The Effectiveness of Independent Investigatory Agencies in the United States: A Comparison of the National Transportation Safety Board and the Chemical Safety and Hazard Investigation Board

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WORKING PAPER RR #12
NOVEMBER 2014

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September 2014

Introduction

Since its inception in 1967, the U.S. National Transportation Safety Board (NTSB) has served as a model for safety investigation boards across the world. An independent agency authorized by Congress to investigate problems and recommend policy solutions, but not to implement or enforce regulations, the NTSB has forged an enviable reputation for objective, independent, and constructive analyses of transportation safety issues. In addition to inspiring the creation of similar agencies in Europe, the NTSB also served as an explicit touchstone for the establishment of the Chemical Safety and Hazard Investigation Board (CSB). When Congress authorized the CSB as part of the Clean Air Amendments of 1990 in response to a series of chemical plant explosions during the 1980s, it cast the new Board in the mold of the NTSB. This legislation gave the CSB analogous independence from other federal agencies and granted it only the power to investigate and make recommendations regarding safety in the chemical processing industry. Lawmakers clearly saw the independence of the NTSB--both from the control of other federal departments and from the responsibility of establishing or enforcing regulations--as a key explanation for its operational successes. As first-year Democratic Senator Joe Lieberman argued on the floor of Congress in 1989, not only was a chemical safety agency necessary, but it was also imperative that Congress establish an agency whose independence could enable it to “inspire the same public confidence when it investigates industrial accidents as [the NTSB] does when it investigates transportation accidents” (Lieberman, 1989).

As a result, the two agencies have practically identical organizational structures. As Figure 1 shows, each board is comprised of four members and a Chair, appointed by the President. Both boards make recommendations and issue reports based on research conducted through the office of a Managing Director, who oversees day-to-day operations of the multiple divisions within each agency. The NTSB and CSB also share similar Congressional mandates. As investigative boards, neither has the authority to

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1 This essay was completed as part of a Bass Connections Team at Duke University. Financial support was provided by a Bass Connections grant, as well as funding from the Smith Richardson Foundation to Rethinking Regulation@KIE for the interdisciplinary research inquiry, “Recalibrating Risk: Crises, Perceptions, and Regulatory Change.”
establish or enforce rules and standards, and thus can only offer policy suggestions to the appropriate regulatory agencies or Congress. A defining feature of the NTSB since 1974, this complete independence from regulatory authority permits the Board to investigate and critique both public and private entities. In the late 1980s, when Congress considered proposals for a Chemical Safety Board, it recognized this degree of independence as the key to the NTSB’s effectiveness. Accordingly, congressional champions of the CSB hoped to instill a similar independence from industry and regulatory institutions.

![Organizational Charts](image)

**Figure 1. Organizational Charts, National Transportation Safety Board (2014) and Chemical Safety and Hazard Investigation Board (2013)**

Despite the high hopes that accompanied the creation of the CSB as an independent agency, the Board has not yet fulfilled lawmakers’ expectations that it would achieve the respect and influence of the NTSB. As Figures 2 and 3 demonstrate, the NTSB has been extremely productive since its inception, averaging more than 1,000 completed investigations each year. Additionally, the annual percentage of recommendations issued by the NTSB that receive a favorable response has remained high, never dropping below seventy percent (NTSB Safety Recommendations Database). Although the CSB has achieved a similar percentage of favorable conclusions to its recommendations, its output has been considerably lower. Between 2009 and 2012, the CSB completed only 15 of its 37 planned investigations (EPA, 2013). Even before 2009, however, the CSB rarely drew praise for its productivity. On two separate occasions, in 2000 and 2008, the Government Accountability Office (GAO) has chastised the CSB for underproduction, poor management, and (perhaps most dammingly) a lack of rules governing conflicts of interest. In both instances, the GAO found the performance and management of the CSB so alarming that it recommended oversight by an external Inspector General (GAO 2000; 2008). Even more recently, a House Committee on Government Oversight and Reform report, published in conjunction with a hearing that explored charges of whistleblower reprisals, found “serious management deficiencies” within the CSB (Committee on Government Oversight and Reform, 2014: 5).
Figure 2. Results of NTSB Recommendations, 1967-2000.

Figure 3: Results of NTSB Recommendations Averaged by Year, 1967-2000
In this essay, we compare the origins and evolution of the NTSB and CSB in order to understand why the former achieved a prominence so far unmatched by its successor, despite the intentions of legislators like Senator Lieberman. The global influence of the NTSB makes this question all the more pressing. An understanding of how agencies with similar structures and mandates developed such disparate levels of respect and influence can provide policy makers with a better sense of the institutional and administrative factors that determine the effectiveness of independent investigative boards.

Three defining features differentiate the NTSB and CSB. First, the NTSB developed a set of investigative procedures that industry structure and institutional capacity made unavailable to the CSB. Secondly, we suggest that both boards were the product of specific historical and political moments. Whereas the NTSB benefited from forty years of policy experimentation and emerged in a climate of regulatory expansion, Congress established the CSB during an era of deregulation and highly politicized budgetary debates. This very different context of governance ultimately resulted in a nine-year gap between its authorization and activation, as well as comparatively parsimonious budgets. These constraints hampered CSB’s capacity to fulfill its legislative mandate. Finally, we also find that even with optimal conditions, the profile of any organization depends heavily on the quality and policy entrepreneurship of its leadership. The history of both agencies demonstrates that interpersonal conflict and weak leadership can paralyze or at least compromise the capacity of organizations to attain their objectives.

**Commercial Aviation Safety, Industry Promotion, and the “Party System”**

While the NTSB investigates accidents in all modes of transportation, its origins were located in commercial aviation safety, and those origins continue to shape its institutional structure and priorities. Although the Board has the authority to determine which accidents it investigates in other modes, it is required by law to issue reports on every plane crash either occurring within U.S. territory or involving an American company. Furthermore, as one NTSB official notes, the airline industry has “grown up” with safety regulations (Schulze and Sedor Interview, 2014). This concurrence between the development of regulation and the maturation of the industry as a whole has had disadvantages and advantages. Because government intervention into commercial aviation began during the industry’s earliest days, initial regulatory efforts were often complicated by the dual goals of promoting the development of the airline industry and establishing an effective safety regime. Ultimately, however, the synergy--rather than tension--between these two goals resulted in collaborative strategies that are essential to the success of the NTSB.

Within twenty years of the Wright Brothers’ famous experiments at Kitty Hawk, Congress had already recognized the value and potential of the emerging industry. In 1915, lawmakers established the National Advisory Committee for Aeronautics (NACA) to study issues connected to the development of “the science and art of aeronautics,” and to share its findings with industry leaders (Institute for Government Research, 1930: 1). A decade later, however, aviation remained firmly in its technological
infancy. Winter flights were practically nonexistent, pilots had to rely on unreliable meteorological information, and even the U.S. Postal Service had only recently embarked upon nighttime flights. To promote the development of the industry, Congress enacted the Air Commerce Act in 1926, which established a Commercial Aviation Bureau within the Commerce Department. This legislation further charged the Secretary of Commerce with coordinating the establishment of airports, improving air navigation, and disseminating information about the state of the field of commercial aviation alongside recording “and making public” the causes of air accidents (U.S. Senate, 1926).

The Air Commerce Act drew strong support from industry leaders like members of the American Aeronautical Chamber of Commerce, which had been calling for “some sort of bureau of civil aeronautics” since 1922. But it also began a period marked by the tension between industry promotion and safety regulation (New York Times, 1922). As commercial aviation matured over the following forty years, lawmakers increasingly recognized the need for an independent agency focused solely on safety issues. A decade after the 1926 act, a Senate investigation found that “personal, promotional, and political” biases within the Commerce Department had hampered the effectiveness of the Bureau of Air Commerce (Washington Post, 1941). As a result, Congress passed new legislation, the Civil Aeronautics Act of 1938, which established three independent regulatory entities: the Civil Aeronautics Administrator, Civil Aeronautics Authority, and a three-member Air Safety Board. The three offices remained under the umbrella of the Commerce Department, though Congress made it clear that the arrangement was solely for administrative purposes. Neither the Administrator, Authority, nor Safety Board reported to the Secretary of Commerce; their relationship with the Department extended only to the daily administrative support its staff could provide. In order to ensure the objectivity of the Safety Board, Congress explicitly limited its responsibilities to investigation accidents and issuing reports based on its findings and tasked the Administrator and Authority with a more promotional mandate.

But even these clear boundaries between safety and promotion failed to insulate the new Aeronautics division from political and interpersonal conflict, which led to another restructuring of aviation safety regulation. Speaking before a Congressional Committee in 1940, Civil Aeronautics Administrator Clinton Hester admitted that he had “some difficulty with the personnel of the Air Safety Board.” Simply put, he told Congress, “when a new agency . . . is created to stand off and look at your work and criticize you; it has a tendency . . . to disturb and worry you,” which led to a reluctance on Hester’s part to act on Air Safety Board recommendations, only twenty-five percent of which he executed during his term as Administrator (U.S. Senate, 1940.) That same year, President Franklin Roosevelt attempted to remedy the tension Hester described with a reorganization plan, which discontinued the Air Safety Board and divided the remainder of the Aeronautics division into two new agencies, the Civil Aeronautics Administration (CAA) and Civil Aeronautics Board (CAB). Both agencies remained within the Commerce Department for administrative purposes, though the CAB, which was charged with accident investigation, safety rule-making, and rate adjudication, was to be considered an independent agency.

Over the next twenty years, the burden that the new structure placed on the CAB drew periodic criticism. Critics, including airline pilots and legislators, argued that the tasks of promoting industry, setting rates, and investigating accidents not only ran the risk of being contradictory, but also were too
diverse and complicated for one agency to manage simultaneously (The Sun, 1940). Not surprisingly, these critiques became especially salient during periods of increased frequency of airline crashes, which, unfortunately for the CAB, included its very first year of operation. Though the CAB weathered that early storm, criticism resurfaced after a spate of airline accidents in 1947 pushed aviation’s death rate to an all-time high. These events prompted the convening of two separate boards of inquiry in 1947 and 1948, each of which concluded that Congress should create an independent safety board to allow the CAB to follow its “prime objective” of determining the “economic phases of air transport.” (Air Policy Commission, 1948). Despite these recommendations, the status quo of aviation regulation remained unchanged until the late 1950s.

Tension between the promotional mandate of the Commerce Department and the safety functions of the CAB continued to foster conflict between the two agencies. Even though members of the CAA and CAB were technically not subordinate to the Secretary of Commerce, the Secretary often held enough power and influence to disrupt their activity. Following revelations that officials in the Commerce Department had repeatedly interfered with CAA and CAB operations, including the dismissal of the CAA Administrator by the Secretary of Commerce (an act which the Secretary did not actually have statutory authority to carry out), Congress established the Federal Aviation Agency—later the Federal Aviation Administration—in 1956 (U.S. Senate, 1956) and gave it the regulatory authority formerly held by the CAA.

The difficulty of maintaining the independence of a safety board housed in a larger department mandated to encourage the development of industry continued to be an issue even after the creation of the NTSB. In 1966, Congress established the Department of Transportation (DOT) in response to President Lyndon Johnson’s declaration of the need for a new department to improve policy coordination between the federal government’s various transportation agencies. The act also created the NTSB as an independent agency within DOT and transferred the aviation accident investigation duties from the CAB to the new Board. Soon, however, the NTSB’s position in DOT proved to be just as problematic as the CAB’s relationship to the Department of Commerce. By 1972, NTSB officials were already publicly calling on Congress to remove the Board from DOT entirely. According to NTSB officials, the Board’s connection to the DOT created an “appearance of a lack of independence,” which was “nearly as detrimental as . . . actual infringement (Los Angeles Times, 1972).” Those concerns reappeared a year later when NTSB chairman John H. Reed testified that the Nixon administration had influenced the appointments of key NTSB staff personnel and that “the board’s Republican members had been threatened with ‘disciplining’ if the 1972 annual report included a recommendation that the board’s housekeeping functions be removed from the [DOT] (Morris 1973).” These revelations of executive meddling (which, notably, came in the midst of the Watergate Scandal) prompted Congress to pass the Independent Safety Board Act of 1974, which removed the NTSB from DOT and finally established a transportation safety board entirely divorced from government bodies that possessed a promotional mandate.

Although the dual goals of aviation safety and promotion of the airline industry often created conflict, they were not necessarily diametrically opposed. Early on, industry leaders recognized that commercial
aviation would benefit from government-funded research and industry-wide collaborations that improved both the quality and safety of air travel (Vietor, 1990; New York Times, 1922; Institute for Government Research, 1930). As early as the 1920s, leaders in commercial aviation recognized that “a sincere effort at careful flying and good equipment” was essential to instilling trust in potential customers (Post, 1927). Accordingly, during the 1920s, they established trade organizations like the Aeronautics Chamber of Commerce of America, through which plane manufacturers, airlines, pilots and air traffic controller unions, university researchers, and private institutes created a framework of collaborative research, and actively engaged with government agencies like the CAB (Klemin, 1927).

This cooperative spirit created the groundwork for the investigative strategy that has become the NTSB’s trademark. After receiving notification of an accident, the NTSB dispatches a “Go Team,” which may vary in size and expertise depending on the particular nature of the incident, to the accident site. The team is headed by a Chief Investigator, who, once on location, coordinates efforts between NTSB staff and stakeholders such as the airline, manufacturer, labor unions, state and local officials, regulatory institutions, and media outlets.

The NTSB regularly mobilizes the technical expertise and human resources of these other stakeholders, through a strategy it refers to as the “Party System.” Because it realizes that no 400 person agency could fully understand the technical details of every possible transportation accident, the NTSB invites parties it believes can provide a significant contribution to participate in the first phase of its investigations, which involves data and evidence collection. In order to preserve the Board’s objectivity, however, party members may only participate in this initial segment of the investigation. Once the NTSB moves on to its analysis phase, parties no longer have any role in NTSB activities.

Observers often cite independence from both industry and regulators as the NTSB’s defining characteristic, as well as the feature that lawmakers should replicate most diligently when designing new investigatory agencies. But interviews with NTSB officials corroborate the arguments put forward by several scholars that the Party System is a vital component of the Board’s success (Fielding et al 2011; Hart Interview, 2014; Terry and Nantel Interview, 2014). Though the origins of the Party System strategy are unclear in both the literature and institutional memory of the NTSB, it seems to have emerged from the collaborative relationship between federal agencies and industry leaders during the early years of aviation safety regulation (Baxter 1995; Fielding et al 2011; Bowling, 2005; Hart Interview, 2014; Kolly Interview, 2014; Schulze and Sedor Interview, 2014). A clear understanding of the long history of aviation safety, including the enduring difficulties of balancing the dual goals of safety and promotion, is essential to make sense of the NTSB’s distinctive organizational culture and its collaborative relationship with the airline industry. Attempts to improve aviation safety while also encouraging the young industry’s development often created tension between federal officials over whether one goal should be given precedence over the other. But once the aviation industry recognized that increased safety was essential to growth, it developed a collaborative research structure that agencies like the CAB could draw upon when conducting their own investigations.
Figure 4. History of Independent Investigatory Bodies in American Transportation and Chemical Safety

Chemical Safety and the Budgetary Concerns of the 1990s

As Figure 4 indicates, while the NTSB benefitted from forty years of regulatory experimentation alongside a young and growing industry, the CSB faced the difficult task of adapting its practices to a well-established sector in a relatively short period of time. Further complicating matters, the early CSB also suffered from the pressures for budgetary austerity that dominated politics in the 1990s, as well as a policy context that increasingly viewed many regulatory frameworks with suspicion. Bipartisan concern over the growing federal debt initially stalled and ultimately crippled the CSB with a lack of resources, an unclear mandate, and uneasy relationships with both industry and other federal agencies. Already on an unstable foundation, early management conflicts and interpersonal issues created an antagonistic culture that the agency has continuously struggled to overcome.

Unlike aviation, industrial chemical production existed for centuries before lawmakers sought to regulate it. While the industry has origins in the early industrial revolution, and took its modern shape during the Great Merger Movement of the early twentieth century, it wasn’t until a massive explosion at a Union Carbide plant in Bhopal, India in 1984 killed 2,000 people and injured hundreds of thousands that lawmakers began calling for a chemical safety board akin to the NTSB.

Within eighteen months of the Bhopal explosion, another major accident occurred at another Union Carbide plant in West Virginia that injured 135 people (Belke and Dietrich 2005). While the Bhopal disaster raised concerns because of its magnitude, the proximity of the West Virginia explosion
increased the public pressure on both industry leaders and American lawmakers to reform chemical safety standards. Cognizant of the damage these accidents were causing to the industry’s image, the Chemical Manufacturers Association drafted a set of “Responsible Care” guidelines to promote safety and positive community relations within its membership.

In spite of this move toward self-regulation, lawmakers also began pushing for federal oversight. In 1986, Congress passed the Emergency Planning and Community Right-to-Know Act (EPCRA) in 1986 to address the lack of public information regarding the chemicals and potential hazards housed at industrial plants, and to improve coordination of emergency response efforts. Legislators shaped these provisions to address policy shortcomings that had been exposed by the incidents at the Union Carbide factories in India and West Virginia. A series of minor chemical accidents in the late 1980s continued to fuel lawmakers’ desire for tighter regulations and an independent investigatory agency. Accordingly, the Clean Air Act Amendments of 1990 required that OSHA and the EPA increase chemical safety and environmental standards and authorized the creation of the CSB.

Although Congress authorized the CSB in 1990, philosophical and budgetary concerns from two presidential administrations delayed its activation until 1998. Dubious constitutional concerns originally delayed appointments to the CSB under the H.W. Bush administration (Lieberman, 1991; Orlando Sentinel, 1991). Then, the Clinton administration’s focus on budget reduction presented an equally substantial obstacle to the Board’s launch. Driven by the desire to make government “more effective, economical, and efficient,” Clinton initiated a National Performance Review in early 1993 to target unnecessary and wasteful federal programs. Following phase two of the review in 1995, the Performance Review task force proposed a number of institutional changes, including the termination of the CSB due to perceived redundancies between its investigative function and those of OSHA and the EPA (Reylea, 1993).

Reluctance to overburden the federal budget continued to plague the CSB after it was finally launched in 1998. In comparison to the agency it was supposedly modeled after, the CSB’s initial budget and staff remained tiny in comparison to those originally afforded the NTSB. Both organizations received an initial appropriation of four million dollars, which accounting for inflation, meant that the NTSB received five times the starting budget of the CSB. Additionally, the CSB began operation with a staff that was one-tenth the size of the original NTSB, a ratio which it still maintains today (NTSB 1967; CSB 1998).

The CSB's lack of adequate resources has been exacerbated by regular congressional pressure to investigate accidents not necessarily within its purview. For instance, while the Board originally deemed the 2010 Deepwater Horizon explosion to be outside its mandate, lawmakers eventually compelled a CSB investigation because no other independent agency existed to carry out an assessment of its causes. Similar investigations, such as the 2008 combustible dust explosion at the Imperial Sugar plant in Georgia, led one former investigator to suggest that the CSB is misnamed, and should instead be called the “Industrial Safety Board (Vorderbrueggen Interview, 2014).”

Early ambivalence toward the CSB not only hampered its budget and staffing, but also robbed the agency of the chance to take advantage of the public concern that spurred its creation in the early 1990s. Consequently, by the time the Board began operation in 1998, it entered an increasingly antagonistic climate. Instead of capitalizing on the wave of safety reforms fueled by the disasters of the mid-1980s, the Board spent the decade languishing in an administrative netherworld. During the passage of the Clean Air Act Amendments, political will and industry support were aligned in a way that resembled early efforts to regulate civil aviation safety. If the CSB had become active at the point of its
authorization by Congress, it may have more easily integrated itself into the emerging regulatory framework, replicating the trajectory of the NTSB. But its delayed activation forced the new CSB to develop organizational strategy in a highly contentious policy environment, in which established networks of industry and regulatory officials had created an increasingly antagonistic atmosphere. In fact, the activation of the CSB came in the wake of renewed calls for an independent safety board following a joint report by OSHA and the EPA in 1997 that charged the industry with poor safety practices. The harshness of these critiques prompted industry leaders to question the objectivity of the two agencies and urge lawmakers to fund the independent safety board, so that they would not have to deal with OSHA or EPA investigators (Washington Post, 1997). So while some industry voices viewed the CSB as a potential partner in safety analysis, key regulatory agencies tended to see it as unnecessary. These officials simultaneously worried that it might prove too close to industry.

After appointments and appropriations brought the Board to life in 1998, tension among Board members inhibited the agency’s ability to fulfill its mandate, and created institutional challenges that continue to plague the agency today. In late 1999, Board members Gerald Poje, Andrea Kidd Taylor, and Irv Rosenthal objected when chair Paul Hill Jr. submitted a request to Congress to double the agency’s budget without their approval (Crow, 2000). Escalating disagreements over the responsibilities of the Board caused both sides to seek clarification from the Department of Justice Office of Legal Counsel (OLC) on the statutory relationship between the Chair and the rest of the Board. In 2000, OLC released what became known as the “Moss Opinion,” which determined that while the “day-to-day administration of Board matters and execution of Board policies are the responsibilities of the chairperson . . . substantive policymaking and regulatory authority is vested in the Board as a whole (COGR, 2014).” This diffusion of authority at the CSB distinguished it from the NTSB, whose chairperson retained a wider degree of unilateral power over policy and administration (Hart Interview, 2014). In addition, disputes over the precise boundaries of the CSB chairperson’s authority have more or less continuously generated tensions between CSB Board Members. Most recently, Board Member Beth Rosenberg resigned over a number of complaints with the Board’s management, including Chairman Rafael Moure-Eraso’s noncompliance with the Moss Opinion (COGR, 2014).

Outside of a short period in the mid-2000s, when the CSB achieved a relatively productive and positive working environment under the leadership of Carolyn Merritt, it has continually suffered from tight budgets and staffing vacancies, non-collaborative relationships with industry and regulatory stakeholders, and conflicts regarding CSB leadership and professional mandates. The lack of steady leadership not only constrained operations at the Board level, but also affected performance and morale throughout the organization. Whereas experts cite employee satisfaction among the NTSB’s greatest strengths, poor management and low staff retention continue to plague the CSB (Fielding et al 2011; GAO, 2008; EPA OIG, 2013; COGR, 2014).

The broader historical contexts in which the NTSB and CSB were founded also help to account for the differences in their effectiveness and reputational capital. The NTSB benefitted from a period of regulatory growth in the years following the New Deal Era, which permitted the organization to receive the fundamental political and industry support vital to its early existence. The late 1960s and early 1970s was also a period characterized by policy innovations in numerous agencies through the federal and state governments, a state of affairs that encouraged policy entrepreneurship. This support and experimental climate was particularly important during the early 1970s, for instance, when the NTSB weathered a conflict between high-ranking staff and management that hampered investigations and delayed reports (NYT, 1974; Chicago Tribune, 1977). When the CSB experienced similar issues in the late 1990s and early 2000s, it had not only a more inchoate organizational culture, but also a less robust
political buffer to insulate it. Formed in an era of deregulation, the CSB was set-up without the resources, regulatory authority, or creative leadership necessary to replicate the successes of the NTSB. The vastly different historical contexts in which the two boards were created profoundly shaped their institutional trajectories.

**Differences in Strategic Orientation and Collaboration with Industry**

Some of the CSB’s shortcomings arguably relate to policy choices unrelated to broader historical contexts. Despite the decision to model the CSB on the NTSB, CSB’s early leaders opted for quite different interpretations of investigative independence, which in turn encouraged distinctive investigative practices. For the NTSB, independence never implied isolation, and the Board has always worked closely with stakeholders throughout the process to address gaps in institutional capacity. The party system, widely perceived as one of the NTSB’s strongest attributes (Baxter 1995; Fielding et al 2011), has no counterpart within the CSB, which has chosen to rely entirely on its own inspections. Indeed, in a 2009 response to GAO recommendations, the CSB vigorously defended its refusal to emulate the NTSB in this regard, asserting that the Board “has correctly interpreted is Congressional mandate by independently investigating major accidents and hazards in depth, rather than attempting to serve as a clearinghouse for numerous, disparate, and often superficial reports from other organizations (GAO 2009).”

![Figure 5: Relationship Maps between Interested Parties, NTSB and CSB](image)

**Figure 5: Relationship Maps between Interested Parties, NTSB and CSB**

Figure 5 depicts the interactions that the two Boards have with a wide variety of stakeholders from Congress and the Executive Branch, to local governments and private industry firms. Resulting from its interpretation of independence, the NTSB has developed a much more interconnected web, with firms both supporting NTSB investigations and receiving Board recommendations. The CSB on the other hand, is much more one directional. It issues recommendations but receives limited contributions from invested parties. Part of the CSB’s isolationism stems from the organization’s already complicated relationship with the EPA. In 2004, the EPA Office of Inspector General (EPA OIG) received temporary congressional appropriations to serve as the primary oversight body for the CSB. Citing continued organizational issues and slow development, in 2008 the GAO requested the EPA OIG become the CSB’s permanent ombudsman. The Board rejected the GAO’s suggestion, questioning the independence of
the EPA OIG since the CSB regularly issues recommendations to its parent organization. While the EPA OIG has yet to have been formally granted permanent oversight status, this relationship between the two organizations remains a constant source of tension, resulting in a 2014 Congressional hearing stemming from the Board’s failure to respond to EPA OIG requests (GAO 2008; COGR 2014). In addition to oversight from the EPA OIG, the CSB is also subject to much stronger institutional oversight from the Government Accountability Office (GAO), Congress and the Executive branch. Comparatively, the NTSB is reviewed only by Congress and occasionally the GAO, upon request by a member of Congress.

These alternate interpretations of independent accident investigation at least partly reflect structural differences in the transportation and chemical industries. First, the number of chemical firms greatly outweighs the number of airlines, major bus lines, railroad companies, or pipeline companies. Since the early twentieth century, only a handful of airlines have controlled the commercial passenger aviation market. The small number of prominent firms encouraged industry-wide collaboration on safety research, development, and regulation. Similar consolidation occurred in other transportation sectors. Conversely, the chemical industry is composed of more than 10,000 firms, both large and small (Commerce Department, “Select USA”). The diversity within the industry makes it less equipped than commercial aviation to coordinate safety standards. Because of their lack of resources and expertise, moreover, smaller firms often view regulatory constraints as impositions that compromise their ability to operate profitably.

Secondly, because fatal transportation accidents are highly visible and directly impact travelers, they can dramatically affect public perception of the entire industry. Chemical accidents, while sometimes more disastrous, generally affect employees or nearby residents, but not consumers of the chemicals themselves. News coverage of a disastrous plane crash, psychologists have found, significantly increases the perceived risk of air travel. By contrast, a fatal explosion at a chemical plant producing compounds used in pesticides would not necessarily lead to a decrease in sales of that particular pesticide. As a result, executives of transportation firms perceive themselves as sharing a community of fate with regard to safety, and so have a much higher incentive to invest in research and development on improving systemic safety than those in the chemical industry. The priorities of the NTSB and transportation industry leaders, therefore, are more aligned than those of the CSB and the chemical industry. This allows the NTSB to draw upon a broader network of safety experts who not only offer knowledge and skills critical to the investigation process, but who also are generally more receptive to safety recommendations.

Furthermore, safety developments and self-regulation in the chemical industry developed in response to concerns about growing pressures for strong public safety regulation rather than from anxieties about nervous consumers. Following the massive chemical explosion in Bhopal, the chemical companies worried that their reputation for “ruthless, uncaring ambition,” would increase community resistance to future plant construction and hinder industry development (Hook 1996). To reestablish public trust and credibility, the Chemical Manufacturers’ Association (CMA) developed the Responsible Care program in 1985, an industry-wide system of self-regulation. But unlike the early air safety efforts that eventually evolved into the NTSB, the chemical industry did not view the CSB’s investigations of chemical process safety as an essential component of industrial development. Throughout the 1990s, the industry lobbied for the activation of the CSB not out of economic self-interest, but to remove existing investigatory authority from adversarial regulatory bodies such as OSHA and the EPA (Andrews 1993).

The close working relationship between industry officials and NTSB staff also stems from shared professional backgrounds. At the time of our interviews, all NTSB board members and department
directors had an extensive background in transportation and engineering. Trained as engineers, NTSB leadership understands transportation accidents from a perspective similar to the industry it regulates. With a shared set of priorities, values, and training, NTSB directors are able to communicate effectively with industry leaders and create cohesive action plans. By contrast, the majority of CSB leadership comes from backgrounds in public health or environmental toxicology, disciplines seemingly at odds with the goals and actions of the chemical industry. Not trained in chemical process safety, the board members at the CSB lack the kind of nuanced understanding of industry that their counterparts at the NTSB possess; CSB officials and staff also tend not to share similar regulatory goals as the industry they oversee. The differences in background, training, and perspective between the CSB leadership and executives within the industry it has fostered adversarial rather than collaborative relationships, a very different dynamic than exists between the NTSB and transportation firms.

**Conclusion**

This historical comparison between the United States NTSB and CSB suggests that independent investigatory boards will be most successful in sectors where private and public interests are most closely aligned. In order to benefit from an investigative strategy that employs methods similar to the NTSB’s “party system,” a government agency requires a broad and intensely engaged network of private experts. Comparing the maturation of the NTSB and CSB suggests that this is most likely when private entities consider the aspirations of the public agency as essential to economic growth and development.

In addition to the degree to which private and public priorities align, and the nature of the broader regulatory climate, the effectiveness of a new regulatory agency depends on the quality of its leadership, including the inventiveness of policy entrepreneurs. Despite the presence of both a broad network of private collaborators and a supportive political climate, the effectiveness of NTSB has suffered during moments of internal squabbling and interpersonal conflict (NYT, 1974; Chicago Tribune, 1977).

While the NTSB seems to have resolved most of its incapacitating leadership issues, government oversight bodies continue to critique the CSB for mismanagement. A lack of steady leadership not only constrained operations at the Board level, but also affected performance and morale throughout the organization. Experts cite employee satisfaction among the NTSB’s greatest strengths. For many at the NTSB, a position at the agency is widely considered the final stop in a long career of transportation safety. Passionate about their work, NTSB staff members often see their jobs as intrinsically valuable and enjoyable, and many choose to stay for years and even decades in the same position. The positive work environment at the NTSB encourages a high level of dedication and motivation among its employees and anchors the stability and effectiveness of the organization. This is not the case at the CSB, where poor management and low staff retention continue to plague the organization. Interpersonal drama, constant employee turnover, and mismanagement consistently drain the CSB of important human capital and constrain its ability to adequately fulfill its mission (Fielding et al 2011; GAO, 2008; EPA OIG, 2013; Hearings, 2014; NTSB Staff Interviews 2014).

These conclusions provide important lessons for policymakers considering the establishment of independent investigative agencies like the NTSB and CSB. When Congress created the CSB in 1990, lawmakers were of the opinion that the NTSB’s independence was the key to its success. While they were in many ways correct, this essay has shown that there were at least three additional factors that
made that independence a productive force. Developing a deeper understanding of what contributed to the NTSB’s success is particularly essential in light of recent interest in establishing independent investigatory boards for other sectors such as accounting, finance, and healthcare (Wallace 1994; Fielding, 2011; Hart, 2012). Without a broad base of expertise fostered by the economic prerogatives of industry, a strategy to incorporate non-governmental constituencies into the data and evidence gathering process, an appropriate investment of time and resources, and quality leadership, an investigatory agency in any sector will be more likely to replicate the weakness of the CSB than the strength of the NTSB.
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