



Cultural values and governance quality as correlates of road traffic fatalities: A nation level analysis

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ABSTRACT

This study investigated the relationships between governance quality, cultural dimensions and road traffic fatality rates in a sample of 46 countries. Government quality was measured with six World Governance Indicators (WGI) published by World Bank, and the cultural factors included Hofstede's four cultural dimensions and seven Schwartz value dimensions. Both direct and moderator effects of the WGI on traffic fatality rates per million vehicles were found. Each of the six WGI scores correlated negatively with traffic fatalities indicating that the quality of governance and institutions contribute to traffic safety. Hofstede's "power distance" dimension and Schwartz value dimensions "embeddedness", "hierarchy" and "mastery" were positively and "intellectual autonomy" and "egalitarianism" negatively related to traffic fatalities. The WGI score moderated the effects of "hierarchy" and "mastery" on traffic fatalities so that in countries with low governance quality these cultural factors had stronger impact on traffic fatalities. It was concluded that improvement of the quality of governance and institutions would also result in improvement in traffic safety.

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1. Introduction

"World report on road traffic injury prevention" published by World Health Organization (WHO) estimates the number of people killed in road traffic accidents (RTAs) each year to be at almost 1.2 million and the number injured as high as 50 million (Reinhardt, 2004) when a RTA fatality is defined as "any person killed immediately or dying within 30 days as a result of an collision involving at least one vehicle in motion on a public or private road" (Reinhardt, 2004). The burden of road deaths is, however, unequally distributed among regions: 90% of RTA deaths occur in low-income and middle-income countries, where 81% of world's population live and own about 20% of world's vehicles. For example, the rate for RTA mortality in 2002 for the WHO African region was 28.3 deaths per 100,000 population whereas the same figure for the WHO European region was 17.4 (Reinhardt, 2004). The regional differences in RTA mortality are vast even in Europe. For Eur-A countries (27 countries with low adult and child mortality), death rate in RTA's was 8.03 per 100,000 inhabitants in 2006 and for Eur-B+C countries (26 countries with high adult and child mortality) the RTA mortality rate was 19.12. Moreover, WHO predicts RTA deaths to increase from 2002 until 2020 by 83% in low and middle-income countries whereas a decrease of 27% can be expected in high-income countries (Reinhardt, 2004). These figures clearly demonstrate that

regional differences are huge in RTA deaths and that this regional imbalance will increase drastically in near future if action is not taken.

Regional differences in RTA rates are probably caused by many different factors like the level of development of the road infrastructure, the general condition of the vehicles, the quality of the emergency medicine, and the availability of public transport. In addition to these technical factors, institutional and behavioral factors like the police enforcement and punishments, driver education and licensing as well as differences in drivers' values and behaviors all contribute to the traffic safety situation in a country and, thus, can explain regional differences in RTA rates. For example, in most high-income countries about 20% of fatally injured drivers have excess alcohol in their blood. In contrast, studies in low and middle-income countries have shown that between 33% and 69% of fatally injured drivers had consumed alcohols before their crash (World Health Organization, 2007). Similar country differences can be found in speed and seat belt use (World Health Organization, 2008, 2009) and even in people's understanding of traffic signs (Shinar et al., 2003). Özkan et al. studied cultural differences in driver behaviors (Özkan et al., 2006a) and skills (Özkan et al., 2006b) by comparing British, Dutch, Finnish, Greek, Iranian and Turkish drivers. These studies revealed differences between the Southern and Northern Europe in driver behavior: drivers from "safe" Western/Northern countries scored higher on the ordinary violations, especially on speeding on the motorway, whereas drivers in "dangerous" Southern European/Middle Eastern countries reported higher driving error and aggressive driving scores

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(Özkan et al., 2006a). Authors suggested that higher level of aggressive driving and errors in Southern European and Middle Eastern traffic was due to higher levels of conflicts because of less developed infrastructure, lower respect for traffic rules and higher levels of driver stress. According to the conclusions, higher frequency of speeding reported by drivers of “safe” countries reflected the level of enforcement. The second study by Özkan et al. (2006b) showed that the concept of being a “safe driver” is culture dependent and, therefore, understood differently in different countries.

1.1. Governance and traffic fatalities

It can be claimed that differences in the quality of infrastructure, enforcement and driver education as well as driver behaviors reflect a country's quality of governance and culture in general. Since national transport policy and traffic safety strategies are in every country based mostly on governmental initiatives and political decision making, we can claim that many aspects of transport policy and, consequently, traffic safety reflect the quality of governance. In this way, the quality of civil service actually determines how well and effectively the government institutions like the traffic police, the road administration, the vehicle inspection offices and the licensing practices function. Economic literature of recent years shows clearly that the institutions exert a profound influence on economic performance and other measures of development (Licht et al., 2005; Rodrik et al., 2004). Differences in governance play an indispensable role in explaining why the levels of economic development differ in great degrees between countries. Countries differ in their traffic policies and institutions. In most (but certainly not all) countries, these institutions and policy regimes remain broadly similar over considerable periods of time. This is particularly the case for their constitutional and legal systems, but also the extent of corruption in government, the quality of education and health care systems, and the prevalence of police enforcement do not usually change a great deal from year to year. The governance of some countries is rather unstable and, consequently, institutions and individual citizens must endure continuing uncertainty about the policy and law and contract enforcement. The shortcomings in governance largely account for low incomes and, hence, low development levels. Thus, most of less developed countries do not take advantage of their opportunities for improving the living conditions and well being of their citizens, and fail in the convergence process to the developed countries' better living standards. However, even though most patterns of governance persist, some developing countries make fundamental changes for the better in their policy regimes and institutions (Rodrik et al., 2004). In these countries, better governance enables them to exploit the opportunities to achieve high development and better standards of living with low road traffic fatality levels.

The biggest obstacle to testing arguments related to the governance and better living standards with low traffic accident rates has been the paucity of measures of the quality of governance. A set of measures of the quality of governance has been found relatively recently. Since 1996 World Bank has published Worldwide Governance Indicators (WGI), which measure six dimensions of governance (Kaufmann et al., 2008). These indicators are “Voice and Accountability” (VA), “Political Stability and Absence of Violence” (PV), “Government Effectiveness” (GE), “Regulatory Quality” (RQ), “Rule of Law” (RL) and “Control of Corruption” (CC). The first of the indexes, VA, measures the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and free media. The second index, PV, refers to the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. The

third index, GE, is a measure for the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. The RQ index measures the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. The fifth index, RL, indexes the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Finally, CC measures the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests. These six aggregate indicators combine the views of a large number of enterprise, citizens and expert survey respondents in industrial and developing countries. However, the WGI indexes do not provide distinct measures of different aspects of the quality of governance but each of the indexes reflects perceptions of the quality of governance more broadly (Langbein and Knack, 2008). Therefore, a single combined index for the WGI was used in the present study. The WGI dimensions are published annually and include 212 countries (Kaufmann et al., 2007).

1.2. Hofstede's cultural dimensions and traffic fatalities

At a macro level analysis, not only institutional factors but general social norms and the interaction of road users with each other can be important in explaining the occurrence and level of traffic fatalities. Naturally, the high frequency of the failure of social interaction among road users will result in conflicts and traffic accidents. The investigation of social characteristics of traffic accidents is essential for understanding their reasons. Some frequently observed patterns of social characteristics of traffic accidents among different groups of road users can be attributed to cultural differences among these groups. The studies that show that the driving skills are acquired from families through observing the driving of parents and their style (Carlson and Klein, 1970; Preusser et al., 1985; Taubman Ben-Ari et al., 2005). The social norms of driving which pass from one generation to another and accepted driving habits in a society can be expected to be related to national cultural norms and values especially in societies with low enforcement of traffic laws reflecting low quality of governance. Although cultural characteristics are difficult to measure, it is still possible to explore the effects of cultural factors on traffic accidents. In this study, the national level culture was measured with Hofstede's cultural dimensions (Hofstede, 2001) and Schwartz value preferences (Schwartz, 1994, 2006).

Culture can be called “the collective programming of the mind that distinguishes the members of one group or category of people from another” (Hofstede, 2001). The center of the mechanism of culture is “a system of societal norms consisting of the value systems (or the mental software) shared by major groups in the population”. Hofstede (2001) represented the fundamental problems of societies by investigating culture through four empirically identified dimensions. These dimensions were inequality between people (PDI: power distance), the level of stress in a society related to unknown future (UAI: uncertainty avoidance), the integration of individuals into primary groups (IDV: individualism vs. collectivism), and the division of emotional roles between males and females (MAS: masculinity vs. femininity).

Although Hofstede's cultural value scores have been available since 1980, it is surprising how little interest these indexes have generated among traffic safety researchers. In the second edition of his book (2001), Hofstede lists some interesting results about his cultural factors and traffic safety: UAI and MAS scores had strong positive correlations (0.56 and 0.51, respectively) to 1971 traffic

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