Assessing the Value of State Vehicle Safety Inspections

A Texas Conservative Coalition Research Institute White Paper[i]

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Introduction

Texas law requires vehicles registered in the state to pass an annual safety inspection.[ii] That is in addition to federally mandated emissions tests in 17 state counties in order to comply with the Clean Air Act.[iii] Safety inspections are well-known to Texans. They cover tires, brakes, mirrors, lights, and warning devices. An automobile that passes inspection is valid and legal to drive for one year. A vehicle that fails inspection has 15 days to remedy the failed aspect of the inspection and have the automobile re-inspected at no additional charge.[iv]

The Motor Vehicle Inspection Act of 1951 started the vehicle inspection program in Texas.[v] However, safety inspections were a federal program until 1976, with over 30 states participating. That year, the federal government ended its program. In the 40+ years since that time, many states have eliminated vehicle safety inspection requirements. At the end of 2018, only 15 states will have passenger vehicle inspections. Texas should be the next state to eliminate it.

The Cost of Vehicle Safety Inspections

The cost of vehicle safety inspections in Texas varies from county to county. In counties that do not require an emissions test, inspections cost $14.50.[vi] In the nine years between 2005 and 2014, Texans paid roughly $2.4 billion to have their vehicles inspected.[vii]

A report commissioned by the Texas Legislature estimates that the vehicle safety inspection program costs Texas taxpayers $307 million per vehicle per year.[viii]

There are unseen costs as well. As Senator Huffines (the author of a bill during the 85th Legislative Session that would have eliminated the inspection requirement) explained in a piece for TribTalk, vehicle safety inspections are a tax:

> This tax costs Texans an annual $267 million in fees alone. What's arguably worse is the tax on our time — the program forces more than 50,000 trips to the inspection station every single day, resulting in more than 9 million wasted hours every year. That adds up to $203 million in lost wages, based on average salary data. After you count the costs of gas, lost wages, and the inspection fees, the program costs the average household at least $40 a year.[ix]

Given these costs, there should be a strong evidential foundation supporting the need for vehicle safety inspections. However, the data shows that there is no such support.

No Discernable Safety Benefit to State Vehicle Safety Inspections

Supporters of vehicle safety inspections reflexively point to "safety" as a justification for the inspections. However, in a recent article entitled "No Vehicle Safety Inspections? Are We All Going to Die?," Jay Evensen recounts the process through which Utah eliminated its safety inspection program in 2018.[x] The debate in Utah centered largely around the data for and against the proposition that vehicle safety inspections do anything to actually increase safety. Opponents of the repeal cited a Pennsylvania study purporting to demonstrate that states with safety requirements have fewer accidents than those without. That data is questionable, not just in absolute terms, but because it provides an answer to the wrong question. Another study cited in Utah looked at the number of fatal accidents attributable to mechanical failures in states that eliminated the inspections. Comparing accidents before and after the repeal, the study "found virtually no difference before and after changes in those states' laws."[xi] Indeed, "the overwhelming majority of fatal accidents were caused by driver error, something lawmakers everywhere have tried, in vain, to eliminate throughout the years."[xii]

This is consistent with findings in other publications. A 2016 article entitled "Are Vehicle Inspections Really About Safety?"[xiii] explained that having vehicle inspections does not lower insurance rates in those states.[xiv] It also found that "there isn't a clear-cut correlation here between requiring a safety inspection and fewer deaths or lower insurance rates."[xv]

Indeed, key findings from numerous studies and reports reinforce the assertion that vehicle safety inspections have no discernable impact on roadway safety. The following are but a few examples:

- 2008 Report to the North Carolina General Assembly[xvi]
- 2002 Study published in the Southern Economic Journal[xvii]
- 1999 Study published in the Southern Economic Journal[xviii]
- 2015 Report from the U.S. Government Accountability Office[xix]:

The 2015 U.S Government Accountability Office report is quite illustrative. It looked at three studies, and explained that:

> [N]one were able to establish a statistically significant effect of safety inspection programs on crashes involving either fatalities or injuries. Specifically, the studies examined crash rates in all 50 states and did not find statistically significant differences in crash rates in states with inspection programs compared to those without.[xx]

The report concluded that research "remains inconclusive about the effect of safety inspection programs on crash rates. . . . What is available has generally been unable to establish any causal relationship."[xxi] Indeed, component failure was found to have attributed to only 2 percent of crashes nationwide.[xxii] Considering that only a small subset of those crashes proved fatal, and only some subset

of those crashes may or may not have been preventable through a vehicle safety inspection, it is likely that any positive impact of the inspections on safety is a statistical rounding error.

Recent Highway Fatality Data in Relation to Inspections

Despite the 2015 Government Accountability Office report, most statistical analysis on highway fatalities and safety inspections is not recent. The passage of time since many of these publications naturally raises the question of whether the effectiveness of inspections has changed. The rise in highway fatalities since 2014 following decades of declines adds an extra twist to this question. The National Highway Transportation Safety Administration's Fatality Analysis Reporting System (FARS) allows a number of comparisons of fatality rates between inspection and non-inspection states. And the five states plus the District of Columbia that have dropped inspections since 1993 allow an examination of cases of policy change in detail.[1]

First is a comparison recent fatality rates (since 2009) in states with and without inspections.

Figure 1: Fatality Rates by State Inspection Status, 2009-2016

Figure 1 displays the fatality rate per 100 million vehicle miles traveled (100mVMT) for states which did not change their inspection regime over the years 2009 to 2016.[2] The non-inspecting states had a lower rate from 2009 to 2014, a roughly equal rate in 2015, and a higher rate in 2016. The relatively large increase in fatality rates in non-inspecting states is a concern, but is, in all likelihood, a temporary blip in the data. Over the longer span of almost a decade, driving has been less deadly in states without mandatory inspections, as Table 1 shows.

[1] Utah just dropped inspections in 2018, so data is not yet available to examine this policy change. FARS data can be downloaded from https://www-fars.nhtsa.dot.gov//QueryTool/QuerySection/SelectYear.aspx.
[2] Washington, DC, New Jersey, and Mississippi are excluded in these tabulations.

Table 1: Fatality Rates, Inspection vs. Non-Inspection States, 2009-2016

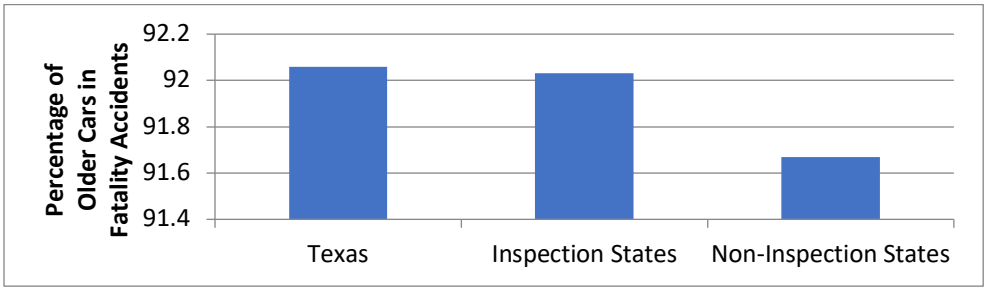
Fatality Rate	Inspection States	Non-Inspection States
Fatalities per 100 million Vehicle Miles Traveled	1.154	1.117
Fatalities per 100,000 Licensed Drivers	15.96	15.93
Fatalities per 100,000 Registered Vehicles	15.53	14.77

This table reports fatality rates for inspection and non-inspection states over the entire period 2009-16, and measured per 100,000 licensed drivers and 100,000 registered vehicles in addition to per 100mVMT. Non-inspection states have lower fatality rates, measured all three ways, with a 3 percent difference in the 100mVMT rate. Such a comparison does not control for other factors affecting highway safety and thus are not definitive concerning safety. Still, driving is not more dangerous in states that do not conduct safety inspections.

The effect of inspections, if one exists, should be observed primarily through older cars. Headlights, brakes, and other safety features should work when a new car is driven off the dealership lot. Only as cars age and safety features begin to malfunction will repairs be needed, and mandatory inspections would be a way to force a reluctant driver to make repairs. A 2015 study found that in Pennsylvania older cars were more likely to fail initial inspection and require repairs to pass.[xxiii] That is contradicted by a 2002 study, however, that found no effect of mandatory inspections on the proportion of older vehicles on the road in a state, which suggests that inspections were not making older vehicles markedly more costly to drive.[xxiv] If mandatory inspections are effective, then it would follow that fewer older vehicles should be involved in accidents.

The FARS provides the model year of vehicles involved in fatal crashes. Figure 2 reports the percentage of vehicles in 2017 fatal crashes that were at least two model years old (specifically model year 2015 and older) for Texas, states with mandatory inspections as a whole, and states without mandatory inspections.[xxv] The percentage slightly exceeds 92 in Texas and the other inspecting states, but only 91.6 in the non-inspection states. The difference is not statistically significant and does not control for the proportion of older cars registered in inspection and non-inspection states. Still, no evidence is shown to suggest that the inspections could potentially reduce fatalities.

Figure 2: Older Vehicles, Fatal Accidents, and Inspections

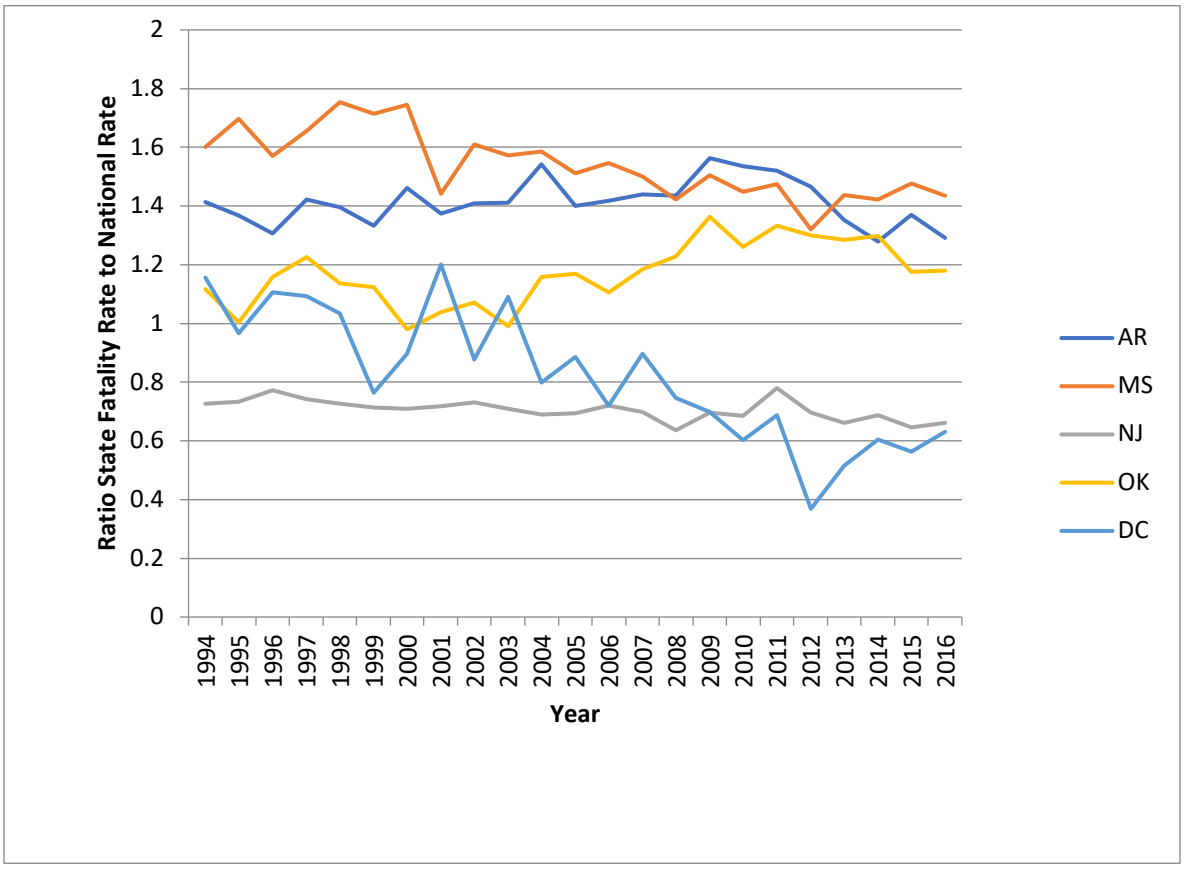


Percentage of Model Year 2015 and earlier vehicles in fatality accidents, 2017.
Source: Authors' calculations from Fatality Analysis Reporting System data.

The states abolishing mandatory inspections since 1994 afford additional test opportunities. If inspections were effective, then those states' driving environments should have become deadlier after the policy change, everything else equal.

Consider the fatality rate per 100mVMT over the years 1994 to 2016 in the states that have abolished inspections since 1994. The national fatality rate declined over this period, so a simple comparison of rates for the inspection years to the years after abolishment would be conflated with the national trend, which could mask an increase in fatalities from ending inspections. Consequently, when examining the ratio of a state's fatality rate to the national rate for that year, it is shown that a state remaining at the national fatality rate each year would have a constant ratio of 1.0. Figure 3 graphs these ratios for the four states and the District of Columbia. Inspections were abolished in different years in each state, but upward shifts are not readily apparent from visual inspection.

Figure 3: Annual Fatality Rates for States Dropping Inspections, 1994-2016

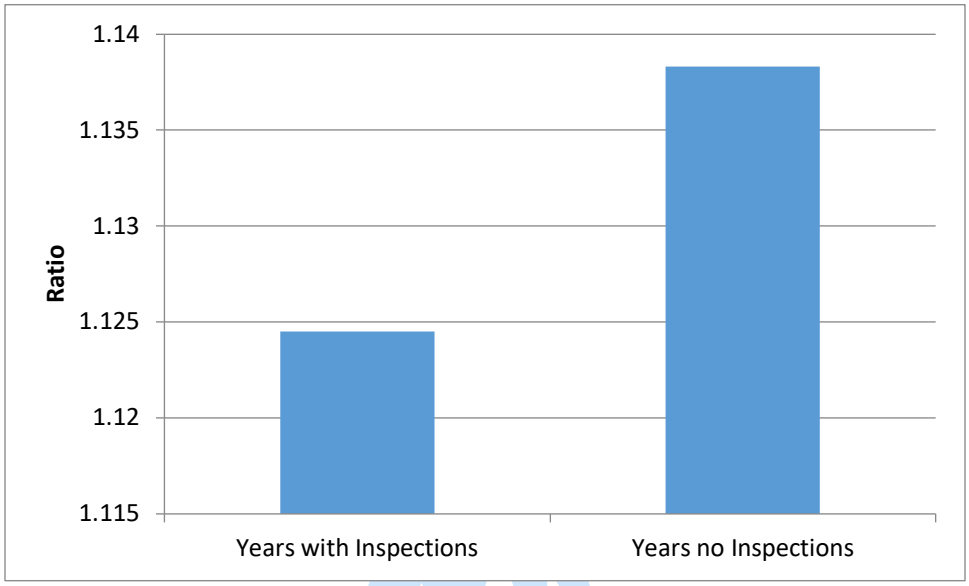


Fatality rates are per million vehicle miles traveled. Dates states dropped inspections: AR 1997, OK 2001, DC 2009, NJ 2010, MS 2015.

Source: Authors' calculations from Fatality Analysis Report System data.

Figure 4 compares the ratios averaged for the years these states inspected against the post-inspection years.

Figure 4: Fatality Rate in States Abolishing Inspections



Source: Authors' calculations from Fatality Analysis Report System data.

The ratio was slightly higher in the years after inspections were discontinued, a difference of 1.2 percent, but this difference is not statistically significant. Driving has not become markedly deadlier in the states recently ending inspections.

The FARS reports accidents by county, allowing a more detailed geographic analysis. Border analysis has proven an effective way to investigate the impacts of state policies[xxvi] Border counties blend the driving environment of each state because they will have a higher proportion of traffic from the adjacent state than interior counties. Thus, a state's mandatory safety inspections will be exported to neighbors due to cross-border driving. Consider the ending of inspections by Texas's neighbors Arkansas and Oklahoma. This change might have made Texas counties on these borders more dangerous places to drive. Conversely, Arkansas and Oklahoma counties along the Texas border should be safer relative to interior counties due to Texas's continued inspections.

VMT or other variables that might be used in fatality rates are not available by county. Traffic fatalities could be scaled by population, but the population of neighboring counties and retail and business patterns will affect cross-border driving. Population and economic patterns should change relatively slowly, allowing consideration of border county fatalities as a proportion of state fatalities before and after the end of inspections. County level fatalities exhibit significant year-to-year variation, particularly in sparsely populated counties with typically fewer than 10 fatalities a year. This analysis uses three-year fatality totals before and after the end of inspections in Arkansas and Oklahoma in 1997 and 2001, omitting the year of change. If inspections are effective, the proportion of state fatalities in the Arkansas

and Oklahoma border counties would be expected to fall, while the proportion of Texas' fatalities occurring on these borders would be expected to rise.

Table 2: Border County Fatality Analysis

	Arkansas		Oklahoma	
	Before, 1994-96	After, 1998-00	Before, 1998-00	After, 2002-04
Fatalities in AR/OK border counties	45	63	215	230
Proportion of all AR/OK Fatalities	0.0249	0.0347	0.1113	0.1177
Fatalities in TX border counties with AR/OK	61	100	373	430
Proportion of all Texas Fatalities	0.0061	0.0097	0.0373	0.0394

Source: Authors' calculations from Fatality Analysis Report System data.

As Table 2 illustrates, more of Texas's fatalities occurred along the border *after* the policy change, consistent with the spillover of a more dangerous driving environment. However, the proportion of Arkansas and Oklahoma fatalities occurring along the Texas border increased as well, even though Texas's continued inspections should have made these roads relatively safer. The change in proportional terms is larger for Arkansas than Oklahoma, likely due to Texas's shorter border with Arkansas.

The FARS database includes the state of registration for vehicles involved in fatal crashes, allowing for further examination. If inspections are effective, vehicles registered in a state should be expected to become less safe relative to cars from surrounding states after mandatory inspections end. The proportion of fatality accident vehicles registered in a state that drops inspections should be expected to increase, both in the "home" state and in surrounding states, and regardless of whether neighboring states still require inspections. Taking proportions should control for demographic and other factors that affect the frequency of out-of-state cars on the highways of a state. This analysis observes a three-year window before and after the inspection change, omitting the year of change.[3]

Dropping inspections has not consistently increased the proportion of fatal accident vehicles from that state, as Table 3 illustrates. Of the twelve cases examined, the proportion of domestic-registered vehicles declined six times and increased six times. The pattern anticipated if mandatory inspections were effective is not observed.

Table 3: Inspections and Fatality Vehicles Registered in State

	With Inspections	After Inspections	Change
	Arkansas, 1997		
AR registration/AR fatalities	0.8390	0.7896	-5.9%
AR registration/ TX fatalities	0.0027	0.0030	+12.7%
AR registration/Other AR border fatalities	0.0100	0.0108	+8.7%
	Oklahoma, 2001		

[3] Mississippi has only a two-year window as it dropped inspections in 2015.

OK registration/OK fatalities	0.7998	0.7866	-1.6%
OK registration/TX fatalities	0.0067	0.0053	-20.4%
OK registration/Other OK border fatalities	0.0120	0.0107	-11.0%
	District of Columbia, 2009		
DC registration/DC fatalities	0.3966	0.4286	+8.1%
DC registration/MD, VA fatalities	0.0064	0.0058	-9.9%
	New Jersey, 2010		
NJ registration/NJ fatalities	0.8464	0.8570	+1.3%
NJ registration/ NJ border fatalities	0.0174	0.0140	-19.7%
	Mississippi, 2015		
MS registration/MS fatalities	0.9072	0.9011	-0.7%
MS registration/MS border fatalities	0.0139	0.0156	+12.0%

Before and after windows involve three years each, except for Mississippi, with two year windows.
Source: Authors' calculations from Fatality Analysis Report System data.

The Report from the Center for Transportation Research is Not Compelling

With the passage of Senate Bill 2076 (85R), the Department of Public Safety (TxDPS) and the Texas Department of motor vehicles were required to study, among other things, the efficiency and necessity of the vehicle safety inspection program in Texas. TxDPS contracted with the Center for Transportation Research (CTR) at the University of Texas at Austin to conduct the study and issue a report.[xxvii] In its final report, CTR acknowledges nearly fifty groups and individuals who "contributed" to the report, many of whom have a direct interest in continuing the vehicle safety inspection program (e.g. four different "Inspection Station Owners" are listed as contributors).[xxviii]

The report reaches a key conclusion that "the Inspection Program saves lives and enhances safety."[xxix] Buttressing this conclusion are a number of arguments, some of which are irrelevant as a basis for policymaking (e.g. a poll indicating that Texas drivers "perceive" the Inspection Program as enhancing highway safety).[xxx] Other arguments are more interesting, but ultimately not compelling.

The Threshold for Establishing that Inspection Programs Lower Fatalities and Increase Safety

The CTR study presents no evidence that accidents, injuries, or fatalities are lower in Texas due to the mandatory inspection program than they otherwise would be without it. Demonstrating safety benefits attributable to mandatory inspections requires the establishment of two elements:

1) It must show that the level of maintenance is higher (or, in the alternative, that the rate of defects is lower) with inspections than would be without; and
2) It must show that the improved safety results in fewer accidents.

Some projection of the level of defects or accidents without inspections would be needed to show this, and the CTR study does not attempt to make such a projection.

The CTR Study's Data Does Not Establish a Causal Link Between Automobile Defects and Accidents

The defects data reported and analyzed in the CTR study are vehicles with defects involved in accidents or fatality/injury accidents, but that information does not lead to any firm conclusion. Indeed, that a vehicle involved in a crash had a defect does not demonstrate that the defect caused the crash, or that the crash would not have occurred if the defect was not present. Despite its strong suggestive language to the contrary, the report openly admits "accidents may be caused by more than one factor, and it may be difficult to determine the true causes of crashes."[xxxi] Regardless of the lack of causation, the data show that very few vehicles involved in crashes in Texas appear to have defects. Based on the 2015-17

totals reported by CTR, only 1% of accidents and 3.21% of fatalities involved cars with defects.[xxxii] And it is far from clear how many of those accidents would have been prevented by a vehicle safety inspection.

The relevant question in terms of determining causation is whether cars with defects are more likely to be in crashes than cars without defects, and CTR's data does not address that question. Several other relevant data points are missing, such as statistics on vehicle miles traveled for vehicles with and without defects, which is just one example of another factor that could be in play.

The CTR study suggests that the initial failure rate for vehicles with inspections is around 10%.[xxxiii] If, as a theoretical example, these cars possessed defects for half of the 12 months prior to inspection, then only 5% of vehicles actually have defects. Moreover, it is likely that some cars that passed inspections without any repairs had maintenance done during the year and drove some miles with those defects. CTR's survey data would have benefitted from asking drivers how often they sought and obtained vehicle service outside of their annual inspection date, as the typical driver will seek service when indicators (such as a "check engine" light, an oil change based on mileage, or squeaky breaks) present themselves. If cars with and without defects drive similar miles on average each year, then 5% of vehicle miles traveled (VMT) will be by cars with defects. If so, then 1% and 3% of vehicles in accidents and fatal accidents with defects would be below the proportion of miles traveled by vehicles with defects.

The CTR Study Does Establish the Ineffectiveness of the Vehicle Safety Inspection Program

A likely unintended result of the CTR study is the valuable data it provides in support of the *ineffectiveness* of Texas's vehicle safety inspection program. The CTR study references 100 fatalities and $2 billion in costs attributable to cars with defects.[xxxiv] But, even if the accidents were all caused by the defects present, that would not establish the benefits of Texas's vehicle inspection program. Rather, the figures cited by CTR demonstrate the weakness of periodic inspections. If the vehicle inspection policy instrument were perfectly effective, then no cars should have defects, and no accidents would be attributable to defects. Mandatory periodic inspections, at best, ensure that inspected parts work just one day out of the year, and they are vulnerable to evasion and malfeasance. Perhaps the true takeaway of the CTR study is that Texas's vehicle inspection program is costly and still allows thousands of accidents due to defects that either (a) go undetected, or (b) occur and should be addressed by service outside of the one day per year an inspection is conducted.

The benefits of mandatory vehicle safety inspections are the accidents and fatalities *prevented* through inspections, but it is important to note that repairs should only be counted *if they would not have occurred but for the inspection*. The CTR data does not shows this. The study mentions defect rates for vehicles registered out-of-state and involved in accidents in Texas. The CTR report states that these rates are 0.83% for states without mandatory inspections and 0.61% for states with inspections, which is presented as evidence for the effectiveness of inspections.[xxxv] To the contrary, what this actually demonstrates is more evidence on the limited effectiveness of inspections. [xxxvi] These numbers suggest

that, at most, perhaps, 25% of the accidents potentially attributable to defects are reduced by mandatory inspections. In other words, given that the vast majority of accidents are not attributable to defects, and that 75% of accidents attributable to defects are not addressed by mandatory inspections, the benefits of a mandatory program are essentially a rounding error.

CTR cites data showing that that the rate of defects in vehicles involved in accidents in Texas is 1% worse than the proportions for other states that have mandatory inspections and even in states without mandatory inspections.[xxxvii] This data is inconclusive, as a variety of factors (e.g. income levels and demographic breakdown) may lead to higher levels of unreliable and potentially defective vehicles on the roads in Texas. What it does provide, however, is more buttressing to the argument that the output of Texas's vehicle safety inspection program is not impressive.

The Economic Impact Analysis Performed by CTR is not Valid

The CTR report attempts to conduct an "economic analysis" of vehicle safety inspections in Texas, yet it does not attempt to quantify the benefits of inspections in Texas (revenue to station owners and to the state of Texas are not benefits), and CTR measures only the legal cost or revenues of inspections. It takes the time and effort of trained mechanics to perform the inspections, assuming they are being done. The report cites expenses of $6.4 million for inspection stations per year.[xxxviii] The source of this figure is not clear, but with about 19 million passenger vehicles inspected annually, this amounts to roughly $0.35 per inspection. If the opportunity cost of the mechanic and tools is $20 per hour, $0.35 is about 1 minute of cost for an inspection, which is clearly an unreasonable assumption. Drivers also incur the cost of waiting during an inspection, of taking the vehicle for inspection or reinspection, and of course the actual cost of any repairs.

The CTR Study Does Not Overcome the Existing Literature Indicating that Vehicle Safety Inspection Programs are Not Necessary and Provide Very Little in the Way of Safety Benefits

Commenting on the existing literature that CTR surveyed in assessing the effectiveness of vehicle safety inspections, CTR's report explains:

> It is difficult to conduct analyses of the safety effects of periodic vehicle inspection programs as safety effects are **likely to be small and compounding factors complicate the interpretation of any in study findings regarding the role of vehicle defects in crash causation and the effectiveness of inspection programs in reducing defects and crashes**. In addition, the effect of inspection programs on accident rates as assessed by the studies varied a great deal, **ranging from no effect to an accident reduction rate of up to 16%.**[xxxix]

The first half of this statement is a welcome admission of the problems associated with many studies on vehicle safety inspections. In reviewing the existing literature, it is not surprising that CTR found such a

wide variance because much of the existing literature on vehicle safety inspections is unreliable or compares the wrong factors. Comparing jurisdictions with and without inspections, for example, is unhelpful because there are so many additional factors that can influence the outcomes. Yet, CTR looked at the conclusion of over a dozen studies of all different kinds, which resulted in a predictably enormous range of outcomes. It is, therefore, difficult to draw any meaningful conclusions from such a collective survey.

The CTR study makes a strong presentation in terms of its conclusions and recommendations, but the underlying data it presents does very little to support those conclusions and, often times, supports the opposite conclusions, as discussed above. Furthermore, the study contains several inaccuracies. For example, the study lists 16 states as still requiring inspections. However, Utah recently eliminated its inspection program, leaving only 15 states with mandatory inspections.[xl] Alabama is also listed as having inspections, but Alabama only requires an inspection upon change of ownership.[xli] The study also makes a large number of broad assertions, unsupported by facts or analysis. A glaring example of this is the argument that repair shops would close if inspections are no longer mandated. But, of course, repair shops exist across the country, even in the vast majority of states that do not require mandatory inspections. Moreover, the purpose behind a government program such a mandatory vehicle safety inspection should not be to mandate that customers frequent certain businesses. The only justification for such a program should be safety, and that factor is absent.

While the CTR study takes several data points and attempts to draw conclusions from those points with respect to the efficacy of mandatory vehicle safety inspections, that data is not compelling, and certainly is not enough to overcome the large body of existing data with respect to the vast majority of states that do not require mandatory vehicle safety inspections.

Conclusion & Policy Recommendation: Eliminate the State Vehicle Safety Inspection Requirement

Mandatory inspections must improve highway safety to be good policy because inspections are costly to conduct. If inspections improved safety, then questions of whether the safety benefits offset the costs of inspections or if an alternative policy could achieve the safety benefits at lower cost would become relevant.

However, a very strong case for termination of inspections exists because the requirement fails to deliver safety benefits. Existing econometric analysis demonstrates that inspections do not improve safety, but that analysis is now more than twenty years old. Nonetheless, more recent accident data from FARS shows no signs that mandatory inspections have become more effective. Inspection states do not have lower fatality rates or a lower proportion of older vehicles involved in fatal accidents than non-inspection states. The states that have recently dropped inspections do not appear to have experienced spikes in fatalities. No one piece of evidence offered here is decisive on its own, but in total they strongly suggest the conclusion that mandatory, periodic inspections provide no discernable safety benefits still holds today.

In the context of there being no discernable safety benefit to vehicle safety inspections, this economic and financial burden on Texans should be eliminated. Senate Bill 1588 (Huffines, 85R) and House Bill 3995 (Simmons, 85R) would have repealed this requirement. Both bills should be advanced in the 86th Legislative Session.

END NOTES

[i] Key sections and analysis for this paper were provided by Dr. Daniel Sutter, Director of the Manuel H. Johnson Center for Political Economy at Troy University.

[ii] "DPS Inspection Criteria for the Annual SAFETY Inspection," *Texas Department of Public Safety*, https://www.dps.texas.gov/RSD/VI/inspection/inspectionCriteria.aspx.

[iii] "Vehicle Emissions Inspections in Texas," *Texas Commission on Environmental Quality*, https://www.tceq.texas.gov/airquality/mobilesource/vim/overview.html.

[iv] Tex. Trans. Code Sec. 548.053.

[v] "Texas Department of Public Safety," *Texas Library and Archives Commission*, https://legacy.lib.utexas.edu/taro/tslac/30100/tsl-30100.html.

[vi] "DPS Cost of Inspection," *Texas Department of Public Safety*, https://www.dps.texas.gov/RSD/VI/CostOfInsp.htm.

[vii] *Ibid.*

[viii] "Economic and Safety Considerations: Motor Vehicle Safety Inspections for Passenger Vehicles in Texas," *University of Texas at Austin - Center for Transportation Research*, 3 (Oct. 2018), https://www.dps.texas.gov/rsd/vi/news/docs/safteyInspectFullStudy.pdf.

[ix] Don Huffines, "Vehicle safety inspections are more than just a chore — they're a tax," *The Texas Tribune: Trib Talk* (Mar. 2016), https://www.tribtalk.org/2016/03/11/vehicle-safety-inspections-are-more-than-just-a-chore-theyre-a-tax/.

[x] Jay Evensen, "No vehicle safety inspections? Are we all going to die?," *Desert News* (Mar. 2017), http://www.deseretnews.com/article/865675706/No-vehicle-safety-inspections-Are-we-all-going-to-die.html

[xi] *Ibid.*

[xii] *Ibid.*

[xiii] Julia Eddington, "Are Vehicle Inspections Really About Safety?," Insurance Zebra (Jul. 2016), https://www.thezebra.com/insurance-news/3175/vehicle-inspections-really-safety/.

[xiv] *Ibid.*

[xv] *Ibid.*

[xvi] "Doubtful Return on the Public's $141 Million Investment in Poorly Managed Vehicle Inspection Programs," North Carolina General Assembly: Program Evaluation Division (Dec. 2008), http://www.ncleg.net/PED/Reports/documents/VSI/VSI_Report.pdf

[xvii] Daniel Sutter, "Policy ineffectiveness or offsetting behavior? An analysis of vehicle safety inspections," *KVUE News* (2002), https://www.scribd.com/doc/312019154/Policy-ineffectiveness-or-offsetting-behavior-An-analysis-of-vehicle-safety-inspections

[xviii] *Ibid.*

[xix] "Vehicle Safety Inspections: Improved DOT Communication Could Better Inform State Programs," *U.S. Government Accountability Office* (Aug. 2015), http://www.gao.gov/assets/680/672131.pdf.

[xx] *Id*. at 9.

[xxi] *Id.*

[xxii] *Id.* at 9-10.

[xxiii] Dana Peck, et al., "Failure Rates and Data Driven Policies for Vehicle Safety Inspections in Pennsylvania," *El Sevier* (2015).

[xxiv] Marc Poitras and Daniel Sutter, "Policy Ineffectiveness or Offsetting Behavior? An Analysis of Vehicle Safety Inspections," *Southern Economic Journal* (2002).

[xxvxxv] The number of vehicles in fatality accidents differs from the number of fatalities. Utah is included as an inspection state in 2017.

[xxvi] Thomas J. Holmes, "The Effect of State Policies on the Location of Manufacturing: Evidence from State Borders," *University of Minnesota and Federal Bank of Minneapolis* (1998).

[xxvii] "Economic and Safety Considerations: Motor Vehicle Safety Inspections for Passenger Vehicles in Texas," *University of Texas at Austin - Center for Transportation Research* (Oct. 2018), https://www.dps.texas.gov/rsd/vi/news/docs/safteyInspectFullStudy.pdf.

[xxviii] *Id.* at iii.

[xxix] *Id.* at 2.

[xxx] *Id.* at 38.

[xxxi] *Id.* at 26.

[xxxii] *Id.* at 14 (Table 3.3).

[xxxiii] *See Id*. at 46 (the estimated average is 10.3%).

[xxxiv] *Id.* at 12-14.

[xxxv] *Id.* at 18.

[xxxvi] *Id.* at 18.

[xxxvii] *Id.* at 14 (presented in Table 3.3) .

[xxxviii] *Id.* at 10.

[xxxix] *Id.* at 29.

[xl] House Bill 265 (McCay), https://le.utah.gov/~2017/bills/static/HB0265.html.

[xli] *See* "ALABAMA VEHICLE INSPECTION LAWS – WHAT YOU NEED TO KNOW," Long & Long Attorneys at Law (Aug. 23, 2018), https://www.dontwaitlong.com/alabama-vehicle-inspection-laws/.