\_

**Experiment:**

- 1) What is the average fine associated with DUI offenses in the United States? \$  
\_\_\_\_\_

1. Very Confident
2. Somewhat Confident
3. Not Sure
4. Not Really Aware of Concept
5. Never Learned This

- 2) What is the average cost of an alcohol-related fatality in the United States? \$  
\_\_\_\_\_

1. Very Confident
2. Somewhat Confident
3. Not Sure
4. Not Really Aware of Concept
5. Never Learned This

3) What is the total cost (on average each year) to society of DUI events in the United States? \$ \_\_\_\_\_

1. Very Confident
2. Somewhat Confident
3. Not Sure
4. Not Really Aware of Concept
5. Never Learned This

4) What is the average cost to society for every DUI mile driven? \$ \_\_\_\_\_

1. Very Confident
2. Somewhat Confident
3. Not Sure
4. Not Really Aware of Concept
5. Never Learned This

5) What is the average cost of care for each injured survivor of a DUI accident? \$ \_\_\_\_\_

1. Very Confident
2. Somewhat Confident
3. Not Sure
4. Not Really Aware of Concept
5. Never Learned This

6) What is the total cost (on average each year) to society of DUI drivers under 21 accidents? \$ \_\_\_\_\_

1. Very Confident
2. Somewhat Confident
3. Not Sure
4. Not Really Aware of Concept
5. Never Learned This

7) Please order the following holidays (1 = most fatalities ; 8= least fatalities) in terms of DUI danger risk.

- |  |   |
|--|---|
| <input type="checkbox"/> New Years Eve     | <input type="checkbox"/> Memorial Day         |
| <input type="checkbox"/> New Years Day     | <input type="checkbox"/> July 4 <sup>th</sup> |
| <input type="checkbox"/> SuperBowl Sunday  | <input type="checkbox"/> Labor Day            |
| <input type="checkbox"/> St. Patrick's Day | <input type="checkbox"/> Thanksgiving         |
|  | <input type="checkbox"/> Christmas            |

1. Very Confident
2. Somewhat Confident
3. Not Sure
4. Not Really Aware of Concept
5. Never Learned This

**Concluding Questions:**

1) Do you think that your business education should include this information?

Yes       No

2) Why?

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