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Dear Professors Duggan, Hjalmarsson, and Jacob:

We are writing with comments—peer review, if you will—on your recently-publicized paper, "The Effect of Gun Shows on Gun-Related Deaths: Evidence from California and Texas."<sup>1</sup> We agree that the role gun shows may play in fostering criminal activity is an important subject for study. We have four concerns about your paper, however, as detailed below. Ordinarily we would relay these to you privately, but you have signaled the existence of your draft paper to the media and several reports about it have already appeared. We therefore believe it is best for these comments to be made public, as well.

*1) The design of the study reflects a poor understanding of gun shows and gun markets.*

We have several points to make here. First, you measure the impact of gun shows on homicide rates for three weeks following each show. But many studies of the dynamics of gun crime have established that these crimes rarely involve guns that were purchased within such a short time of the crime's occurrence. In Texas and California, the two states you study, the average time from a gun's sale to its recovery following use in crime was 9.8 and 12.9 years, respectively, in 2007; only 5.9% of recovered guns in Texas and 2.8% of those in California had a time from sale to

recovery of less than three months.<sup>2</sup> In California, the time from sale to recovery after use in crime for guns traced by ATF in 1999 was less than 3 years for only 34.6% of guns recovered from young adults ages 21-24 (and only 17.3% of guns recovered from juveniles), even though the most recent known sale, not the first, when used for computing time from sale to recovery.<sup>3</sup>

Similarly, your decision to restrict your analysis to events occurring within 25 miles of a given gun show ignores well-established findings on the geography of illegal gun markets. As a general rule, as many as a third of crime guns recovered in most cities are purchased out-of-state, and another third are purchased in-state but not in the immediate vicinity. For Texas and California in 2007, out-of-state gun percentages were 19.3% and 27.7%, respectively.<sup>2</sup> For Dallas and Los Angeles in 2000, the most recent year for which city-specific data are available, only half (52.1% and 50.9%, respectively) of traced crime guns were recovered within 25 miles of their point of initial sale.<sup>4</sup> (These percentages would increase if data for most recent sales were available, but not by enough to eliminate the problem.)

Crimes committed in a jurisdiction where a gun show has recently occurred will almost certainly involve guns coming from a wide area, and some from across the continent. (Florida and Georgia are important sources of crime guns in California.<sup>2</sup>) Conversely, guns purchased at that gun show may travel hundreds of miles before they are used in crime later. The Iron Pipeline, which supplies guns from the southern states to New England, is the leading example of such long-distance illegal gun commerce.

Third, gun shows are very heterogeneous,<sup>5</sup> but your modeling treats them equally. Smaller shows can involve fewer than a dozen gun sellers, all of them small-scale suppliers and most of them selling only used guns. Such events may have only a few dozen attendees on site at any one time. Some shows are sponsored by gun collector organizations and display primarily antique weapons with little, if any, utility for criminal purposes. Large general-purpose gun shows involve hundreds of gun vendors, some of whom may have more than 1,000 new guns on display. At these events there may be thousands of assault-type firearms for sale.

Last, gun shows are just one of a number of potential local gun trafficking channels that may supply guns for criminal use on a more-or-less continuing basis. Many of the largest sellers at gun shows are federal firearms licensees who also sell guns daily from storefront locations nearby; a gun show is simply a temporary change of venue for them. It could be argued that the high frequency of anonymous, undocumented gun sales at gun shows makes these events a special case, but all states that allow anonymous sales at gun shows allow them elsewhere, too.

*2) The specifics of your hypothesis may have been made necessary by your data.*

On first consideration, the temporal and geographic restrictions in your hypothesis seemed merely unwise. In particular, we were puzzled by your decision to impose the three-week restriction in the face of so much evidence against it. We now believe that you may have been forced to make those restrictions by your data, and you have not made this clear in your paper.

In Texas, one gun show promoter holds events in two major cities, Austin and San Antonio, every month. Considering all promoters together (there are at least eight) would likely increase

the number of cities in Texas in which gun shows occur monthly, if not more often. The problem is compounded when we consider geography: gun shows held in the same major metropolitan area may be more than 25 miles apart and yet reach the same population of consumers—and thus the same population of potential homicide perpetrators and victims. There are shows in at least three locations in greater Dallas and two in greater Houston, and in each area they sometimes occur within a week or two of one another.

We suggest that you were forced by the realities of the gun show schedule, in Texas at least, to test the hypothesis that gun shows have an effect on homicide rates that begins immediately, ***has disappeared within a month, and in some cases is restricted to just part of the metropolitan area within which it occurs.***

*3) The results were inevitable, given the hypothesis.*

However they were arrived at, the specifics of the hypothesis tested in your study essentially precluded the possibility of a positive finding. As it stands, the paper evaluates a straw man hypothesis and is not a serious test of the effect of gun shows on rates of gun violence.

*4) There is a substantial problem with gun show ascertainment that introduces a large bias toward the null.*

We have identified a problem with your data that might well have produced a negative finding even had you tested a viable hypothesis. You have used just one publication, the *Gun and Knife Show Calendar*, to identify gun shows. We are aware from prior research on gun shows<sup>5</sup> that no single source is adequate for this purpose. A second widely available listing is in the *Big Show Journal*. To determine the magnitude of misclassification that might exist in your data from single-source ascertainment, we compiled data from both publications for 2007. Using both sources, we found that 298 gun shows were held in California or Texas that year. Of these, only 236, or 79%, were listed in the *Gun and Knife Show Calendar*. This raises the possibility that you have failed to identify roughly 20% of the gun shows occurring in those states during your study period.

If gun shows are associated with a rise in homicide rates, as you hypothesize, then failing to identify 20% of gun shows—and as a result wrongly assigning homicide data for the weeks following those missed shows to the no-gun-show category—introduces a bias toward the null in your analysis. The size of the potential bias is such that on this basis alone we believe your current results should be considered invalid.

### *Conclusion*

Taking all four points together, we believe that you should retract this version of the paper. It should certainly be possible to improve the quality of your data. (For a start, back issues of the *Big Show Journal* are hopefully available at [www.showjournal.com](http://www.showjournal.com).) It may also be that, the constraints mentioned under points 1 and 2 above notwithstanding, you can develop a model that reflects the realities of the operations of gun markets and the dynamics of criminal gun use.

We share your interest in high-quality research on firearm violence and its prevention, and we hope you will take these comments in the spirit of collegiality in which they are offered. Thank you very much for your consideration, and please let us know if we can be of help.

Sincerely,

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- 1 Duggan M, Hjalmarsson R, Jacob BA. The effect of gun shows on gun-related deaths: evidence from California and Texas. National Bureau of Economic Research Working Paper 14371, available at <http://www.nber.org/papers/w14371>
- 2 ATF Firearms Trace Data–2007. Reports for Texas and California. Available at [http://www.atf.gov/firearms/trace\\_data/index2007.htm](http://www.atf.gov/firearms/trace_data/index2007.htm)
- 3 Wintemute GJ, Romero MP, Wright MA, Grassel KM. The life cycle of crime guns: a description based on guns recovered from young people. *Annals of Emergency Medicine* 2004;43:733-742.
- 4 ATF Crime Gun Trace Reports (2000). Reports for Dallas and Los Angeles. Available at <http://www.atf.gov/firearms/ycgii/2000/index.htm>
- 5 Wintemute GJ. Gun shows across a multistate American gun market: observational evidence of the effects of regulatory policies. *Injury Prevention* 2007;13:150-156.