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Steering Towards Safety: Analyzing the Constitutionality and Effectiveness of Alternative Regulatory Frameworks in the Production of Self-Driving Vehicles

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INTRODUCTION: A "PATCHWORK" SYSTEM

How do we weigh the value of the lives of future generations against the people of today? In the United States, federal and state governments are left to ponder this question as they seek to regulate the burgeoning self-driving car industry. It is widely accepted that, by removing human error, self-driving cars will offer a safer alternative to human-driven ones. Proponents of rapid innovation in the field point to the fact that 94 percent of all crashes, which account for over 30,000 US deaths per year, can be attributed to human error. As such, the faster we can achieve a reality dominated by high-level Automated Driving Systems (ADSs), the better off future generations will be. But rapid innovation comes at a cost—one the country saw for the first time in 2018. In an effort to accelerate the pace of innovation and create a safer transportation system for future generations, Arizona elected to adopt a loose regulatory framework surrounding ADSs. This decision flushed automakers who wished to test their self-driving vehicles out of neighboring California, whose legislators took a more stringent regulatory position. One such testing

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vehicle belonged to Uber and would go on to tragically kill Elaine Herzberg on a public Arizona roadway in what marked the first fatal self-driving car accident. Herzberg's death raised two pressing legislative debates: should the regulation of ADSs remain a state-led issue? And what changes, if any, should our lenient federal regulatory system undergo to prevent similar tragedies?

The first of these questions hinges on a debate over federalism that has plagued American politics since the country's founding. The current division of power allows states to dictate policy regarding issues of licensing and driver education, while the National Highway Traffic Safety Administration (NHTSA) is tasked with regulating vehicle safety more broadly. With the hope of guiding states towards a consistent regulatory framework, the NHTSA published a Model State Policy in 2016, noting that a "patchwork of inconsistent State laws" could "impede innovation." But these suggestions have gone unheeded in recent years, threatening both public safety and innovation. As such, I will argue that Congress must use its power under the Commerce Clause to regulate the "instrumentalities of interstate commerce" and preempt state authority in a manner similar to the failed SELF DRIVE Act of 2017. To make this legal argument, I will analyze the opinions of Justices Scalia and O'Connor in *Gonzales v. Raich*, a case in which the Supreme Court voted to uphold the federal prohibition of local marijuana use otherwise permissible under California law. Operating at the intersection of Congress's commerce power and states' police powers, the regulation of ADSs grapples with similar issues as those proposed in *Raich*. As a result, a thorough examination of its contents is necessary to assess the constitutionality of sweeping federal regulations in the rapidly developing ADS market.

Even if we are to accept a preemption of state authority, however, the debate over how to design our federal regulatory system still remains. Tasked with constructing this framework, the NHTSA established a self-certification model to control the production of ADSs, in line with its handling of human-driven vehicles. Under this system, manufacturers must ensure that their products meet legal requirements as outlined by the Federal Motor Vehicle Safety Standards. The NHTSA may then purchase the certified vehicles and test them for compliance after they reach the market. Researchers Adam Thierer and Caleb Watney support this self-certification model, arguing that the opportunity costs of a more intrusive regulatory framework outweigh the present benefits. Legal scholar Spencer Mathews, meanwhile, suggests a complete overhaul of our current self-certification system in favor of type approv-

al, which denotes a rigorous procedure where regulators approve products directly before sale while being involved in each stage of the design process. The Federal Aviation Administration (FAA) uses type approval to regulate the production of aircrafts, a decision Mathews claims "permit[s] innovation while ensuring public safety."

To strike the proper balance of regulation so as to promote innovation and short-term safety goals, I will suggest both a reallocation of power amongst federal and state governments and a restructuring of our current self-certification system to include pre-market safety assurance tools. The safety of American citizens will always be decided by the policies of the least regulated state, and as such, the regulation of ADSs cannot remain a state-led issue—preemptive policies similar to those proposed in the failed SELF DRIVE Act, which I will discuss later on, are necessary to prevent a chaotic medley of conflicting laws. The precedent set by *Gonzales v. Raich* allows for such a bill, establishing that intrastate issues of public safety, although not normally defined as within the scope of congressional power, can be the subject of federal regulation when they threaten the effectiveness of legislation regarding interstate commerce. Alongside this preemption of state authority, a more rigid version of the NHTSA's current self-certification framework must be adopted to promote public safety, ensure consumer confidence, and allow automakers and regulators to realize their dream of zero road deaths. In constructing such a system, however, it is important not to overextend our regulatory framework in order to protect future generations. As a result, we must disregard Mathews' suggestion of a type approval system in favor of a restructuring of our current self-certification model, since it fails to properly balance private innovation with public safety.

I. A Brief Legal History

Before analyzing *Gonzales v. Raich*, it is necessary to introduce two foundational cases in our modern understanding of the Commerce Clause. The first of these cases, *Wickard v. Filburn*, redefined the scope of congressional authority over local activities. In it, the Court ruled against a local Ohioan farmer who was found to have violated federal restrictions on wheat production after harvesting additional wheat to feed his cattle. Although the Court recognized that this action may have had a negligible impact on his participation in the national wheat market, the unanimous decision contended that the aggregate effects of such an action played out on a national scale may prove

more substantial. Thus, *Wickard* established Congress's ability to regulate commerce at a local level so long as the cumulative effects of the commercial activity significantly influenced interstate commerce. The case of *United States v. Lopez*, meanwhile, worked to limit the broad authority granted to Congress in *Wickard*. The majority found a federal law forbidding the possession of firearms in school zones to be unconstitutional, noting that gun possession in such an area was not an economic activity that could substantially affect interstate commerce. Unlike in *Wickard*, the Court argued that the repetition of such an action elsewhere did not produce a larger net effect. Both of these cases will serve as important background as we shift our attention to *Raich*.

In a 6-3 ruling, the Court found that the prohibition of marijuana possession under the Controlled Substances Act fell within Congress's commercial jurisdiction and thus took precedence over California legislation explicitly authorizing the use of the drug for medicinal purposes. Justice Scalia explains this decision in his concurring opinion, claiming that Congress's power over commerce supersedes any state authority when the regulation of local activities is deemed necessary to maintain a comprehensive regulatory scheme. Justice O'Connor disagrees, however, offering a more narrow definition of commerce in her dissenting opinion, while admonishing the majority for allowing Congress to encroach on states' traditional power over the health and safety of their citizens. With this context in mind, we can begin to dissect the justices' positions and apply the lessons from our analysis to the production of ADSs.

II. Lessons From *Gonzales v. Raich*

Obsessing over the sanctity of states' police powers, Justice O'Connor fails to critically examine the Court's Commerce Clause jurisprudence, instead dismissing the case of *Wickard v. Filburn* after pointing to seemingly irrelevant incongruencies between it and *Raich*. Justice O'Connor defends her dismissal of *Wickard*, because unlike *Raich*, it "did not extend Commerce Clause authority to something as modest as the home cook's herb garden." If the scope of federal regulation is what matters— whether or not it offers exemptions to small-scale producers—then Justice O'Connor's contention with *Raich* relies on the same "superficial and formalistic distinctions" she claims riddle the opinion of her opponents. If the respondents had cultivated larger quantities of marijuana (say as much as Roscoe Filburn's excess wheat), albeit still for personal use, would Justice O'Connor then find the decision in *Wickard* to be

suitable? Attempting to clarify this stance, she notes that in contrast to *Wickard*, the decision in *Raich* "impl[ies] that small-scale production of commodities is always economic." But even the Court's opinion in *United States v. Lopez*, which Justice O'Connor holds as the primary relevant precedent, recognizes that the economic nature of a local activity is not an essential factor in determining Congress's ability to regulate it. A noneconomic intrastate activity can be regulated, the Court found in *Lopez*, if it is deemed to be "'an essential part of a larger regulation of economic activity.'" These ideas hearken back to the majority's opinion in *Wickard* and present a steep challenge for Justice O'Connor's repeated assertion that the local use of marijuana central to *Raich* is not economic in nature. As such, Justice O'Connor's limited acknowledgment and ultimate dismissal of the precedent set by *Wickard* detracts from the legal accuracy of her argument.

Justice O'Connor places emphasis on the Court's definition of economic activity out of fear that, absent any clear "objective markers," the balance of power between states and Congress will be thrown off by the Court's decision in *Raich*; analysis of Justice Scalia's concurring opinion quells such concerns, however, with the recently deceased justice identifying markers that place clear limits on congressional authority. Describing her objection to the majority opinion, Justice O'Connor claims that the Court must "identify a mode of analysis that allows Congress to regulate more than nothing and less than everything." The decision in *Raich*, she contends, leans too heavily towards regulating everything. She argues that the majority's invocation of the Necessary and Proper Clause, which together with Congress's commercial authority grants the federal government the power to regulate intrastate activities "necessary to and proper for" interstate commercial regulation, "will always be a back door for unconstitutional federal regulation." Justice Scalia appeals to the words of Chief Justice Marshall in *McCulloch v. Maryland*, however, to highlight the flaws inherent in this reasoning. If Congress wishes to exercise its power under the Necessary and Proper Clause for a "constitutional and legitimate" end, he argues, "the means must be 'appropriate' and 'plainly adapted' to that end." Justice Scalia applies these restraints to the case of *Raich*, concluding that the prohibition of intrastate marijuana use is an appropriate means of regulating what he considers a constitutional end. Further application of this test to the case of *Lopez*, meanwhile, exemplifies the limits of congressional authority. While the goal of the federal government in *Lopez* may be considered legitimate, the legislation passed by Congress to achieve this end proved to be inappropriate. With an opinion founded on the precedent

of *Lopez* and a dismissal of *Wickard* that fails to adequately address the clearly defined restraints on congressional authority outlined by Justice Scalia, Justice O'Connor's dissent must be disregarded.

Applying the broad definition of interstate commerce central to *Raich*, it is evident that the preemption of intrastate authority over the manufacturing and production of ADSs is within Congress's commercial jurisdiction and does not destroy the notion of enumerated powers. The federal government's command over the "instrumentalities of interstate commerce" extends to even noneconomic, local activity, so long as such activity "substantially affect[s]" interstate commerce. The manufacturing and production of ADSs, two components of commerce accepted by the majority in *Raich*, is therefore within Congress's regulatory power. Even accounting for the interplay of public safety and states' traditional preeminence over this domain, *Raich* clearly establishes that congressional power supersedes state authority in all commercial contexts. As the majority opinion notes, *Wickard* establishes that "'[n]o form of state activity can constitutionally thwart the regulatory power granted by the commerce clause to Congress.'" Instead of allowing a state such as Arizona to "'serve as a laboratory'" for "'novel social and economic experiments,'" a reality Justice O'Connor calls "one of federalism's chief virtues," Congress must exercise its plenary commerce power if it wishes to maximize both the safety of its citizens today and the efficiency with which we reach an ADS-dominated future. Our current patchwork system threatens to harm both of the goals central to the NHTSA's federal regulatory framework.

If Congress wishes to uphold the federal regulatory system, as is within its legal authority under Raich, it must reconsider preempting certain state regulations in a manner similar to when it nearly passed the bipartisan SELF DRIVE Act five years ago. This bill, which failed to pass the Senate in 2017 and is being pushed once again by members of the Energy and Commerce Committee, includes a provision preventing states from establishing any law "regarding the design, construction, or performance of highly automated vehicles, [...] unless such law or regulation is identical to a standard prescribed under this chapter." This provision is then followed by a higher performance requirement, which grants states the authority to prescribe greater performance standards than is federally mandated. In doing so, the bill grants states freedom while also ensuring a rigid and uniform federal regulatory framework. This eliminates the issue presented earlier when discussing the death of Elaine Herzberg and asymmetric regulation in the case of Arizona and Cali-

fornia; no longer would the policy of the least regulated state dictate the safety of American citizens. In addition to creating a safer environment, establishing a more uniform system may help manufacturers navigate the legal challenges before them and encourage innovation as a result. Preemption is an appropriate means of achieving these legitimate ends.

III. Analyzing Alternative Regulatory Systems: Self-Certification vs. Type Approval

With the legal debate over the federal encroachment of state authority settled, we must now turn to the content of our national regulatory system and identify the optimal strategy for maximizing safety and innovation; although Mathews acknowledges the threat type approval poses to innovation, he incorrectly assumes that it can be mitigated after exaggerating the limited nature of its scope. In a 2016 report, the NHTSA reviewed the applicability of the FAA's type approval process and outlined significant barriers to entry. First, it found that certification lasts three to five years on average. In an industry that is oversaturated with manufacturers and dominated by yearly release cycles, such a timetable would severely hamper innovation and require an overhaul of the car market altogether. But certification can last even longer than five years in some cases. The NHTSA found that it took the Boeing 787 Dreamliner eight years to receive approval due to "the very advanced nature of the aircraft and the production of key components in locations geographically distant from one another." Mathews would be remiss to assume that ADSs may not face a similarly difficult approval process, since the technology they rely upon is both advanced and constantly evolving. In response to the lengthy timetable of type approval, Mathews strips down his proposal and ultimately argues for a hybrid-type system.

"Self-certification," he writes, "could be preserved for vehicle hardware not critical to the operation of the ADS, and type approval instituted for the ADS and ADS-critical hardware." Due to their advanced nature, however, anything critical to the ADS would presumably require more time to approve than the hardware associated with typical vehicles. As such, this hybrid approval process faces the same issues as type approval. If America wishes to remain at the forefront of production and innovation in the self-driving car market, it cannot adopt a model similar to what Mathews suggests.

The safety benefits Mathews attributes to type approval, meanwhile, become blurred when viewed through the lens of Thierer and Watney's pre-

dictive model, which applies a broader time-frame when quantifying safety. While Mathews assumes a negative relationship between innovation and safety, Thierer and Watney argue that the two are fundamentally related ends, since future generations are left better off. Although I do not refute the existence of a negative relationship when looking at the short-term effects of regulatory policy, a long-term positive relationship can be established with minimal regulations in place to protect society today. Modeling the potential costs of type approval, Thierer and Watney project that a mere slowdown of five percent in the deployment of automated vehicles would lead to "an additional 15,500 fatalities over the course of the next 31 years." A more drastic change resulting in a regulatory delay of 25 percent, meanwhile, would bring about 112,400 deaths over 40 years. If we are to accept this bleak reality and consider a broader lens when deciding on regulatory policy, type approval no longer offers the extreme benefits to public safety outlined by Mathews.

While type approval may not be a viable alternative to self-certification, Mathews raises an important discussion about consumer confidence in ADSs that presents significant challenges for Thierer and Watney and their hope of maintaining the status quo. If consumers are unwilling to purchase automated vehicles or step foot in self-driving taxis, innovation will naturally slow as a result of low demand. Mathews argues that knowledge of the regulatory approval required before automated vehicles can appear on public roads may increase consumer confidence and ensure high demand. Furthermore, the benefits of type approval in regard to present safety may "prevent the kinds of accidents, such as the Uber crash in Arizona, that undermine public confidence and put the entire future of automated vehicles at risk of a public backlash." Thierer and Watney fail to mention consumer confidence in their analysis of type approval, nor does it appear to be a factor in their projections regarding the deployment of automated vehicles. A survey conducted by the Pew Research Center in 2017—before the death of Elaine Herzberg spawned increased negative sentiment towards ADSs—validates Mathews' fears. It found that 56 percent of US adults would not ride in a driverless car, with the majority of this uneasiness stemming from safety concerns and a lack of trust. If this poor confidence slows the pace of innovation, then it too is a grave threat to future safety. Thus, any regulatory framework that aims to promote the safety of both present and future citizens must also be sufficiently strict so as to raise consumer confidence in ADSs.

Although finding this Goldilocks zone may be a near impossible task,

I will suggest basic pre-market safety assurance to supplement our current self-certification system. The US Department of Transportation (of which the NHTSA is a member) mentioned safety assurance in a 2016 report on Federal Automated Vehicles Policy as a possible improvement but seems to have forgotten about it in the years following its publication. Safety assurance tools such as pre-market reporting by vehicle manufacturers of internal testing and data analysis, USDOT argued, could help ensure that "design, manufacturing, and testing processes apply NHTSA performance guidance, industry best practices, and other performance criteria." By engaging with manufacturers before vehicles are allowed on public roads, safety assurance might help alleviate consumers' concerns regarding their safety and trustworthiness. With this change, our regulatory framework would remain one of self-certification and thus maintain the innovation-related benefits associated with such a model, while also boosting public safety by both marginally improving present safety and raising consumer confidence so as to promote future safety. Best of all, while a shift to type approval would require congressional approval, no additional statutory authority is required for the NHTSA to implement safety assurance.

Conclusion: Maximizing Safety Without Slowing the Pace of Innovation

Confronted with a sea of regulatory options, Congress and the NHTSA must guide the development of ADSs in a manner that best promotes both present and future safety. Mathews' analysis fails to address the shortcomings of type approval, which can be disregarded as a harmful alternative to self-certification due to its tendency to slow innovation and threaten long-term public safety as a result. But self-certification may not be the boon to innovation and public safety Thierer and Watney suggest either, since their defense of our current system fails to address issues of consumer confidence. When considering demand in a predictive model of future innovation, increasing regulatory standards becomes more appealing. To achieve the proper balance of regulation so as to accelerate the pace of innovation and maximize short-term safety, I suggest a restructuring of our current self-certification system that relies on the addition of pre-market safety assurance tools.

But even this construction of a more robust national framework falls short if our current regulatory patchwork of state laws remains intact. With the SELF DRIVE Act once again sitting on the floor of Congress, it is im-

perative that the Senate reconsiders its earlier position. The NHTSA cannot achieve its vision of a safe and innovative self-driving car market if states are left to their own devices. Although far-reaching, this preemption of state authority does not represent an egregious or unconstitutional extension of federal power but instead fits within the broad definition of interstate commerce championed by the majority of the Supreme Court in *Raich*. The safety of American citizens, both today and in the future, depends on these changes.