Which is more dangerous: texting while driving (TWD) or drunk driving (DD)?

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From Time.com: "The U.S. Department of Transportation launched its first-ever national advertising campaign last week, featuring a 30-second PSA going viral now that depicts a fatal side collision in which three young Americans are in a car, and the driver is killed after she runs a stop sign and fails to see the truck coming from the side because she picked up her phone to answer a text. The tagline: "U Drive. U Text. U Pay."

We've all seen the (sometimes graphic) ads warning about the dangers of texting and driving. The Ad Council tells us that a "**texting driver is 23 times more likely to get into a crash than a non-texting driver**." Many states have already enacted or are in the process of enacting laws to make TWD illegal.

Similarly, we've all seen many TV ads warning us about the dangers of drunk driving, and, more frequently, how we risk $10,000 and (a girlfriend) by driving drunk.

The NHTSB says that texting while driving is "6x more dangerous than driving while intoxicated". Is this an honest statement? Or is it just clever marketing (albeit for a good cause)?

So which is more dangerous? What about punishments? Do the consequences of these types of distracted or impaired driving match up with their level of danger?

Table 17. How Texting/E-Mailing Affects Driving, by Sex and Age (% Respondents) (Multiple Responses)

	Sex		Age Group					
Effects	**Male**	**Female**	**18-20**	**21-24**	**25-34**	**35-44**	**45-64**	**65+***
No difference	24.2	25.8	19.6	27.0	29.5	19.6	24.1	n/a
(N)	(376)	(329)	(97)	(126)	(227)	(112)	(137)	(0)
Driver slower	36.4	25.3	37.1	30.2	26.9	31.3	34.6	n/a
(N)	(376)	(328)	(97)	(126)	(227)	(112)	(136)	(0)
Drift out of lane/roadway	8.2	5.8	9.3	15.1	5.3	2.7	4.4	n/a
(N)	(376)	(329)	(97)	(126)	(227)	(112)	(136)	(1)
Change lanes more frequently	2.4	2.1	7.2	0.8	2.6	0.9	0.0	n/a
(N)	(376)	(329)	(97)	(126)	(227)	(112)	(136)	(1)

**sample is too small for respondents 65 and older, thus no follow-up data are available for this age group*

Source: 2011 National Phone Survey on Distracted Driving Attitudes and Behaviors sponsored by U.S. Department of Transportation/NHTSA

So which is more dangerous? DUI or TWD?

Let's start with some baseline statistics. **In 2012, 10,322 people were killed in auto accidents that involved a drunk driver**. I wasn't able to find the actual number of non-fatal accidents, but using historical ratios of fatal to non-fatal accidents (1:132), we can estimate around **1.36M accidents involving a drunk driver in 2012**. In addition, a study indicated around **112M incidents of DUI in 2010**. Although the years don't match, I will use these figures for the analysis. As far as consequences, **immediate costs for a DUI conviction are around $5.4K**, but total lifetime costs can exceed $45K when auto insurance premium increases are considered. Obviously, this will vary from state to state, but we will consider the cost to be $5.4K for our analysis. The cost **does not include the social stigma one must carry or any negative effects on future abilities for the convicted to maintain or gain new employment**.

Texting and driving statistics are more recent than DUI statistics and should be as recent as possible given the great increases in mobile and smartphone adoption in the US over even the past two years. **Texting while driving causes around 1.6M accidents per year and around 330K injuries per year**. In 2012, **3,328 people were killed due to distracted driving** (which includes all behaviors in the chart below). Here are some findings on distracted driving incidence from the 2011 National Phone Survey on Distracted Driving Attitudes and Behaviors sponsored by U.S. Department of Transportation/NHTSA:

Table 1. Distracting Driving Behaviors Frequency (% of Respondents)

Distracting Behavior	On all trips	On most trips	On some trips	Rarely	Never	(N)
Talk to other passengers	28.6	23.6	27.6	16.3	4.0	(5,727)
Adjust the car radio	17.2	16.8	31.6	18.5	15.9	(5,742)
Use portable music player with speakers*	7.2	7.6	15.0	8.5	61.8	(3,169)
Interact with children in back	6.2	6.7	14.4	17.1	55.6	(5,740)
Make/accept phone calls	5.7	9.4	25.4	26.7	32.8	(5,740)
Eat or drink	5.6	8.2	31.7	33.2	21.3	(5,743)
Use navigation system*	3.8	6.6	40.4	31.1	18.1	(2,522)
Change CDs, DVDs, tapes	2.9	3.4	15.7	24.4	53.6	(5,743)
Read e-mail/text message	1.2	1.4	7.0	11.4	79.0	(5,744)
Use smartphone for driving directions*	0.9	4.4	20.8	18.5	55.5	(1,525)
Do personal grooming	0.9	0.7	4.0	12.8	81.7	(5,744)
Send text message/e-mail	0.8	0.8	4.4	10.0	83.9	(5,741)
Use portable music player with headphones*	0.2	0.5	1.6	5.0	92.7	(2,674)
Read book, newspaper, etc.	0.2	0.1	0.4	2.4	96.8	(5,745)

**Only respondents who owned the specified device were asked about it*

Another study reports that 31% of drivers in the US TWD in the 30 days before being polled. I'm sure the rate would be higher if we included other apps like Facebook, Twitter, Snapchat that would distract at the same level as TWD. I'll classify all this behavior as TWD from here on.

The rate of deaths per drunk driving incident is easy to calculate because these statistics are available. We now have to consider the number of incidents of TWD to make our comparison. However, when one is drunk, we'll assume they're drunk the entirety of the trip. When one TWD, they aren't doing so 100% of the drive. **The way to resolve this is to look at fatalities and accidents per minute of DUI and TWD.**

We know that there are **193M licensed drivers in the US**. Let's assume 55% of them drive on a given day (106M). Assume the distribution of number of trips looks something like this (assuming even-number trips only):

Number of Trips	Driver Frequency
2	30%
4	20%
6	20%
8	20%
10+	10%

This gives us a **median of around 5.8 trips per day**. This yields a total of **~615M (106M drivers x 5.8 trips) trips per day and ~225B trips per year**, which is close to the MADD estimate of 233B per year. The average trip is just under 10 miles at an average of 36 miles per hour (or 16 minutes). This gives us around **3.6T minutes spent driving in the US per year**.

But only 31% of people self-reported that they TWD. My "guesstimate" of the distribution of texting frequency (based on my own behavior and behavior I've observed):

Texts / Trip	Driver Frequency
1-2	10%
3-5	30%
6-9	30%
10-14	15%
15+	15%

This gives a **median of 8.4 TWD incidents per trip** (of those who do TWD). If we **assume the 31% rate will experience no Bradley effect**, we have around **33M trips per day with TWD**. Each TWD "incident" lasts around 10 seconds (the minimum is 5 seconds, let's assume 10 seconds is the average, although this is probably conservative), giving us a total of **97.5B minutes per year of TWD in America, or just under 3% of total driving time**.

So, how dangerous is TWD compared to DUI on a per minute basis?

Driving Impairment	Total Minutes Distracted / Impaired / Year	Number Accidents / Year	Number Fatalities / Year	Accidents / Minute / Year	Fatalities / Minute / Year
DUI	1,792,000,000	1,362,504	10,322	7.6×10^{-4}	5.8×10^{-6}
TWD	97,528,284,700	1,600,000	2,330*	1.6×10^{-5}	2.4×10^{-8}

So, **on a per minute basis, DUI is around 45 and 240 times riskier than TWD in regards to an accident or a fatality, respectively**. The cost of a DUI is around $5.4K (excluding insurance premiums). The average fine for a TWD is around $150. A **DUI fine is around 36 times more expensive than a TWD fine**. If we **take the scary TV ads at truth ($10K cost), then this makes a DUI around 67 times as costly as a TWD, which seems fair**. The NHTSB claim that texting is 6x as dangerous as drinking and driving does appear to be clever marketing (although not untrue based on the asterisked context of their statement).

All in all, it appears as if the fines are fair from a relative perspective of risk to the community.

Government fines aside, this should provide some realistic perspective on the risk one runs while TWD and DUI and a way to assess the financial "fairness" of the punishment for each infraction.

Be smart, be safe, and encourage others to do the same.

*I estimate 70% of the 3,328 deaths due to distracted driving can be attributed to TWD.