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Road Safety as a Shared Responsibility in Europe: Lessons From France and Sweden

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Abstract: For more than a decade, efforts to improve mobility and road infrastructure have been central to the transportation policy in the United States. However, less attention has been devoted to improve road safety. Compared to the reduction rate in road fatality of high-income European nations (50 percent) during last decade, the U.S. still lags 19 percent behind. This shows a potential to reduce road collisions by applying the lessons of best-performing European cases. This study reviews the cases of France and Sweden, and examines the backgrounds and policy implementation processes. The study found that public officials in model nations shared or held main responsibility for road safety and undertook rigorous interventions to improve road safety awareness of the whole society. In France, the primary responsibility for road crashes was on "everyone", which includes road users, policy-makers, road designers, and all other groups. On the other hand, in Sweden, system designers have all causal responsibility for injuries and deaths on roads.

Keywords: transportation policy; road safety; shared responsibility; France; Sweden

1. Introduction

Globally, road traffic injuries are the eighth leading cause of death, and the first leading cause of death for young people from age 15 to 29 (World Health Organization, 2013). Around 50 million injures and more than 1.2 million people die annually (International Transport Forum, 2014). In the United States, efforts to improve vehicle mobility and road infrastructures have been central to the transportation policy for more than a decade. Also, the conventional U.S. transportation policy frames the cause of road injuries as individual faults—impaired driving, speeding, distracted driving, or inattention of pedestrians

and bikers. However, the congestion cost is still high in many states, and road fatality accounted for either the first and second highest proportion of unintentional injury deaths among all age groups in the United States in 2013 (US Centers for Disease Control, Prevention, 2013).

By contrast, high-income European countries experienced much faster safety improvements in numbers compared to the U.S. figures. Between 1995 and 2009, annual road fatalities declined by about 50 percent in top fifteen high-income countries (excluding the U.S.), where mostly European countries, while only 19 percent decreased in the U.S. (Transportation Research Board, 2011). This gap between safety progress in the U.S. and the other high-income nations indicates that the United States may be missing opportunities to reduce road deaths more effectively. Some best-performing Scandinavian countries, such as Sweden and the Netherlands, implemented aggressive road safety plans called *Vision Zero* and *Sustainable Safety*, respectively, since the early 1990s. Similarly, France, UK, Norway, and other developed countries have implemented road safety programs that helped reducing the considerable costs of road injuries in the early 2000s (Hauer and Brustlin, 2010). Most of these leading countries reformed their transportation systems to achieve the higher level of political support and leadership of elected officials on road safety. The strong commitment of decision-makers on reducing road crashes raised the safety awareness among the public and was successful in fostering safety culture of the society. Moreover, in model nations, improving road safety required the participation of high-level institutions and many different organizations. None of the participated sectors worked alone to reduce the number of traffic casualties.

Despite its severe impacts on health and social cost, road safety is seriously under-valued as an issue of transportation policy framework. Many studies have found that improvements in built environments (e.g., road design, area compactness, land use type) can successfully reduce traffic collisions (Ewing and Dumbaugh, 2009; Cho, Rodríguez, and Khattak, 2009; Kim et al., 2008; Zajac and Ivan, 2003). However, improving public awareness on road safety is becoming more critical, as there are increasing demands to proactively improve safety outcomes. Rather than superimposing engineering and design solutions to address collisions where they have already occurred, there are now efforts to begin to develop our understanding of how to implement effective road safety programs and moderate pre-crash behaviors. Therefore, studies on examining the strategies of implementing effective policy strategies are needed to predict and to achieve a better performance on safety outcomes.

Given the urgent needs of effective road safety strategies in the United States, the purpose of this study is to identify the strategies of sharing political responsibility for road safety in two high-income European countries—France and Sweden. Examining the experience of model countries will help reducing the burden of traffic-related injuries and deaths in the U.S. by applying the lesson learned from each case.

2. Methods and Approach

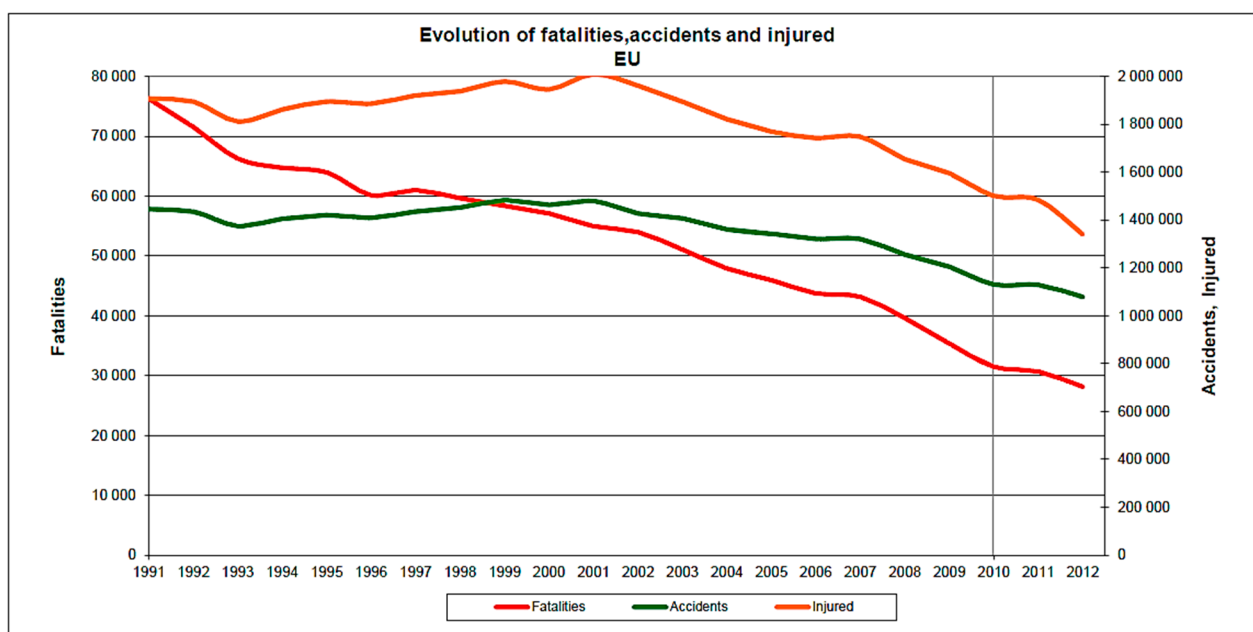
The author reviewed secondary resources including government reports, white papers, transportation safety data in both U.S. and European countries, and journal articles. In the first part of this research, the author explores the safety efforts in European countries followed by an in-depth case review of France and Sweden. In discussion and conclusion, the author compares the road fatality numbers in France, Sweden, and the U.S. to examine the road safety improvements in those countries since 1970.

3. Efforts to Improve Road Safety in Europe

Road safety outcomes of high-income European countries have improved in a short period of time, partly as a result of national policies, public education, and campaigns to make roads safer (Figure 1) (Pace et al., 2012). Only since the 1980s, there has been an efforts to improve transportation planning for road safety, and in the mid-1990s, related policies were implemented (ITF, 2012). The efforts have been led by cooperative parties, including professionals, politicians, the publics, and high-level institutions, working toward eliminating deaths on roads. In 1994, Sweden launched *Vision Zero* and the Netherlands adopted *Sustainable Safety* strategy. Also, Norway, France, and the UK have improved their road safety outcomes within a decade (Elvik, 2009; Hauer and Brustlin, 2010). These countries are known for effective preventive strategies that helped reduce the considerable costs of road injuries (e.g., costs for care).

In the traditional European road safety policy, more political responsibility for road injuries was assigned to individual road users, similar to current U.S. safety policies (McAndrews, 2013). However, around the late 1990s, followed by Sweden’s *Vision Zero*, which assigned the safety responsibility mainly on system designers, France started to share the responsibility with *everyone* of the society which led by president’s strong commitment on reducing road deaths. Different from these European countries, the safety policy implementation process was stalled in the Netherlands because the decisions by politicians changed over time and decentralized governmental structure have resulted in unclear commitments (SWOV 2005). This experience shows the importance of political structure and arrangement in effective road safety program implementation.

Figure 1. Road safety evolution in European Union nations, 1991-2011 (Source: CARE, EU road accidents database, 2013).



4. Case Study

Among the European countries mentioned above, the following section presents backgrounds and political strategies of France and Sweden. Strong political commitments and numerous groups working for road safety in both countries added valuable lessons for future road safety programs in the U.S.

4.1. France

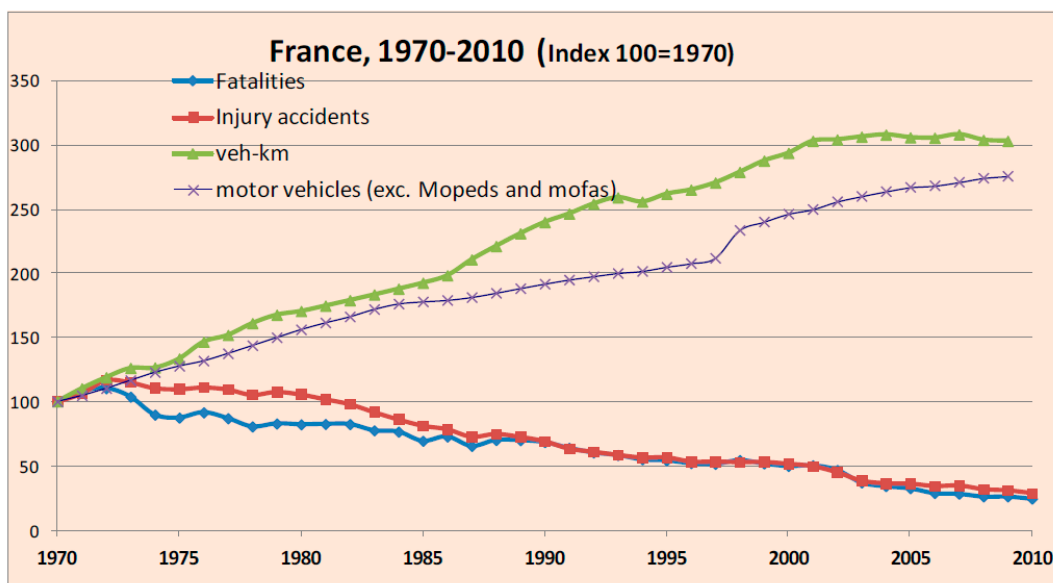
In 1997, the French Inter-ministerial Road Safety Committee (CSIR) set an ambitious target to reduce the number of road fatalities, but there was no remarkable decline in numbers. The level of enforcement in France was still one of the lowest in Europe (Muhlrad, 2006). In 2002, there was a considerable change in public attitudes to improve road safety due to the active media campaign originating from President Chirac's election, in which the president had stressed on the importance of road safety: "We share the roads. Road safety is something we provide for each other (Murard, 2009)." President's strong commitment was effective at raising the public's and politicians' awareness of road safety: "everyone was surprised, since road crashes were generally considered as part of transport policy and not a serious public problem (Gerondeau, 2006)." Affected by the president's leadership, CISR launched the 2002-2005 road safety program. The strategy included the principles of increasing controls and sanctions on speeding and impaired driving to change behavior and to promote a road safety culture to involve all relevant parties (Hauer and Brustlin, 2010).

In 2002-2005 road safety program in France, the primary responsibility for road crashes was on everyone. This included road users, policy-makers, road users, and the rest of the population (Gerondeau, 2006). The French government had taken the main responsibilities for implementing safe road standards, such as new driver educations, media campaigns, changing highway codes, and enforcing speeding laws, rather than blaming road users for their own safety (Gerondeau, 2006). The initiative was centrally planned and administered by high-level political support. This principle of responsibility-share also helped alter individuals' attitudes toward road safety. The safety program immediately reduced road fatalities by 21 percent within a year, with 7,242 and 5,731 road deaths in 2002 and 2003, respectively (Pace et al., 2012). Along with the shared safety responsibility, serious speed enforcement and active public education in France showed dramatic improvements in drivers' behavioral adaptation without rigorous infrastructure-oriented development: in 2005, France reached its lowest overall road fatality level since 1970 (Figure 2) (IRTAD, 2013).

4.2. Sweden

Road safety in Sweden has been nation's priority since 1967, when the Swedish government decided to change its traffic system from moving on the left- to the right-hand side of the roadway (Koornstra et al., 2002). Since the late 1970s, Sweden's rate of traffic fatalities per vehicle kilometer travelled has been among the lowest of all OECD countries (TRB, 2011). There was a 40-year decline in road fatalities and only a modest increase in injuries despite increases in the number of vehicles (Figure 3).

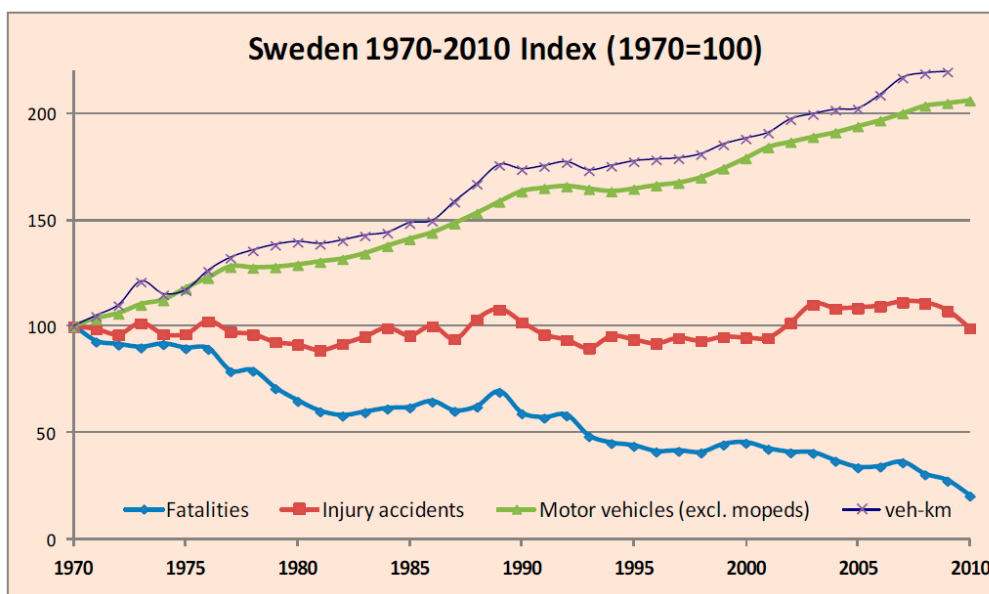
Figure 2. Reported road fatalities, injuries, motorized vehicles, and vehicle-kilometers in France, 1970-2010 (Source: IRTAD 2011, 133).



In the early 1990s, The Swedish Road Administration introduced *Vision Zero* concept and in 1997, the Swedish Parliament adopted the principle into national road safety policy. *Vision Zero* aims to eliminate any severe injuries or fatalities on roads (Whitelegg and Haq, 2009; Belin, Tillgren, and Vedung, 2012). Its new responsibility allocation strategy, a shift from “blame road users” to “producer is responsible for safety”, has helped reduce road injuries by 2-3 percent annually (Johansson, 2009): “we used to say that 90 percent of all road crashes are caused by the individual whereas we now say that 90 percent of the injuries are affected by the system designers (Fahlquist, 2006).” Innovative traffic management principles, such as limiting vehicular speed to 30 km/h (18 mph), a speed which prevents fatal pedestrian injuries from collisions, as well as improvements in built environments were the unique Swedish interventions to control speeding and reduce the number of severe road crashes. Innovative upgrades also have been applied to mode-split (e.g., vehicles exceeding 70 km/h or 44 mph must be separated by barriers), intersection design (e.g., roundabouts), and road design (e.g., 2+1 lanes with median barriers).

Vision Zero placed main responsibility on road authorities and vehicle regulators for designing a transportation system that is forgiving of the errors of road users. System designers, including road managers, politicians, public health professionals, and other players, were always responsible for road design, operations, and managing the level of safety within the entire transportation system. Road users were only responsible for following the rules and if they fail to obey rules or if any injuries occur, the system designers were required to take necessary further steps (Belin, Tillgren, and Vedung, 2012). Within a larger transportation policy context, *Vision Zero* framed safety culture, such as road collisions are preventable by safe road system, and increased the participation of more players (i.e. road authorities, NGOs, educators, health servicers) in road safety to achieve sustainable goals: zero deaths and zero severe injuries on roads (McAndrews, 2013).

Figure 3. Reported road fatalities, injuries, motorized vehicles, and vehicle-kilometers in Sweden, 1970-2010 (Source: IRTAD 2011, 300).



5. Discussion and Conclusion

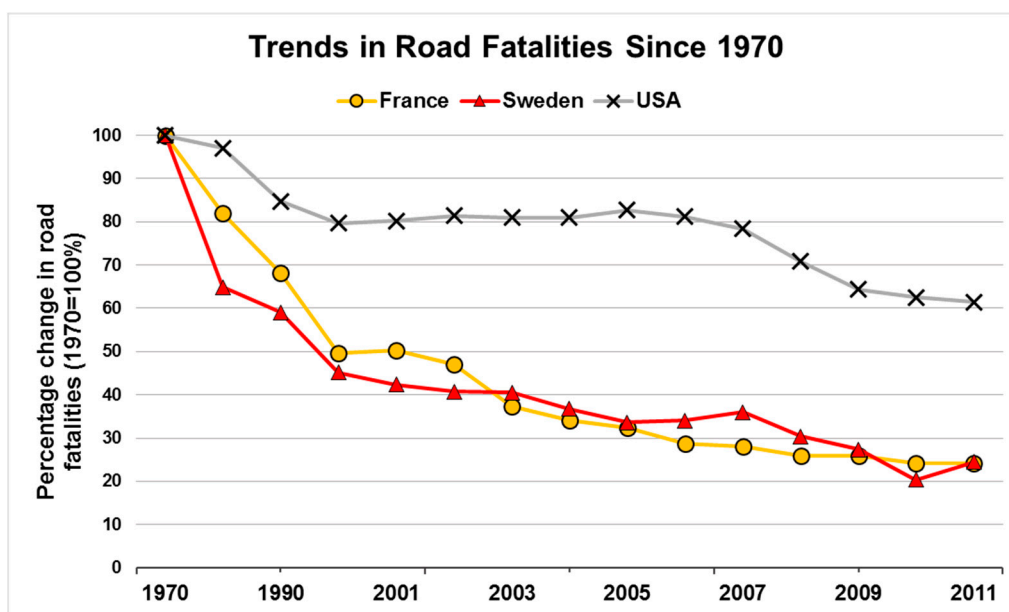
Road safety programs in France and Sweden are the examples of a process seeking to redefine expert’s political responsibilities on road safety. In France, every members of the society was responsible for road safety. The French government promoted active public campaigns, which was led by president and high-level political institutes, to improve public awareness on traffic safety. More radically, Sweden’s Vision Zero redefined causal responsibility of road safety by stating that road users are not solely responsible for causing collisions, but the system designers have an explicit role in preventing the collisions by implementing stringent laws, effective road designs, and promoting public educations.

In the 1970s, road fatality rate in the United States was one of the lowest in the world, however, the speed of safety progress improved more slowly than other high-income counterparts. Today, most high-income countries have gone below the U.S. fatality rate since 1970 (TRB, 2011). Compared to the reduction rate of road fatalities in France and Sweden between 1970 and 2011, the U.S. figures still lag behind: from 1970 to 2011, total road fatalities declined by 75.9 percent in France and by 75.6 percent in Sweden. By contrast, there was only a 38.5 percent fall in all traffic deaths in the U.S. over the same period (Figure 4). In recent periods, the U.S. statistics showed slow improvements compared to France and Sweden: the U.S. only reduced 27.4 percent in traffic deaths during 1990 and 2011, while France and Sweden reduced 65 percent and 58.7 percent, respectively.

It is true that the U.S. is a much larger country than France and Sweden, and most cities in the U.S. were designed to encourage auto-oriented development over the decades, while those two European countries were not. Also, land use patterns, traffic systems, transportation planning, and decision-making process among three countries are different. However, in general, the case study indicates that the implementation of new safety interventions in the U.S. should involve raising awareness among the public and encouraging decision-makers to more effectively participate in the effort of improving safety outcomes. Above all, not only the strategies of sharing responsibility for road safety, but the strategies

of integrating other safety measures, such as strict speeding regulations, at the beginning of the policy implementation through an active collaboration between experts from diverse fields will help increase road safety more effectively.

Figure 4. Trends in road fatalities in France, Sweden, and the U.S. since 1970 (1970=100%) (Data: IRTAD, 2011 and 2013 for France and Sweden, and NHTSA 1990, 2001, 2009, 2010 for the U.S.).



Conflict of Interest

The authors declare no conflict of interest.

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