

CORPORATE SOCIAL RESPONSIBILITY AND TRAFFIC CONGESTION:
A MIXED METHODS STUDY

A Dissertation
Submitted to the Graduate Faculty
of the
North Dakota State University
of Agriculture and Applied Science

By

Bukola Bakare

In Partial Fulfillment of the Requirements
for the Degree of
DOCTOR OF PHILOSOPHY

Major Program:
Transportation and Logistics

April 2020

Fargo, North Dakota

North Dakota State University
Graduate School

Title

CORPORATE SOCIAL RESPONSIBILITY AND TRAFFIC
CONGESTION: A MIXED METHODS STUDY

By

Bukola Bakare

The Supervisory Committee certifies that this *disquisition* complies with North Dakota
State University's regulations and meets the accepted standards for the degree of

DOCTOR OF PHILOSOPHY

SUPERVISORY COMMITTEE:

Dr. Joseph Szmerekovsky

Chair

Dr. Diomo Motuba

Dr. Abby Gold

Dr. Ninez Ponce

Approved:

April 16, 2020

Date

Dr. Tim Peterson

Department Chair

ABSTRACT

Traffic congestion (TC) is a complex issue having an adverse impact on the environment, business operations and health. Many cities are taking action to curb it. Corporations have increasingly engaged in corporate social responsibility (CSR) actions. Using corporations headquartered in the top-rated traffic congested cities in the United States, this study examines the relationship between TC and CSR. The quantitative research employed a hierarchical linear model with two datasets, traffic speed data and CSRHub ratings. The speed data was used to calculate travel time index (TTI), a measure of TC. Using Atlanta BeltLine Inc. as a case study, a phenomenological thematic approach was utilized to assess stakeholders' viewpoints of congestion mitigation efforts in Atlanta, GA. This study adds to research on CSR by examining the effects that CSR actions have on a specific local event, e.g., TC. In addition, research reflecting on the impact of CSR on TC has not been conducted. This study aims to fill this gap. Of the four top category CSR studied in the quantitative phase, the community, employees, and environment ratings are significantly related to TTI, with employees and environment having an inverse relationship to TTI. The qualitative study showed that stakeholders struggle with TC, and that the relationship between CSR and TC is not obvious to them. This quantitative study was conducted on eighteen top-rated congested cities. Further study on other major congested cities may shed more light on CSR and TC. A future qualitative analysis can explore the viewpoint of city government. Findings in this study are expected to be a leverage point for public-private TC mitigation and to inform policies that incorporate TC reduction as a CSR indicator. Although the quantitative analysis showed that a relationship exists between CSR and TC, the literature and DOT reports revealed increased and continuous congestion in these cities. The case study of the ABI project in the qualitative research indicated that TC is an area where CSR can have a major

local impact. Some corporate respondents acknowledged that TC has a business cost, however no serious steps are taken to tackle TC.

Keywords: corporate social responsibility, traffic congestion, productivity, health

ACKNOWLEDGEMENTS

First, I want to acknowledge and thank the Robert Wood Johnson Foundation Health Policy Research Scholars (RWJF-HPRS) for funding my dissertation and my Ph.D. I am very grateful not just for the financial support that they provided, but I am also thankful for the leadership training, networking opportunities, collaboration with other RWJF-HPRS scholars from across the country, and mentorship that they provided through the RWJF-HPRS faculty and staff!

I am very grateful to my Ph.D. advisor, Dr. Joseph Szmerekovsky. From the get-go, he shared with me his goals for his students and his ways of approaching research. I was struck by his passion as a researcher and his hard work in helping his students in becoming great researchers. Dr. Szmerekovsky strikes the fine balance between teaching his students and allowing them to flourish as researchers in the making. Dr. Szmerekovsky has not only taught me to be a good researcher and educator, but he has also taught me patience, gentleness, and kindness. I appreciate his mentorship and support in navigating some difficult paths during my Ph.D. journey!

I am deeply indebted to Dr. Tomany, the Graduate School Dean, and her staff for their leadership and support throughout my Ph.D. program. My expression of gratitude also goes to my RWJF-HPRS mentor, Dr. Ninez Ponce at the University of California Los Angeles. She was instrumental not only in seeing me through the RWJF-HPRS program, but also in completing and presenting a quality dissertation! I cannot thank her enough for her support for me and my family! My family and I will forever cherish her visit, traveling many miles, to cheer our son on during the National Spelling Bee!

For me, achieving my Ph.D. degree was not a singular effort; it was a collective endeavor of many great individuals that I have been blessed with. I am going to start with thanking Dr. Denver Tolliver and his staff for giving me the opportunity to join the Ph.D. program; Dr. Gold and Dr. Motuba for serving as members of my Ph.D. Supervisory Committee; my RWJF-HPRS colleagues for their support; Dr. Mary Ayadi, my RWJF-HPRS home institution co-mentor, and her family for supporting and believing in me; Dr. Donald Ariail, my master's degree advisor and mentor, for supporting me throughout my graduate education; Mrs. Kristina Caton and the Graduate Center for Writers for providing writing space and support; Ms. Karin Almjeld for supporting my writing; Ms. Rosalie Brass for her moral support and prayers; Mr. Curt Dockett, our institution's statistic consultant and his graduate student Ms. Qian Wen, for supporting my quantitative study; Dr. Manka Nkembeng, RWJF-HPRS fellow, and Mr. Fnu Ahadujjman, my graduate research assistant, for supporting me in coding the qualitative data; the RWJF-HPRS writing retreat faculty and staff for providing writing space and coaching; the Graduate Student Council for allowing me to serve and gain precious leadership experience; the Extension staff and Cass-Clay Food Commission for allowing to serve the Fargo-Moorhead community and gain precious leadership experience, and last but not the least, my family, for their dedication and sacrifice in supporting my Ph.D. program.

DEDICATION

To God, Tobi, Timi, Bolaji, and Mom.

TABLE OF CONTENTS

ABSTRACT.....	iii
ACKNOWLEDGEMENTS.....	v
DEDICATION.....	vii
LIST OF TABLES.....	xii
LIST OF FIGURES.....	xiii
LIST OF ABBREVIATIONS.....	xiv
CHAPTER 1. INTRODUCTION.....	1
Background.....	2
Statement of the Problem.....	3
Purpose Statement.....	5
Significance of the Study.....	6
Theoretical Foundation.....	7
Research Questions.....	8
Objectives of the Study.....	8
Objective 1 – Quantitative.....	8
Objective 2 – Qualitative.....	9
Objective 3 – Mixed Method.....	9
Scope and Limitation of the Study.....	9
CHAPTER 2. LITERATURE REVIEW.....	11
Introduction.....	11
Corporate Social Responsibility.....	12
CSR - Theory and Practice.....	14
CSR, Traffic Congestion, and Need for Qualitative Analysis.....	16
Quantitative Analysis: Theoretical and Conceptual Framework.....	19

Qualitative Analysis: Theoretical and Conceptual Framework	21
CHAPTER 3. METHODS	24
Introduction	24
Quantitative Analysis Methods	27
CSR Data	27
Traffic Data	28
INRIX Global Traffic Scorecard	28
Fortune 500 Data	29
List of Zip Codes	29
Google Maps	29
Data Management	29
ArcGIS Analysis	30
Theoretical and Operational Definitions	31
Quantitative Research and Model Design and Operational Construct	32
Model Description	33
Operational Definition of Variables	36
Statistical Analysis and Procedures	39
Qualitative Analysis Methods	44
Data	46
Sample	47
Other Sample Details	47
Codes and Coding Method	49
Themes and Method	52
CHAPTER 4. RESULTS	54
Quantitative Analysis Results	54

Explanation of the Assumptions.....	54
Explanation of Tables.....	55
Model 1, Step 1.....	59
Model 1, Step 2.....	60
Model 2, Step 1.....	61
Model 2, Step 2.....	64
Qualitative Analysis Results	65
Social and Business Issues	65
Potential Remedy.....	66
Invisible CSR.....	67
Partnership and Conversation.....	68
Social Change.....	69
CHAPTER 5. DISCUSSIONS AND CONCLUSIONS.....	70
Quantitative Analysis Discussion.....	70
Interpretation of Findings	70
Qualitative Analysis Discussion.....	73
Traffic Congestion is a Complex Problem	73
Corporate Social Responsibility	75
Conclusions from Quantitative Analysis.....	80
Conclusions from Qualitative Analysis.....	81
Final Conclusions for Mixed Methods Study	82
Implications	84
REFERENCES	87
APPENDIX A. CORPORATION, CITY, COUNTY AND STATE.....	92
APPENDIX B. PEARSON RESIDUALS - MODEL 1 STEP 2 – TOP CATEGORY CSR.....	96

APPENDIX C. RESIDUALS - MODEL 1 STEP 2 – TOP CATEGORY CSR	97
APPENDIX D. PEARSON RESIDUALS - MODEL 2 STEP 1 – SUBCATEGORY CSR.....	98
APPENDIX E. RESIDUALS - MODEL 2 STEP 1 – SUBCATEGORY CSR	99
APPENDIX F. AVERAGE TTI FOR 18 U.S. CITIES.....	100
APPENDIX G. IRB APPROVAL	101
APPENDIX H. STUDY CONSENT STATEMENT	102
APPENDIX I. INTERVIEW QUESTIONS.....	103
APPENDIX J. THEMATIC ANALYSIS PROCESS	104

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Key Variables Construct – Model 1.....	37
2. Key Variables Construct – Model 2.....	38
3. Other Variables Construct – Model 1 & 2.....	39
4. Hypotheses, Predictions and Theoretical Background	43
5. Participant Statistics.....	48
6. Intercoder Reliability Test	50
7. Corporate, City, and Road Segment Statistics	57
8. Solution for Random Effects – Top Category CSR – Model 1	58
9. Solution for Random Effects Subcategory CSR Model 2	59
10. Solution for Fixed Effects – Top Category CSR – Model 1.....	61
11. Solution for Fixed Effects – Model 2	63

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. Top category and subcategory CSR.....	21
2. Phases of the research design.....	26
3. Phases of the mixed methods design.	27
4. Research analysis and procedure.	32
5. Research model.	33
6. Control variables.	41
7. Logical model construct.....	41
8. Social impact theory.	42
9. Qualitative framework.	45
10. Traffic congestion model.	46
11. Thematic process.	50
12. Simple statistics.	56
13. Covariance parameter estimates.	60

LIST OF ABBREVIATIONS

ABI.....	Atlanta BeltLine, Inc.
CSR.....	Corporate Social Responsibility
DOT	Department of Transportation
DV.....	Dependent Variable
ESG.....	Environment, Social and Governance, the three broad categories under which businesses report their social responsibility efforts
IV	Independent Variable
NPMRDS	National Performance Measurement Research Data Set
PM2.5.....	Particulate matter, a mixture of solid particles and liquid droplets in the air, measuring 2.5 micrometers wide or less
SC.....	Supply Chain
TC	Traffic Congestion
TTI	Traffic Time Index

CHAPTER 1. INTRODUCTION

Traffic congestion continues to be a major environmental, health, community, and supply chain operation problem. These traffic delays result in restricted economic growth that directly impacts revenue. Traffic congestion poses not only a complex issue, but it has also proven to be beyond what the state and federal governments alone can handle. Many cities and communities, feeling the burden of traffic congestion, are taking action to curb congestion (Cradock et al., 2018). These actions include city revitalization and active transportation infrastructure improvements and programs (Weede, 2019). On the same token, corporations have increasingly sought to be socially responsible community partners; however, corporations, which are important stakeholders in communities, are often not a part of the solution (Weede, 2019).

The World Business Council for Sustainable Development defines corporate social responsibility (CSR) as the “continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as the local community and society at large” (Holme & Watts, 2000, p. 8). Nargolwala (2006), refers to it as any company’s actions toward any sort of social improvement & community benefits. Mattera, Baena, & Cerviño, (2012) defined it as any activity whose consequences will not only affect the subject who carries it out.

Congestion is a major problem in many urban areas with both health and financial impacts. This raises the question of whether or not companies with high CSR ratings see congestion as an issue of social responsibility or isolate it as a financial problem. Additionally, TC is a complex issue and it appears that corporations may not be addressing this challenge that underpins sustainable community health and economic issues.

CSR appears to be a viable avenue for corporations to participate in TC mitigation. Aside from the impact that corporations can have on this social/business issue, taking on this specific issue as a focus of CSR positions a corporation as a leader in the community. Hence, it is critical to examine if corporations engaged in CSR are impacting congestion as part of fulfilling their social responsibilities.

Because of the complex nature of TC, CSR, and their relationship, this study takes a sequential explanatory mixed-methods approach. An explanatory mixed methods approach not only allows a researcher to first explore quantitative data and then follow up with qualitative data but also afforded the researcher an extended firsthand engagement with the participants and the data collection process.

Background

The underlying phenomenon for which this study was conducted, and for which research has established, is the problem of increasing traffic congestion (a large contributor of carbon emissions and pollution). Corporate social responsibility (CSR) is an action or reporting of a company's stewardship towards its community, employees, environment, and governance. More and more corporations are promoting their CSR actions to project a good corporate image of stewardship toward the community and environment. In light of the increased efforts by cities to combat traffic congestion and in light of corporations touting their high environmental CSR ratings, it is investigated if high environmental CSR ratings can have a direct impact on a local event, such as traffic congestion (TC). This study also investigates if corporations view TC as a problem for their business operations.

Traffic congestion continues to be a major environmental, health, community, and supply chain problem with health and financial consequences. Roadway delays cause unnecessary

delivery bottlenecks, extra travel time, lost productivity, and extra costs from wasted resources. These traffic delays result in restricted economic growth that directly impacts revenue. In addition, traffic congestion, a large producer of environmental pollutants, has a direct, adverse impact on human health. To that end, many cities and communities are taking action to alleviate congestion, such as city revitalization and active transportation infrastructure improvements (Cradock et al., 2018).

For example, Atlanta GA, which is ranked fourth worst in the nation for traffic congestion, is revitalizing its supply chain (SC) hub in the metro downtown area. A prominent program involved with this initiative is the Atlanta BeltLine (ABI). The ABI is a not-for-profit organization that manages and leverages funding for the implementation of the Atlanta BeltLine program, which includes amenities such as walk/bike trails and parks, through partnerships with the private and public sectors. ABI was incorporated in 2005 and the project is being implemented in phases over 25 years (estimated completion in 2030). The ABI was designed to allow people to travel actively and to connect to or access other neighborhoods and other transportation infrastructures to improve road conditions, health, and promote a *rich* (meaning affordable and attractive) and economically vibrant environment. It can be argued that SC and logistics firms will benefit more from the reduction of traffic congestion. These companies, however, are not paying careful attention or taking advantage of this initiative as either a strategic competitive advantage or a corporate social community involvement partnership.

Statement of the Problem

The landscape of traditional supply chain operation is changing. The new business model for supply chain and logistics firms is to break up delivery routes into smaller chunks. Although the new model positions firms for competitive advantages regionally and globally due to its

customer satisfaction capability, it is likely to require intense transportation and urban space usages, such as wider roads and increased parking. When viewed from the recent pattern of direct-to-consumer delivery, which is commonly referred to as a last-mile small delivery, that is dominated by online sales (and even brick-and-mortar stores), corporations are not only contributing to traffic congestion through their many employees driving solo to work but also this new shipment/freight movement pattern. This has given rise to increased roadway usage through the “gig-economy” such as Uber, UberEats, Lyft, etc (Dumrongsiri et al., 2008). Hence, the overarching ideas that form the basis of this research revolve around the issues that support or undermine the infrastructural facilities that cities, non-profit organizations, and communities are putting in place to mitigate traffic congestion. Infrastructural facilities include new road construction, active transportation facilities, and endeavors to limit city sprawl. The “induced demand” nature of TC seems to create a cycle where the more infrastructure is built, more people show up to use it. Induced demand refers to the idea that when more roads are built people tend to drive more because they perceive that more free lanes means faster commute, thereby congesting the roads again (Lee et al., 1999). This induced demand may also apply to active infrastructural facilities cities are putting in place (Cradock et al., 2018; Lee et al., 1999).

If traffic congestion is a cyclical activity, then merely adding infrastructure may not be enough. Several authors have rigorously studied this complex phenomenon, traffic congestion, for many years and in many ways for viable resolutions but with few solid answers (Aftabuzzaman et al., 2010; Crayton & Meier, 2017; Eisele et al., 2011; Greenblatt & Shaheen, 2015; Wadud et al., 2016; Weisbrod et al., 2003; Weisbrod & Fitzroy, 2011). Traffic congestion has proven to be beyond the sole ability of the government (cities and states) to deal with (Cradock et al., 2018; Eisele et al., 2011). This study seeks to discover first, if the efforts rated in

CSR have any impactful effects on traffic congestion and second, if corporations are focused on traffic relief efforts.

Purpose Statement

The overall purpose of this mixed-methods study is to examine the effects of CSR on local events, both statistically and from stakeholders' lived experiences. The quantitative portion of the study aims to examine socially responsible corporations' ratings and their effects on traffic congestion in their respective headquarters' cities. The qualitative study seeks to examine the actual, real-world effects of CSR on a community. Stakeholders are the beneficiaries of the traffic congestion relief efforts and they are city residents, Atlanta BeltLine, Inc. (ABI) managers, local Fortune 500 employees and corporation's managers.

As community revitalization projects focus more on physically active transportation infrastructure, which is purported to mitigate health and environmental footprints resulting from high levels of automobile usage in urban areas, it is important to examine other mitigating actions, such as CSR actions as reported by CSR ratings. The overarching ideas that form the basis of this research revolve around the issues that support or undermine the infrastructural facilities that cities, non-profit organizations, and communities are putting in place to mitigate traffic congestion. Infrastructural facilities include new road construction, active transportation facilities, and endeavors to limit city sprawl. For the purpose of the current study, it is assumed that (1) intense transportation usage causes traffic congestion, (2) the adverse consequences on the health of people who drive in and live near congestion-prone areas is the effect of traffic, and (3) city revitalization that accommodates intense physically active transportation as well as other measures, may be address traffic congestion.

At this stage in the research, a traffic relief effort will generally be defined as a road congestion relief effort such as active transportation infrastructure that encourages forms of transportation different from one person one car, and that allows people to be closer to important places (homes, shops, restaurants, jobs, clinics, etc.). It is assumed that any effort to relieve the congested roads during peak hours is an action taken to not only protect routes and allow for more free freight operations but also to reduce emissions and improve health.

Significance of the Study

This study explores the relationship between traffic congestion, which impacts human health, and corporate social responsibility (CSR) ratings. This study adds to research on corporate social responsibility impacts/ethics by examining the effects that CSR actions have on a specific local event, such as TC. In addition, a study focusing on the impact of CSR on traffic congestion has not been conducted in the supply chain and logistics literature. This study aims to fill this gap.

This study will provide a new understanding of how CSR could bring about health and economic benefits to corporations, employees, and vulnerable residents in the surrounding community. Community revitalization efforts to reduce congestion and improve active transportation infrastructure, such as the Atlanta BeltLine Inc., seem to be a viable solution. However, an important stakeholder, the corporate sector, is often neglected. More research is needed to explore the influence of increased corporate social responsibility and community involvement in green redevelopment and how it improves healthy active traveling; a significant vacuum this study strives to fill.

Theoretical Foundation

The extant literature has tried to capture the real motive for corporations that encompass socially responsible practices and partnerships (Kemi C. Yekini, 2012; Sellers, 2009). Some have argued that it is simply publicity concerns, while some contend that the motive is a desire to benefit both the corporation and society. There are several theories that have been used to explain the CSR framework, namely political corporate accountability theory, economic theory, justice theory, and signaling theory (Yekini 2009). Three theories, legitimacy theory, stakeholder theory, and institutional theory, most prominent in the literature when discussing CSR. The legitimacy theory speaks to the implicit social contract between an organization and the society within which it operates (Fernando, & Lawrence, 2014; Kemi C. Yekini, 2012). The stakeholder theory describes the relationship that exists between the organization and society, which can be internal or external. Institutional theory explains how various organizations come together for the purpose of achieving a common social framework, including social value, structure, scheme, rules, norms, and routine.

Although the literature has produced overviews of the theoretical and practical aspects of CSR, it has not examined the effects of CSR on the local level. This study hopes to contribute to the literature by bridging this gap. By examining CSR from the point of theory (quantitative) and from the place of practice (qualitative), this research hopes to shed light on corporations' true intentions for their unprecedented CSR community involvement. Again, for the purpose of this study, the intentions of corporations will be examined in light of improving community health infrastructure as it relates to physically active transport modes through CSR ratings.

Companies state their community involvement in their annual reports as a way to voluntarily communicate their social responsibility to the public, in order to maximize value.

Hence, the contention of this study is that focal firms are able to enhance value maximization strategy by propelling an image that showcases corporate social responsibility through community involvement activities. This study will focus on the new public health infrastructure in the form of the Atlanta BeltLine for a collective impact.

Research Questions

Do CSR ratings relate to or have any effects on traffic congestion? What aspects of the rated CSR actions is perceived as having local effects? Based on these overarching questions, the study examined the relationship of CSR ratings and TC. Quantitative analysis was utilized to observe the relationship between CSR ratings and TC. Qualitative analysis portion of this study examined whether socially responsible ratings are perceived as a true reflection of corporate social and community strategy or if they are merely signals of adherence to societal expectations. For example, a part of the qualitative research question examined if corporate managers observe CSR actions relating to TC mitigation as a strategic and economic advantage. Appendix I contains full interview questions.

Objectives of the Study

This study objectives for employing a mixed methods design for data collection and research analysis are as follows:

Objective 1 – Quantitative

1. Obtain data and present a general description of CSR ratings, corporations, and
2. Obtain data to examine the CSR ratings in two rating dimensions
 - i. Relationship of CSR to traffic congestion
 - ii. The specific level of CSR that directly impact traffic congestion

Objective 2 – Qualitative

Assess corporations', community members', and non-profit agencies' perception of traffic congestion and corporate social responsibility through the lens of a community revitalization effort (Atlanta BeltLine Inc.).

Objective 3 – Mixed Method

Understand the contextual determinants of specific aspect of CSR ratings of the socially responsible companies that is associated with congestion as well as the perceived local impact of these rated aspects of CSR ratings.

Scope and Limitation of the Study

For the quantitative study, the study scope is 18 out of the 25 top-rated traffic congested cities in the U.S. For the qualitative study, the study scope is in metropolitan Atlanta, GA. The qualitative study is based on interviews with the top-level corporations' executives, community residents, and corporations' employees working and living in the city of Atlanta and non-profit organization representatives.

Quantitative Content Scope: Examination of effect of CSR on traffic congestion

Qualitative Content Scope: Interviews with stakeholders

Quantitative Population Scope: Road segments near corporations' headquarters in the U.S.

Qualitative Population Scope: Corporate supply chain/transportation executives (service and retail), community residents, employees, and non-profit in Atlanta, GA.

Limitations of the Study: The quantitative analysis is constrained to road segments proximal to corporations in 18 cities only. The qualitative analysis interviewed community members, corporate representatives, and representatives of the ABI in Atlanta, GA.

This study is structured as follows: Introduction and the basis for the study. Review of literature and theoretical framework. Statistical analysis of research hypotheses (quantitative). Thematic analysis of the transcribed interview data (qualitative). Results section highlights the findings. Discussion presents further information about the research findings. Conclusion section includes information for further studies.

CHAPTER 2. LITERATURE REVIEW

Introduction

As a part of a debate organized by *Harvard Business Review*, Frances Hesselbein (2010) asked the question, “What does business owe the world?” In this public discourse, Hesselbein (2010) referred to Peter Drucker’s work on corporate responsibility to answer the question. According to Hesselbein (2010), Drucker stated that business leaders are responsible and accountable for the actions of their institutions. This responsibility ensures that a business institution is concentrated, focused, limited. Drucker also refers to a business as being responsible also to the community as a whole (Hesselbein, 2010, p. 1). Although there are laws that regulate a company’s actions, corporate social responsibility is the lens that serves to portray a corporation as a respectable member of the community in which it operates. Brusseau (2012), likens corporations to members of a society. As people are bound by moral sense and responsibility, the corporation, as a member of the community, also is bound by the same moral duties. Therefore, “operators” of the corporation should manage the enterprise not only in financial terms but also in ethical ones. Although Drucker’s definition and Brusseau’s commentary seem to be a succinct and straight-forward idea of a corporation’s expected responsibilities, this study looks in-depth at other popular contributors of the corporate social responsibility paradigm to collect the definitions, theories, and practices of the principle.

Carroll (2016), Brusseau (2012), and Aupperle, Carroll, & Hatfield (1985) illustrated the theoretical aspect of CSR by explaining the financial, legal, ethical and philanthropic responsibility of the corporate sector as it relates to its community. Of all four theoretical responsibilities of businesses mentioned above, most authors identified CSR measurements based on its ability to enhance the financial performance of the firm (Izzo, 2014; Mattera et al.,

2012). In addition, several authors argued that CSR action is a way for a business to avoid legal actions or policy enactment, while several authors simply explained the ethical and philanthropic nature of CSR. These authors have all done tremendous work in exploring the underlying aspects of CSR in order to understand the reasons companies voluntarily partake in CSR.

However, no extant literature has specifically separated the theory and the actual practice of CSR, examined what informed corporations' choices to enact CSR, or looked at how CSR actions are strategically positioned to not only improve specific business operations, such as in the case of transportation in the supply chain operations, but also to improve corporate image and the public good. There is a paucity of extant literature that specifically separated the theory and the actual practice of CSR (Luetkenhorst, 2004; Putra et al., 2015). The rest of the chapter is organized according to the themes repeated in the literature reviewed. First, the chapter presents the literature based on the theory and practice of CSR. Second, the chapter presents the phenomena that underlie the problem to be studied. Third, a short summary of the ideas discussed caps the chapter.

Corporate Social Responsibility

Although corporate social responsibility (CSR) is not a recent phenomenon, it has become a hot topic, both in academia and outside of university circles. Public attention to corporate malfeasance, such as Gulf's oil spill, Shell Oil's overstated reserves, and Enron's financial fraud, among a number of other companies breaching social contract and public trust, brought awareness to CSR (Giglio, 2013; O'Riordan & Fairbrass, 2008; Tran, 2004). The breaching of public trust and the social contract compelled the public to demand responsibility from the corporations. Because of increased public scrutiny, reporting CSR is becoming the

norm for businesses. The overall term for reporting CSR is known as Environmental, Social, and Governance (ESG). Companies report on ESG in broad, general strokes.

While corporations use ESG to report their CSR actions, researchers have striven to examine CSR in more specific terms, with the most common approach being to assess CSR in terms of researcher-defined indicators (Rahdari & Anvary Rostamy, 2015). Some of the recently researched topics in CSR include globalization, environmental sustainability, employee engagement, ethics, and social media. Rahdari and Anvary Rostamy (2015) have identified the most common indicators, the most common of which is the environmental indicator. For the purpose of this study, four CSR indicators were used: community, employees, environment, and governance, which are the indicators that align with the database where the researchers gathered the information.

Oftentimes, research scientists examine the sustainability aspect of CSR and not its actual practice and implications for the economic payoffs, which is most relevant to a company's goals. One of the frameworks that Rahdari and Anvary Rostamy (2015) used in analyzing the most common indicators was the normative concept, which is one of the conceptual frameworks that is considered in CSR studies. Normative framework generally stems from normative reasoning, which refers to the process of assessing the rightness or wrongness of an action, social arrangement, or policy, by its consequences. Steyn & Niemann (2014), while agreeing with Wood's (2010) normative approach, suggested that most authors regard the normative CSR approach in terms of its *principles* and not the in term of its responsiveness processes (environmental assessment, stakeholder and issues management) or the outcomes of corporate behavior (social programs, policies and programs) (Steyn & Niemann, 2014). This study seeks to fill the gap Neiman identified, by examining the real-world effects of CSR on a local issue.

CSR - Theory and Practice

Prior to the 1950s and 60s, ethics, to most corporations, were about determining business values, such as what was worth exploring, who or what was the best choice for the job or an operation, and what mattered or not to the bottom-line. Given this early background and more importantly, corporate scandals such as the Gulf of Mexico oil spill, Enron's financial fraud, and GAP sourcing products from environmentally unfriendly suppliers (Giglio, 2013; Hong'e, 2016) (Giglio, 2013; Hong'e, 2016), authors began to conduct research that shone more light on the reasons for undertaking CSR. In addition, some researchers (Dhaliwal, Li, Tsang, & Yang, 2011) examined corporations in light of what may have propelled them to voluntarily partake and report CSR, specifically using legitimacy to explain the public image benefits that corporations enjoy when the community or consumers are informed of such actions. Other authors looked at a legal basis for CSR, i.e., avoiding stringent laws or tax penalties (Barnea et al., 2013).

Though many scientists have looked at the why, what, and gain, that CSR provides a corporation, only a few have looked, or may have assumed, translative social effects and benefits of CSR to the community and the environment for which it is intended. In other words, while authors have thoroughly explored these theories to explain reasons for why corporations partake in CSR, most of the bases for arguments have been about *why* rather than *how* corporations' partaking in CSR is transformational. In addition, authors have explored impact investing, which focused on the intention to generate a measurable, beneficial social or environmental impact alongside a financial return (Lev, 2005). To our knowledge, no research has been conducted to learn how the corporations' participation in and publication of CSR actions compares to actual social outcomes. Because there are no legal requirements for reporting CSR and no set of rules

that pinpoint what socially responsible behavior should look like, corporations tend to not focus on the outcomes of CSR. Research into the transformation or social effectiveness of CSR needs to be conducted. Hence this study focuses on the transference of CSR and the social impact CSR has on TC, a major issue for financial performance of corporations and health of individuals. Therefore, as opposed to simply the management of corporate image or other activity aimed predominantly at business benefits for business entities, this paper, in part, takes a look at CSR from both the angle of translational research within the current theories and extending those theories to accommodate CSR effects (on specific CSR indicators).

Since the government does not legally require corporations to report CSR and corporations have been consistently and diligently reporting CSR since the 80s, while most literature looks at theories to explain why such behavior takes place, this paper moves away from this well-published research paradigm to use different approaches and constructs to examine transitional change of CSR. Specifically, the current study looked at and beyond the commonly used CSR theories and explored research designs that can more closely explain or tie how corporations should not only look at the projected public-image benefits that CSR provides but also look at the benefits that society (consumers) can experience when CSR is translated to real-world outcomes, beyond the reported CSR.

Similar to knowledge-translation interventions and translation impact science (Nilsen, 2015; Spoth et al., 2013), CSR authors need to move from simply explaining CSR in terms of theory to examining how CSR applies to or takes effect in the community and environment for which it is intended, i.e., examining the implementation of CSR that corporations are rated on. (Weisbrod & Fitzroy, 2011) postulated the need to move from theoretical simulation modeling geared at improving operations' bottlenecks to real word observation of business responses to

TC. Knowledge translation, a paradigm widely adopted in the healthcare field, represents a process of moving what is learned through research or information currently available to an actual application of such knowledge in a variety of practice settings and circumstances (Nilsen, 2015). Spoth and et al. (2013) refer to translation research as the action of translating the information gained through scientific research into knowledge that will affect practice and ultimately the situation for which the research was carried out. Linking translation research and knowledge translation is paramount to the current research for two reasons. One, it explains their similarity, and two, it explains use in this paper. Hence, the current study looked beyond the business field to other research fields to employ a theoretical construct and research approach that would best address the impact of CSR actions.

CSR, Traffic Congestion, and Need for Qualitative Analysis

Traffic congestion is a complex issue and one that researchers have attempted to address via different research paradigms. Historically, transportation literature and transportation impact models treated congestion as a cost factor and not particularly as a social factor (Weisbrod & Fitzroy, 2011); but more recent research has viewed it as a social factor (Lucas et al., 2018). Still others have highlighted the business productivity impact of growing traffic congestion (Weisbrod et al, 2001, 2003) and how it constrains the benefits of business agglomeration, reducing achievable levels of productivity in congested urban areas (Graham, 2007). This type of research discounts the variability aspect of congestion delay that is masked by focusing on just the cost of delays (Weisbrod et al., 2003). Many of these authors used quantitative research approaches such as optimization and other quantitative modeling to measure the impact that TC has on supply chain operations (Grant-Muller & Laird, 2007; Schrank et al., n.d.; Weisbrod et

al., 2003). What these authors have not done is to work backward in order to dig into the effects that business operations have on TC and people's health.

In addition, none of these authors investigated the "micro-level" mechanisms by which businesses actually see their productivity eroded by traffic congestion or their CSR impacting it. In addition, the need to explore a qualitative study has been identified by authors in the supply chain field. For example, Weisbrod & Fitzroy (2011) posited that a barrier to considering the perspectives of both the public and shipper and carrier companies together is a gap that exists between theoretical simulation modeling and real-world observations of business responses to congestion. This gives further weight to the proposition that we may have a better and clearer answer if we study the effect that business operations have on TC, or better still, the effects that the socially responsible actions of corporations have on it.

While the 2003 Weisbrod, et al., study of TC deviated from the popular quantitative modeling approach to addressing TC in logistical operations, they did not use a qualitative approach in their analysis. However, in their paper, Weisbrod et al. (2003) identified three cases to explain why business managers do not explicitly track the cost of congestion and the reasons they do not specifically attribute their business cost to congested roadways. First, they explained the *hypothetical nature of TC* itself, where businesses that have always operated in congested cities may not see the need to track TC or attribute it to business costs, because they cannot imagine how different the business operations would be under purely hypothetical scenarios where such congestion is not present.

Weisbrod et al. (2003) also reported *self-selection bias* in which business managers believe that businesses that could not survive congested areas would have already closed up or moved out. Therefore, the remaining entities are the ones that withstood the adversity of

congestion. These managers believe that surviving in traffic congested areas means they already have bullet-proof means of overcoming or minimizing the impact of traffic congestion on their operations. Lastly, these authors reported on *differential sensitivity*. In this third scenario, these authors reported that some entities thrive in densely congested districts, and their workers may not easily differentiate the advantage of density from the disadvantage of congestion delay, which included banks and certain service companies, citing the benefits of agglomeration (Weisbrod et al. 2003). This current study hypothesizes that there are reasons similar to those described above to explain why corporations do not align CSR to TC.

Although these authors strived to show corporations the need for self-tracking the business cost of TC by relating TC to workers' commute delays and cost of transporting products to show corporations the need for self-tracking of business cost of TC, they did not tie CSR actions or ratings of corporations to TC or examine its impact on TC and in turn CSR's ability to reduce business costs. This current study aims to extend Weisbrod et al. (2003)'s research on the issue of TC cost and supply chain operations to TC and CSR impact. In addition, to the best of our knowledge, no other literature has examined or related CSR ratings to TC.

Weisbrod and Fitzroy (2011), utilized previous business interviews and previous studies conducted by the authors to examine “the business and economic implications of alternative scenarios for future growth of traffic congestion”, they used this data to fuel quantitative analyses, rather than qualitative research. While quantitative analysis seems to be commonplace for studying the impact of TC and business operations, this current study postulates that using a different approach, such as a qualitative study, would more appropriately draw at the effects of CSR on TC and associated business operation challenges. Quantitative analysis is less applicable to study if corporations are aware of the effects that TC has on their business logistics and vice-

versa, or how the communities (including employees) view the impact of CSR on TC. Qualitative research at this stage is necessary to guide quantitative research, allowing a researcher to ask the right research questions.

Quantitative Analysis: Theoretical and Conceptual Framework

Social impact theory has been widely explored in literature (Binder & Bourgeois, 2006; Jackson, 1987; Sedikides & Jackson, 1990; “Social Impact Theory and Model,” 2016). Sedikides and Jackson (1990) reference social impact theory stating that it is an experienced impact by a target (e.g., changes in behavior, event, or opinions) and a direct function of strength (i.e., social status or power), immediacy (i.e., physical or psychological distance), and the number of targets. These authors believe that the stronger the source, the more immediate, and the more the target the higher the impact. In the quantitative portion of the current study, the social impact is operationalized by looking at the strength, the immediacy and the number of targets based on the construct below:

1. Strength: CSR Indicators and city factors
2. Source Immediacy: CSR subcategories
3. Number of Targets: Effects

This study looked at CSR ratings in light of a specific social event, TC, to examine the impact of CSR ratings on TC. For the purpose of this study, four CSR indicators were used: community, employees, environment, and governance as well as twelve CSR subcategories (Figure 1). In this research, TC is assumed to be indirectly tied to CSR actions in the environment and community indicators of CSR ratings.

Strength: According to Brammer, Jackson, & Matten (2012), corporations meaningfully impact on the outcomes of human and environmental experiences, a variety of issues. This study

examines the connection between TC and CSR ratings by operationalizing social impact constructs using statistical analysis to test both top category and subcategory CSR and city factors.

Immediacy: This aspect of social impact theory relates to the immediate or built environment, as identified in this study, are the eighteen most traffic-congested cities in the U.S. In addition, social impact theory does relate to the impact that CSR actions can have on corporations' immediate environments. Note that, the World Business Council for Sustainable Development defines CSR as a corporation's commitment to act ethically and contribute to economic growth, quality of life of the workforce and their families as well as the local community and society at large (Holme & Watts, 2000). To this end, immediacy, which may also be referred to as a social space (*Social Impact Theory and Model*, 2016) is employed as a stand-alone construct to aid the process of this research.

Number of targets: Under social impact theory, the size or number of targets is related to population or size ("Social Impact Theory and Model," 2016). In other words, a large firm will have more strength based on its size or number in terms of dollar value (Sedikides and Jackson, 1990). This construct is employed and ties back to power that corporations have to impact change and to frequency of reporting.

Top-level and Subcategory CSR	
COMMUNITY	<p>Human rights, supply chain, product quality & safety, product sustainability, community development, philanthropy.</p> <p>Subcategories:</p> <ol style="list-style-type: none"> 1. Community Development & Philanthropy Subcategory 2. Human Rights & Supply Chain Subcategory 3. Product Subcategory
EMPLOYEES	<p>Diversity, labor rights, treatment of unions, compensation, benefits, training, health, worker safety</p> <p>Subcategories:</p> <ol style="list-style-type: none"> 1. Compensation and Benefits Subcategory 2. Diversity and Labor Rights Subcategory 3. Training, Safety and Health Subcategory
ENVIRONMENT	<p>Environmental policy, environmental reporting, waste management, resource management, energy use, climate change policies and performance.</p> <p>Subcategories:</p> <ol style="list-style-type: none"> 1. Energy and Climate Change Subcategory 2. Environment Policy and Reporting Subcategory 3. Resource Management Subcategory
GOVERNANCE	<p>Leadership ethics, board composition, executive compensation, transparency and reporting, stakeholder treatment.</p> <p>Subcategories:</p> <ol style="list-style-type: none"> 1. Board 2. Leadership Ethics Subcategory 3. Transparency and Reporting Subcategory

Figure 1. Top category and subcategory CSR.

Qualitative Analysis: Theoretical and Conceptual Framework

Several authors have described qualitative research methods using different terms. (Creswell & Plano Clark, 2017) described that qualitative inquiry is based on a distinct methodological approach aimed at exploring a social or human problem in a natural setting through a complex, holistic framework and analysis of words in order to present a detailed view of the informants. While (Creswell, 2005)'s definition included a detailed general snapshot of what qualitative study entails, a qualitative researcher from the business field weighed in by describing qualitative research as approach providing rich, thick descriptions of real phenomena and action instances (Doz, 2011). In addition to providing rich data, Doz (2011) also describes it as a method that allows the author to report data collected as it is reflected in the respondents own view as opposed to influencing the outcome of a research analysis, which is particular to a

quantitative research method. In the health sciences, authors described qualitative research as an approach used to understand people's interactions, attitudes, beliefs, experiences, and behaviors (Pathak et al., 2013).

Of importance and serving as a guide to qualitative analysis is the method of exploration of social phenomena from the viewpoints of actors who are pivotal to the studied event. Given that the phenomenon, TC, was explored in the first part of this study using a quantitative method on a different scale and dimension, the exploration of qualitative analysis that is grounded in theory is of great importance. In addition to a general description of qualitative methods, there are different aspects of the procedure for conducting qualitative research such as grounded theory, phenomenology, participatory action research, narrative research, and case study research (Creswell & Plano Clark, 2017). To accomplish the aim of this research, the phenomenology research approach is used.

Many definitions of the phenomenology qualitative research method have emerged in literature and has referred to the phenomenological method as a research approach that is capable of limiting or restricting researchers' biases Groenewald (2004). Groenewald (2004) also postulated that phenomenological study is a study paradigm that presents the immediate experiences of actors and anything outside of such immediate experience should be ignored. Neubauer, Witkop, and Varpio (2019), in the health professions education field, described the phenomenological approach as a research method that can help us learn from the experiences of others, which aligns with Groenewald (2004). However, Neubauer et al. (2009) provided more details to recognize the nuances of the phenomenological approach than Groenewald (2004). The phenomenological approach as presented by (Groenewald, 2004)Groenewald (2004) and

Neubauer et al. (2009) serve as a guide to a researcher, particularly during the thematic steps that are discussed in the qualitative methods section.

According to Neubauer et al. (2019), the phenomenological qualitative method is categorized into transcendental and hermeneutic. Transcendental method is a descriptive qualitative approach where the investigator describes information provided in the data from the data's or word's literal meaning. A hermeneutic method, on the other hand, allows a researcher to interpret philosophical texts. For this phenomenological study, it is important to employ the appropriate theming method to enable analysis that directly answers the research questions. In order to closely capture the viewpoints of respondents, the transcendental approach was employed during the coding process. The hermeneutic approach was employed in the discussion section to then allow the author to elaborate on study results.

The research question posited in the study necessitated phenomenology. Reeves et al. (2008) noted that phenomenology enables a qualitative researcher to explore how study participants make sense of their experiences. The qualitative portion of this current study uses phenomenology to approach the *case*—whether traffic congestion mitigation infrastructure or how corporate social responsibility is perceived as contributing to relief traffic congestion—by exploring how corporations, employees, and community members make sense of their day-to-day experiences with traffic congestion and the ABI's city redevelopment in terms of better business operations and quality of life.

CHAPTER 3. METHODS

Introduction

This chapter explains the methodology used in the study as well as reviews the two-pronged approach of the study. The research objectives were two-fold and employed a mixed methods approach. First, this study determined if the commitment of companies to CSR results in a reduction in traffic congestion in the cities where the companies are located. This was a quantitative analysis using statistical regression to determine if companies engaged in CSR were impacting congestion as part of fulfilling their social responsibilities. Second, it explored why companies do or do not engage in programs focused on reducing traffic congestion. This second objective was a qualitative study focused at the local level using interviews to determine the motivators for participating in corporate and public-private initiatives to reduce traffic congestion.

Generally, a mixed-method research design has strong roots in social research science (Denscombe, 2008). Mixed methods also are gaining popularity in business research (Cameron, 2011), particularly the case study qualitative approach (Piekkari et al., 2009). The mixed method approach is a combination of quantitative and qualitative analysis, and it is used in collecting and analyzing the research data. Quantitative and qualitative methods can complement each other and allow for a more complete analysis (Arnkoff et al., 1996). There are three main categories of mixed method research designs that can be used to study a researched phenomenon: (i) convergent design, (ii) explanatory design, and (iii) exploratory design mixed method (Creswell & Plano Clark, 2017). The rationale for employing a mixed method design is that neither quantitative nor qualitative analysis is sufficient by itself to capture the trend and details of the connection between CSR and TC as well as stakeholders' perception of phenomenon (Creswell

et al., 2004). Specifically, this integrated explanatory sequential study is essential in formulating a follow-up qualitative analysis that will help probe and shed light on concerns corporations have for reducing congestion, their company's image, and what efforts they are engaging in to mitigate traffic congestion.

There are two facets of quantitative-qualitative sequential mixed method design, viz. follow-up explanation type and case-selection explanation variant (Creswell & Plano Clark, 2017). In the follow-up explanation variant, priority is always placed on the quantitative strand followed by the qualitative strand. In a case-selection variant, researchers place emphasis on qualitative data. The case-selection variant is also known as a preliminary quantitative input design (Creswell & Plano Clark, 2017). This study will follow the case-selection variant. The reason for choosing this strand is the flexibility it will provide for the researcher to either analyze the quantitative data first or the qualitative data first depending on the research question. Organization of the rest of the chapter will include quantitative description of CSR firms and a descriptive statistical analysis of the CSR firms follows. Next, statistical modeling and analysis. A final step will be the qualitative data gathering and analysis. Various techniques used for analyzing the data for the quantitative study along with its description is mentioned in Figure 2 on the following page. In addition, Figure 3 shows a detailed map of this study's mixed methods approach.

The study utilized a sequential quantitative-qualitative explanatory method. Phase 1 contained two layers of information. Phase 1, first layer, reported the general description of Fortune 500 corporation attributes and demography. It is assumed that congestion is more common in geographical locations where high concentration Fortune 500s are located. Phase 1, layer two, details the different dataset used in the study, sample size, and with the steps used in

the model. In this phase, detailed information from the National Performance Management Research Data Set, CSRHub dataset, Fortune 500 list and other databases used. Phase 1 also presents a table with detailed information about each indicator variable. In Phase 2, interviews were used to assess and understand the corporate executive, corporate employee, community member, and non-profit agency viewpoints of congestion mitigation efforts.

Phase 1	Phase 1
<p>Description of firms in the CSRHub rating by locations, social responsibility rating history and the number of years on score rating board, size/income, industry, region, supply chain and logistics firms versus other industries, etc.</p>	<p>Analysis of data using statistical modeling. This step gives an overview of the different dataset used in the study, sample size, and with the steps used in the model.</p>

Phase 2
<p>Case study of focal firms - Qualitative follow up questions will be used to interview Fortune 500 corporations in a semi-structured interview setting with questions drawn from quantitative analysis in order to explore uncover any efforts toward congestion reduction or public-private partnership.</p>

Figure 2. Phases of the research design.

The qualitative analysis investigated one metropolitan area, Atlanta, GA and focused on the Fortune 500 companies that are located there. Atlanta is one of the top economies and one of the worst traffic congestion cities in the U.S. (INRIX 2018 Traffic Congestion Scorecard). This qualitative process sought to gain more in-depth knowledge about corporate awareness of corporate contributions to traffic congestion and of the effects that congestion has on human health as well as their own business productivity.

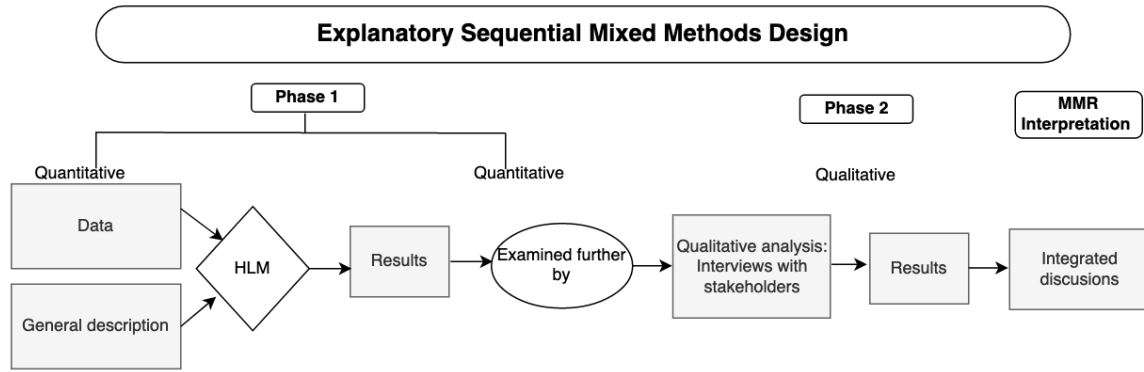


Figure 3. Phases of the mixed methods design.

Quantitative Analysis Methods

This section of the paper details the steps used to conduct an analysis of the connection between CSR and TC. Several third-party organizations rate corporations based on annual CSR reporting, but for this research project, the CSR rating data was sourced from CSRHub (CSRHub, 2014). In this paper, TC was measured using the TTI. The basic processes in the analysis are as follows:

CSR Data

Most CSR rating data are reported and kept by private organizations, usually online. CSRHub (www.csrhub.com) is a for-profit organization that keeps aggregated data from multiple sources to provide ratings of the four main CSR categories (environment, community, employee, governance) as well as overall rating/ranking of both for-profit and not-for-profit corporations in North America. The CSRHub also provide a drill-down subcategory CSR rating that specifically provides rating matrix three subcategories of each top category of CSR. For example, the subcategory CSR community rating is further measured based on each corporation’s community development and philanthropy, product, and human rights and supply chain. Likewise, the subcategory CSR environment rating is further rated based on each corporation’s environment rating on energy and climate change, environment policy, and

resources management. *Figure 1* has detailed descriptions of the top category and subcategory CSR ratings. For this paper, the authors used an advanced subscription to extract 2019 CSR rating information.

Traffic Data

A TTI was used as the measure of congestion. The NPMRDS has the most up-to-date speed data and road inventory data. The NPMRDS is an estimate of travel time at which vehicles (cars, trucks, and all vehicles combined) operate on the United States National Highway System (Ahanotu, Margiotta, Eisele, Hallenbeck, Goodchild, and McCormack, 2017). The NPMRDS is collected by INRIX, a private entity that uses connected vehicles to collect data on vehicle speed and travel time in real-time and made available by the Federal Highway Administration. INRIX has over 95% coverage of roadway segments across the United States, Canada, and Mexico.

The NPMRDS data was obtained for this research through the Advanced Transportation Technology Laboratory, University of Maryland through a licensing agreement. The NPMRDS data was downloaded through the INRIX Massive Data Downloader. This data covered the period from January 2017 to June 2019 for twenty-five U.S. cities, which were selected based on the 2018 INRIX list of the most congested cities in the U.S. Traffic data was extracted for these cities based on their zip codes. The list of these cities was then compared to the Fortune 500 list in order to consider cities with two or more Fortune 500 company headquarters. This resulted in a list of the eighteen most congested cities in the U.S. with two or more Fortune 500 company headquarters.

INRIX Global Traffic Scorecard

The INRIX Global Traffic Scorecard (inrix.com/scored) publishes global reports of annual benchmark and industry metrics for TC based on data from 300 million different sources

covering more than 5 million miles of road. Other INRIX Global Traffic Scorecard data includes public transportation, weather information, fuel consumption, global parking, and points of interest, along with expert commentaries from INRIX researchers in Europe and North America. The INRIX Global Traffic Scorecard was downloaded through the INRIX website with an email subscription.

Fortune 500 Data

The Fortune 500 list ranks 500 of the largest United States corporations by total revenue and is published annually by Fortune Magazine on their website. A basic list can be manually extracted, and data for each company contains the rank, name, revenues in dollar amount, revenue percent change, profits in dollars, profit percent change, assets in dollar amount, market value as of the date of the fiscal year, number of employees, and change in rank. The basic Fortune 500 list was manually extracted and input into a Microsoft Excel Spreadsheet.

List of Zip Codes

ZIP codes were acquired through zip-codes.com. In this research, the ZIP codes were downloaded and later used to identify batch road segments that were inputted into the INRIX Massive Data Downloader to extract specific road segments from the NPMRDS.

Google Maps

To ensure all the road data was gathered within a ZIP code, Google Maps was used to visualize the spread of the geographical areas of the data captured in the NPMRDS Massive Downloader.

Data Management

The NPMRDS Massive Downloader (www.ritis.org/register) is an online database that houses over 500 terabytes of data. It provides options that allow users to streamline data by

selecting specific attributes. The options include the ability to specify a date, day of the week, year, month, or an average time period within a day (e.g., date and times in 5, 15, 30, or 60-minute increments). In order to more effectively manage the download of relevant information for this research project, the authors downloaded 15-minute time increments for a two-and-half-year time period from the top 25 congested cities based on INRIX Global Traffic Scorecard. Given that the goal of this research project is to analyze an association of TC to CSR, the researchers wanted to ensure that the cities included in the study also had a significant corporate presence. Therefore, the top 25 congested cities list was further shortened for the data analysis stage to narrow down the focus on cities with a Fortune 500 presence.

ArcGIS Analysis

ESRI ArcGIS, version 10.6, analysis was used to map and capture road segments proximal to each Fortune 500 corporate headquarters, i.e., roads that are within two miles. Road segments in the NPMRDS are approximately one mile in length. The purpose of capturing the road segments closer to the corporate headquarters was to examine the effects of the corporations on nearby road segments' TC. A high-performance computing system, "Big Thunder", which is a computing resource of nearly 36 teraflop that runs four gigabytes per second input/output, was utilized to manage the huge data that resulted from the NPMRDS.

SAS software was used to analyze the NPMRDS data and CSR ratings. The speed data and the Traffic Messaging Channel Identification, a traffic recording device, were downloaded as a CSV file.

Study Sample: The INRIX GTS list of the top twenty-five most congested cities in the U.S. for 2018 was linked to the list of the 2019 Fortune 500 companies' headquarters and the number of employees (at the time of data collection for this study, 2019 INRIX was not

available). Of these twenty-five cities, only the cities with two or more of the Fortune 500 companies were included in the sample. The study sample consisted of 160 corporations in 18 cities. Due to missing data points, two corporations were deleted from the analysis (Appendix A).

Dependent variable (DV): For the quantitative analysis, TTI was the response variable. The NPMRDS data was used to calculate TTI, a valuable measure of congestion as discussed by Eisele et al. (2011). For the 158 companies in the sample, the median TTI (across the TTIs of road segments in each city) based on the calculated monthly speed was used. In addition, missing datapoints were excluded during statistical analysis. TTI was calculated as follows: TTI was calculated as follows:

$$TTI = \frac{\text{average peak time (minutes)}}{\text{average low volume (minutes)}} \quad (\text{Eq. 1})$$

Independent Variables (IV): A rating dataset from the CSRHub was used to capture the CSR indicators: community rating (community), environmental rating (environment), governance rating (governance), and employee rating (employees). In addition, city variables were added to the model: population, number of trips taken, number of registered vehicles, and number of bike-share trips (scaled by 10,000).

Theoretical and Operational Definitions

In theory, corporations that rate high on any of the CSR indicators are communicating that they are impacting the community or environment in a socially responsible and environmentally friendly way. Smith and Alexander (2013), specifically found that corporations mostly use the community and environment categories to communicate their social responsibility to stakeholders. The overarching question for this study is, “Is there evidence that companies with high CSR ratings are taking action to impact high levels of congestion in their home cities?”

Figure 4 depicts the research analysis and procedure followed in this study. The first and second boxes in Figure 4 highlight the main research question. The research data, hypotheses, and the statistical analysis used were identified in the method section. Results were presented in Chapter 4 and discussion and conclusion are presented in Chapter 5.

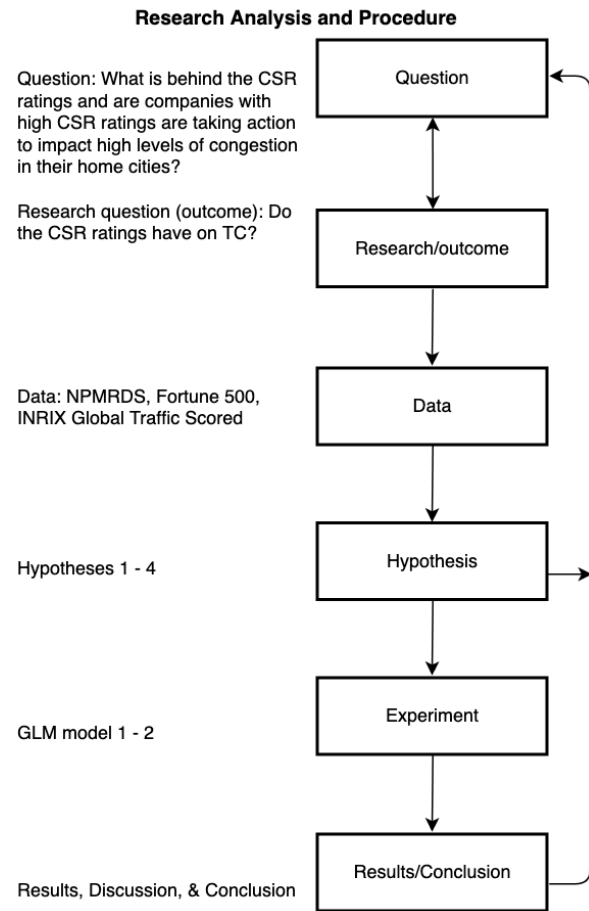


Figure 4. Research analysis and procedure.

Quantitative Research and Model Design and Operational Construct

In this study, the effects of CSR ratings are operationalized by examining them and their impact on a specific social event, (TC). Table 4 depicts hypotheses, predictions and theoretical background.. The travel time index (TTI) is a major measurement used for calculating TC and was used in this study.

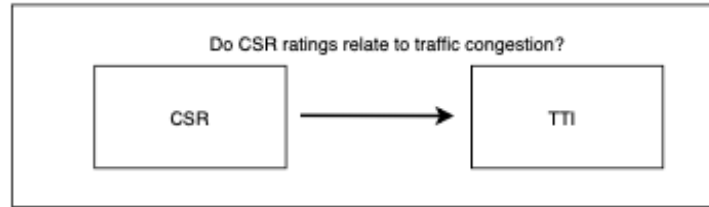


Figure 5. Research model.

Model Description

This study employed a hierarchical linear model (HLM), also known as multilevel model, to examine the hypothesis proposed based on two levels, company and city (companies are nested within cities). HLM is a statistical procedure used to test the linear fixed-effects and random effect, i.e., two levels or variation, of normally distribution data (Anderson, 2012). It can be used to examine the relationship between independent and dependent variable by taking into consideration the impact factor that the nested effects of independent variable have on the dependent variable (Woltman, Feldstain, MacKay, & Rocchi, 2012). HLM analysis treats these effects as random variations about an underlying population mean. In addition to its ability to simultaneously investigate the relationship within a given hierarchical level and across levels data, it can also accommodate missing data, small group sample sizes, and non-independence of observation.

Nested effects, i.e., city level, of observations in HLM may mean that the data share certain attribute making the data at the level non-independent; but it is independent at the individual, i.e., company level. However, the independent and normally distributed residuals of primary cluster must be met. Residuals between levels or clusters must be independent as well as the primary level independent variables and residuals. The detailed of the assumptions of the HLM employed in this study is shown in the next paragraph. In addition, the variables used in this analysis are defined in detail in the following section.

In this study, corporations are the primary level or level 1 while city is considered secondary or level 2 observation. In addition, the following assumptions were tested to ensure the integrity of the model and accuracy of the p-values:

1. Linearity of residuals
2. The residuals of the model are normally distribution
3. Homogeneity of variance

A HLM model such as shown in Equations 2-6 below was the procedure followed in this study:

Model 1 Step 1 equation:

$$TTI_{ij} = \beta_0 + \beta_1 community_{ij} + \beta_2 employees_{ij} + \beta_3 environment_{ij} + \beta_4 governance_{ij} + \alpha_i + \varepsilon_{ij} \quad (\text{Eq. 2})$$

Model 1 Step 2 equation:

$$TTI_{ij} = \beta_0 + \beta_1 population_{ij} + \beta_2 trips_{ij} + \beta_3 vehicle_{ij} + \beta_4 bike_{ij} + \beta_5 community_{ij} + \beta_6 employees_{ij} + \beta_7 environment_{ij} + \beta_8 governance_{ij} + \alpha_i + \varepsilon_{ij} \quad (\text{Eq. 3})$$

Model 2 Step 1 and 2 equation:

$$TTI_{ij} = \beta_0 + \beta_1 population_density_{ij} + \beta_2 trips_{ij} + \beta_3 vehicle_{ij} + \beta_4 bike_{ij} + \beta_5 comm_sub1_{ij} + \beta_6 comm_sub2_{ij} + \beta_7 comm_sub3_{ij} + \beta_8 empl_sub1_{ij} + \beta_9 empl_sub2_{ij} + \beta_{10} empl_sub3_{ij} + \beta_{11} envi_sub1_{ij} + \beta_{12} envi_sub2_{ij} + \beta_{13} envi_sub3_{ij} + \beta_{14} gov_sub1_{ij} + \beta_{15} gov_sub2_{ij} + \beta_{16} gov_sub3_{ij} + \alpha_i + \varepsilon_{ij} \quad (\text{Eq. 4})$$

It is assumed that, independently the random intercept has a mean of 0 and variance is constant as well as the fixed intercept.

$$\alpha_j \sim N(0, \sigma_\alpha^2) \text{ and } \varepsilon_{ij} \sim N(0, \sigma^2) \quad (\text{Eq. 5})$$

σ_α^2 denotes the between-group variability—variance of the random intercept, and σ^2 denotes the within-group variability—variance of the fixed intercept or effect.

To test the significant of the random intercept we assume:

$$H_0: \sigma_{\alpha}^2 = 0 \text{ and } H_1: \sigma_{\alpha}^2 \neq 0 \quad (\text{Eq. 6})$$

The top category and subcategory CSR are continuous IVs. All city IVs were also loaded as continuous IVs.

Where,

TTI = Travel time index

i = Corporation

j = City

β_0 = Fixed intercept

α_i = Random intercept

ε = Error term

β_1 = regression coefficients

HLM, multilevel model, has two parts, fixed part, which is the intercept and the coefficient of the explanatory variable times the explanatory variable, and a random part. The parameters estimate for the fixed part are the coefficients ($\beta_0, \beta_1 \dots \beta_k$). The parameter estimates for the random and fixed effects are the variances, σ_{α}^2 and σ^2 , which is also the partitioned errors for the first level σ^2 and second level σ_{α}^2 . The test of hypothesis for the random part are shown in (Eq. 6). The random intercept in the model is considered random the same way that the error term of the single level regression model is random.

Similar to the single level regression model, which intercept is β_0 , the intercept for the overall regression line with random intercept in the model is still β_0 , but for each group line, with the inclusion of the random intercept in the model, the intercept is $\beta_0 + \alpha_j$. HLM also allows the examination of how much of the variation in TTI is due to the city differences—referred to as variance partition coefficient (VPC). For example, VPC investigates the proportion of the total

variance that is attributable to variation within-groups, or how much of the variance is found between-groups. Hence,

$$\rho = \text{Level 2 variance} / \text{Total residual variance} \times 100 \quad (\text{Eq. 7})$$

Operational Definition of Variables

TTI, which is the calculated TC, is the DV. The rationale for employing TC as a DV is that it is a social event that is directly linked to air pollution. Fine particles matter, known as PM_{2.5}, is released from automobiles and poses a great danger to people's health. Fine particles primarily come from car, truck, bus and off-road vehicle exhaust (New York State Department of Health, 2018). PM_{2.5} is the strongest pollution that is directly emitted to the air from TC.

In Model 1, four top category CSR indicator ratings are the key and primary or level 1 IVs (Table 1). In Model 2, CSR subcategories community development and philanthropy, energy and climate change and leadership ethics are the key variables (Table 2). Other variables used in the analysis are the city characteristics such as population, number of trips taken, the number of registered vehicles, and the number of bike-share trips taken (Table 3). In the model, although all four top category CSR indicators were key IVs, the environmental indicator of CSR is directly linked to how corporations are rated on emissions, for which TC is a direct contributor.

City factors include the population, number of trips taken, number of registered vehicles, and number of bike-share trips. This study assumed that the number of people, trips, vehicles, and bikeshare rides do affect TC and therefore could help explain variation in TC. The city variables are detailed in Table 3.

In order to ensure each data type had the same content and format and were internally consistent for ease of comparison or drawing conclusion, the IVs were standardized. The typical data standardization is used, i.e., mean = 0 and standard deviation = 1.

Table 1

Key Variables Construct – Model 1

	Operational Construct	Theoretical Link
Environment	<p>Definition: Is a rating based on environmental policy, environmental reporting, waste management, resource management, energy use, climate change policies and performance.</p> <p>Association: Some or all aspect of the top category environment indicator of CSR, is assumed to be related the measure of TC, i.e., TTI.</p>	<p>Assumes that corporation actions addressing environmental issues applies to the strength and immediacy of the social impact theory,</p>
Community	<p>Definition: It rates human rights, supply chain, product quality & safety, product sustainability, community development, philanthropy.</p> <p>Association: Some or all aspect of the top category environment indicator of CSR, is expected to explain the variation in TC in Model 1.</p>	<p>Assumes that corporation actions addressing community issues and donations applies to the strength and immediacy of the social impact theory,</p>
Employees	<p>Definition: It rates diversity, labor rights, treatment of unions, compensation, benefits, training, health, worker safety.</p> <p>Association: Some or all aspect of the top category environment indicator of CSR, is expected to explain the variation in TC in Model 1.</p>	<p>Applies to the strength social impact theory, which states social impact is a direct influence of strength on a targeted social event.</p>
Governance	<p>Definition: Rated information includes leadership ethics, board composition, executive compensation, transparency and reporting, stakeholder treatment.</p> <p>Association: Some or all aspect of the top category environment indicator of CSR, is expected to explain the variation in TC in Model 1.</p> <p>Information at CSRhub website, accessed 2020.</p>	<p>Applies to the strength social impact theory, which states social impact is a direct influence of strength on a targeted social event.</p>

Table 2

Key Variables Construct – Model 2

<i>Environment</i> Subcategory	Operational Construct	Theoretical Link
Energy and climate change	Definition: Rates corporations on emissions to air of CO2 and other emissions. Association: TC, calculated by TTI and the dependent variable, is a social event that is directly linked to air pollution.	Assumes that the ability to reduce emissions applies to strength and immediacy of the social impact theory,
<i>Community</i> Subcategory		
Community development and philanthropy	Definition: Rates how community development and philanthropy. Association: The corporate effort in volunteering, programs, and donations are factors that can impact trend of TC, e.g., programs such as bike-share or bike racks.	Assumes that contributions or volunteering for social programs are sources of strength and immediacy in the social impact theory.
<i>Employees</i> Subcategory		
Diversity and Labor Rights	Definition: Rates corporations on long-term employment growth and stability by promotion practices and productivity. Association: It is related programs to address diversity and work of work-life-balance is indirectly related to TTI, e.g., managing employee stress from daily commute in on congested roads and programs that enables better communities.	Assumes that programs to address diversity and labor right may programs relates to source strength and immediacy social impact theory.
<i>Governance</i> Subcategory		
Leadership ethics	Definition: Rates corporations on effectiveness in following best practices in corporate governance principles related to board membership, independent decision making through experienced. Association: TTI can be impact, negatively or positively, if board follows best practices to ensure effective environmental stewardship, ratings on best practices to impact TC.	Following best practices is assumed to imply source strength and immediacy in the social impact theory

Table 3

Other Variables Construct – Model 1 & 2

	Operational Construct	Theoretical Link
<i>Population</i>	Definition: Number of populating living in the city. Association: The number of people living in a city is assumed to have an impact on TC.	Applies to the <i>strength, immediacy, and size in the social impact theory</i>
<i>Trips</i>	Definition: Number of trips taken in a year (e.g., Bus, train, light rails, etc.) Association: The number of people trips is assumed to have an impact on TC.	Applies to the strength, immediacy, and size in the social impact theory
<i>Vehicles</i>	Definition: Number of registered vehicles in a city. Association: The total number of automobile registration in a city per year is assumed to have an impact on TC.	Applies to the strength, immediacy, and size in the social impact theory
<i>Bikes</i>	Definition: Number of bikeshare trip recorded in the city. Association: The number of people participating in a bikeshare program in a city is assumed to have an impact on TC.	Applies to the <i>strength, immediacy, and size in the social impact theory</i>

Statistical Analysis and Procedures

HLM is an appropriate set of statistical models that provide an opportunity to accounts for the statistical dependency that may result from nested data (O’Dwyer & Parker, 2014). HLM help prevent the violation of independence of observations when observations depend on a higher-level unit. It corrects potential misestimation by accounting for the higher-level units in the model, therefore, the observations within a unit are independent (Anderson, 2012). HLM allows for group characteristics to be included in statistical models of individual outcomes and provides unbiased estimates of the residuals that are associated with regression coefficients once HLM assumptions are met (Anderson, 2012 and O’Dwyer & Parker, 2014).

Two separate models, with steps to examine relationship and prediction effects of the IVs on DV, were used as follows:

Model 1

Step 1. The CSR ratings were entered and regressed on TTI to measure the association of the IVs on DV, investigating the *strength* criterion of the social impact theory. This model contained the DV and four IVs as shown in Figure 7.

Step 2. City factors, population, number of trips taken, number of registered vehicles, and number of bike-share trips were added as additional IVs to the model from Step 1. The goal in this step was to examine the relationship between the additional IVs and the DV based on the *strength* criteria of the social impact theory. The entry of the city characteristics in the model was also conditioned on examining the *immediacy* criterion of the social impact theory. The city IVs were also loaded into the model to control or reduce any potential confounders (Figure 6) and to add to the understanding of the variations and relationship of the DV to each of the IVs. It was assumed that an increase in the population of people in a city had potential to increase TTI. Population could also indirectly explain the number of trips, vehicles, and bikes. Number of trips included bus and train trips. It was assumed that the number of people using trains or busses could reduce or increase TTI. The number of registered personal vehicles as well as the number of bikeshare rides taken also could be related and explain changes in TTI. If these variables were not controlled for, any of the CSR IVs may be invalidly estimated (overestimated or underestimated).

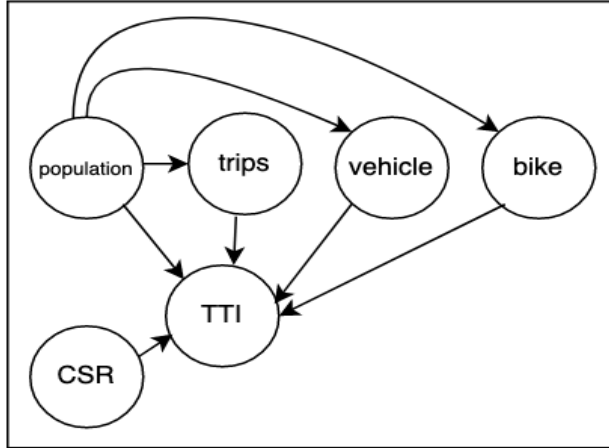


Figure 6. Control variables.

Model 2

Step 1. Subcategories of CSR rating factors were introduced as IVs along with other previously examined IVs, except for the top category CSR ratings. This model allows the effect of specific areas of CSR ratings on TTI to be studied. This step aligns with the *strength* and *immediacy* criteria of social impact theory.

Step 2. The previous step, Model 2 Step 1, examines if the random intercept is significantly different from the intercept of the overall model, which helps test *length or size* of the social impact theory.

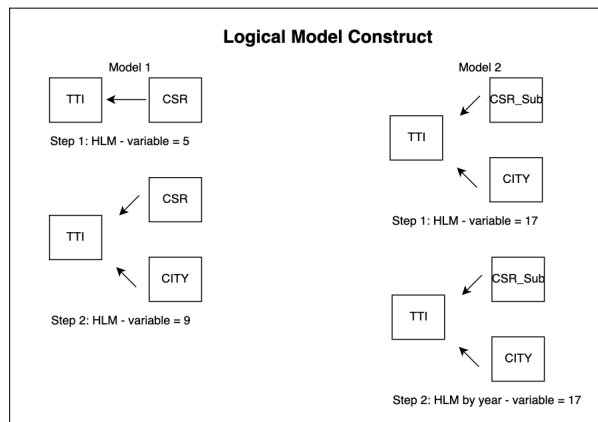


Figure 7. Logical model construct.

The research hypotheses investigated are described below and depicted in Figure 8 and

Table 4.

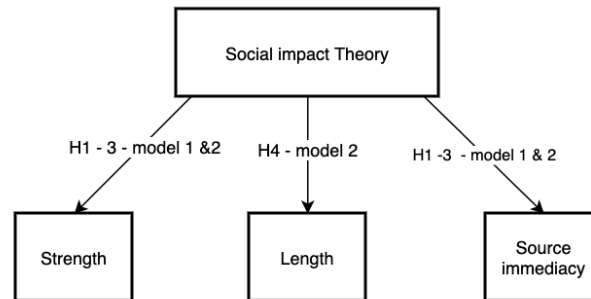


Figure 8. Social impact theory.

H1₀: No difference exists in the fixed effect of the overall and random effect of each city.

H1₁: Difference exist in the fixed effect of the overall and random effect of each city.

H2₀: Ratings at top category CSR are not related to TC.

H2₁: Ratings at top category CSR are related to TC.

H3₀: Ratings at a subcategory CSR are not related to TC after adjusting for city factors.

H3₁: Ratings at a subcategory CSR are related to TC after controlling for city factors.

H4₀: No variations in TTI is due to the city differences.

H4₁: There are variations in TTI that are due to the city differences.

Table 4

Hypotheses, Predictions and Theoretical Background

	Hypothesis	Prediction	Theoretical Background	Description
1. Null hypothesis	No difference exists in the fixed effect of the overall and random effect of each city.	To check if including a random intercept, i.e., fitting a regression line for a random intercept alongside a fixed effect in the model, has any significance.	Strength	Examines if city level or random effect is significant.
Alternate Hypothesis	Difference exist in the fixed effect of the overall and random effect of each city.			
2. Null hypothesis	Ratings at top category CSR are not related to TC.	It is predicted that one or more top category CSR is related to TTI. The key variable of interest in the top category CSR is the environment indicator.	Strength and immediacy	Some aspects top category CSR are related to traffic congestion.
Alternate Hypothesis	Ratings at top category CSR are not related to TC.			
3. Null hypothesis	Ratings at a subcategory CSR are not related to TC after adjusting for city factors.	It is predicted that the CSR subcategory levels (drill-down rating) indicators would shed light on the specific aspect of the CSR indicator directly impact traffic congestion. The main CSR subcategory indicators are the energy and climate change, which is rated on emissions.	Strength and immediacy	It expected that the CSR subcategory levels (drill-down rating) indicators would shed light on the specific aspect of the CSR indicator directly impact traffic congestion.
Alternate Hypothesis	Ratings at a subcategory CSR are related to TC after controlling for city factors.			
4. Null hypothesis	No variations in TTI is due to the city differences.	Is assumed that there are variations in TTI that are due to the city differences.	Length or size	There are variations in TTI that are due to the city differences..
Alternate Hypothesis	There are variations in TTI that are due to the city differences.			

Qualitative Analysis Methods

The research question posited in the study necessitated phenomenology. Reeves et al. (2008) noted that phenomenology enables a qualitative researcher to explore how study participants make sense of their experiences. This current study used phenomenology to approach the *case* --whether traffic congestion mitigation infrastructure or how corporate social responsibility is perceived as contributing to relief traffic congestion--by exploring how corporations, employees, and community members make sense of their day-to-day experiences with traffic congestion and the ABI's city redevelopment in terms of better business operations and quality of life.

Through face-to-face interviews and a couple of phone interviews, this qualitative analysis asked participants questions (Appendix I) about their experiences with traffic congestion in Atlanta and the Atlanta BeltLine, Inc project. Specifically, the aim of these interviews was to elicit the point of view of each individual about their daily interactions with traffic congestion and ABI projects and the classifications they employed to make sense of their working lives and their well-being within this context. While the questions asked of residents, employees, and managers of the ABI project were the same, the questions asked of the corporate representatives were more tailored to their local CSR actions and view of traffic congestion in view of CSR, its impact on business operations, and its associated costs.

The data that emerged from these interviews was analyzed inductively, focusing on allowing meanings to emerge from the interviews. The process of analysis entailed examining statements from the interviews by first splitting them and clustering them to form common themes that are linked to understanding the meanings that residents and corporations each attached to their interactions with traffic congestion and CSR.

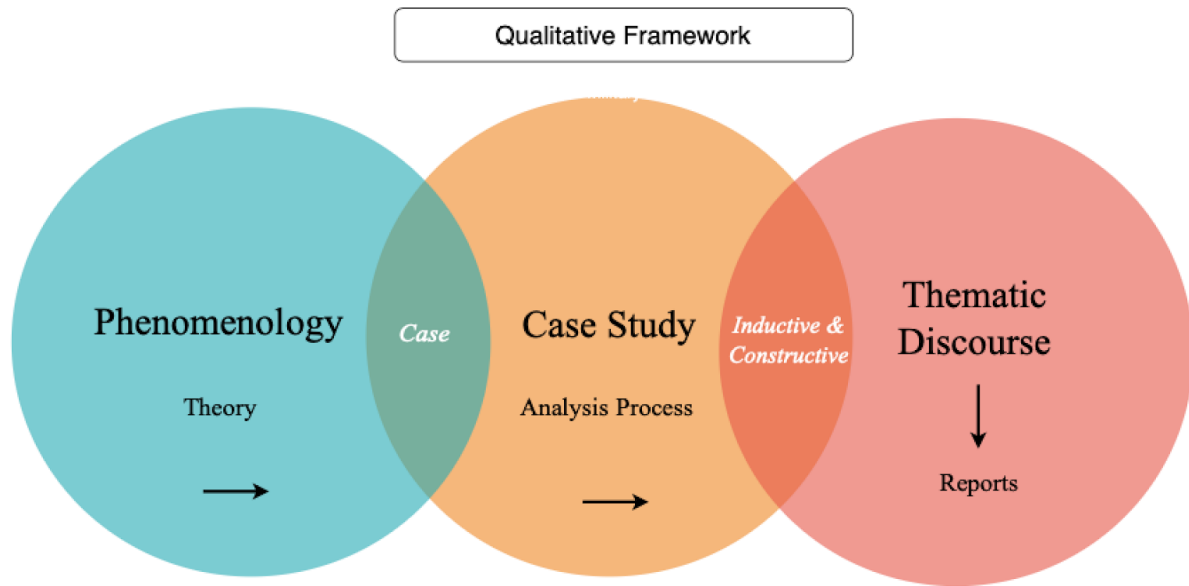


Figure 9. Qualitative framework.

The initial process in this study included using a phenomenology approach to explore participants' lived experiences. Then a case study of the Atlanta BeltLine was employed to explore how corporations, employees, and community members make sense of their experiences with traffic congestion and the ABI's city redevelopment in terms of 1) better business operations and 2) quality of life. These experiences were then explored through inductive analysis and thematic discourse (Diagram 8).

This model proposes that active transportation infrastructure such as ABI is capable of mitigating TC and reduced TC (TCr) is able to improve air quality (AQ) as well as business operations and population health (BOPH) Figure 10.

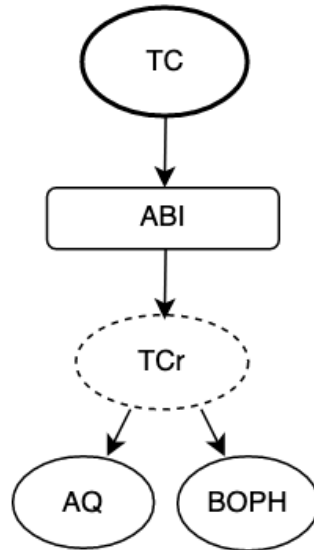


Figure 10. Traffic congestion model.

TC - Traffic congestion; ABI - Atlanta BeltLine, Inc.; TCr - Reduced TC; AQ - Air quality; BOPH - Business operation and population health.

Data

This study employs an inductive exploratory qualitative method. In order to get an in-depth understanding of the participants' values, perceptions, and experiences, a semi-structured qualitative interview method was used to collect and record verbal responses of interviewees. According to Miguel et al. (2009), a semi-structured interview allows a researcher to foster an atmosphere where ideas are freely conveyed by informants which are developed and further discussed to achieve a deeper understanding of the event under investigation.

The purpose for collecting these semi-structured interviews for this inductive exploratory study was to ask the respondents questions that make it possible to understand the thoughts behind their experiences with traffic congestion, corporate social responsibility and the ABI project. These qualitative interviews were mostly conducted as verbal in-person interviews with the exception of a few phone interviews. In this study, a semi-structured interview method was specifically employed to explore participants' points of view and to gain deeper insights into

informants' subjective opinions on their interactions and experiences of the *case*. The questions asked during the interviews were mostly predetermined and prepared based on the research questions, but the semi-structured method was used for limited follow up questions.

There were two sets of questions. The first set of questions was designed for corporations. The second set of questions was designed for residents, Fortune 500 employees, and officers of the ABI. These questions were presented to a research expert to review for any ambiguity, errors, and understanding. After corrections were made, these questions were presented for the Institutional Review Board (IRB). IRB was amended to include approval for two qualitative coders and rewording of interview question number two in the community question category. The IRB protocol, consent letter, and sample questions are included in Appendix G,H, and I.

Sample

Approximately 21 participants were recruited using purposive-typical case sampling. Purposive typical sampling criteria defined by the investigators as:

- a. Age 18 years or older
- b. For-profit employees and supply chain executives (listed on Fortune 500)
- c. Not-for-profit employees (The Atlanta BeltLine, Inc.)
- d. Residents of the city of Atlanta who have resided in the city of Atlanta, GA for two or more years.

Other Sample Details

The demographics of the respondents included representatives from five Fortune 500 corporations, six officers of the ABI, nine Atlanta residents, and one employee of a Fortune 500 company. A total of 21 interviews were conducted, which represent over seventy percent of the

estimated sample. A table, detailing the demography of the actual number of participants and the estimated participants, is presented in Table 5. The corporate interviewees were solicited through the Atlanta Chapter of the Council of Supply Chain Management Professionals. Phone calls, letters, and emails were sent to ABI to request interviews. Employee interviews were solicited from Georgia State University Alumni. Residents interviews were solicited on the ABI trails. Another avenue for getting participants was as a result of recommendation from initial interviewees.

Table 5

Participant Statistics

Interviews	Gender	Participant characterization
Interview -1	Male	Community Member
Interview -2	Male	Community Member
Interview -3	Female	Community Member
Interview -4	Female	Community Member
Interview -5	Female	Community Member
Interview -6	Female	Community Member
Interview -7	Female	Community Member
Interview -8	Female	Community Member
Interview -9	Female	Community Member
Interview -10	Male	Corporation Member
Interview -11	Male	Corporation Member
Interview -12	Male	Corporation Member
Interview -13	Female	Corporation Member
Interview -14	Female	Corporation Member
Interview -15	Female	Employee
Interview -16	Male	Non-profit Organization Volunteer
Interview -17	Male	Non-profit Organization Volunteer
Interview -18	Male	Non-profit Organization Volunteer
Interview -19	Female	Non-profit Organization Volunteer
Interview -20	Female	Non-profit Organization Volunteer
Interview- 21	Female	Non-profit Organization Volunteer

Interviews took place in the headquarter offices of the Fortune 500 participants as well as the offices of the ABI managers with the exception of four phone interviews. The residents'

interviews took place in the quiet part of restaurants that were along the ABI with the exception of four interviews that took place on the quiet part of the ABI trails. Interviews were recorded through a traditional audio recorder. The longest interviews were recorded at one hour five minutes and the shortest interview was 15 minutes.

The qualitative data was collected from October 2019 through December 2019. Interviews were transcribed within days of collection using Rev, a transcription service company. Rev is a well-known transcription company based in California. Rev has been used by many institutions and government agencies. Their website includes their reliability information, which was obtained kept for research records.

Codes and Coding Method

This study used the constructivist approach for analyzing themes that emerged from this inductive study and for writing the qualitative reports. Coding of the transcribed data, however, precedes thematic analysis and reports. As such, the coding methods that allow for a time-efficient organization of themes as well as matching the constructivist approach were of great importance. Saldana (2009) described, among several others, a natural coding process as an initial coding process that helps the researchers to achieve a goal of finding consistency or pattern. A natural coding method is then coupled with an in-vivo method--a coding scheme that allows a researcher to code respondents' information in its original form. Saldana (2009), further explained that the amount of data to code depends on the nature of the data, the chosen method of coding, and the level of detail needed for qualitative analysis or to answer the research questions. To this end, as required for an inductive constructivist approach, both natural and in-vivo coding were used for the initial coding process. This initial coding was done to deliberately capture repetitive patterns and emerging trends, concepts, and thoughts of the respondents.

This study employed a research assistant and an external qualitative expert who solo coded along with the author, in order to conduct an inter-coder reliability test. Almost 20% of the data was coded by all three coders for the reliability test. During the intercoder reliability test, it was determined that more than ninety percent of the coded segments by all three coders matched. Table 6 shows further details of the intercoder reliability process. Overall, almost eighty percent of the transcribed raw data was coded for all respondents. Figure 11 provides sample description coding, category, and theme. Appendix J contains the map tree of the thematic steps, i.e., categories and themes. Qualitative Data Analysis Miner (QDA Miner) was used to code, categorize and analyze themes.

Table 6

Intercoder Reliability Test

Person	Description	Percent Coded	Reliability
Coder 1	Author	~20%	90%
Coder 2	Graduate Research Assistance	~20%	90%
Coder 3	External Coder	~20%	90%

<i>Theme</i>	<i>Category</i>	<i>Sub-Category</i>	<i>Transcribed Data</i>
TC is a costly social & business issue	Tax/housing challenge	Unanticipated economy challenges with increased taxes & housing	Challenges arise as a result of ABI Unanticipated economy impact Issues with housing affordability It's attractive result of redevelopment—re-emergent economy/more investment Tax increase is a problem The rich moved near ABI
		We have stewardship of tax increment & reporting requirement	We have stewardship of the tax increment A quarterly reporting is required
		City redevelopment can cause tax increases	City redevelopment faces pushback [because of tax increments]

Figure 11. Thematic process.

The other steps and picture diagrams of the coding process are explained as follows:

Stage 1

A code, in qualitative inquiry, is defined as a word or a short phrase that is symbolically attached as a summative attribute to a portion of a language or visual aid (Saldana, 2009). At this initial coding step, the transcribed document was portioned into two parts, grouping together city residents, employees, and ABI managers, and then grouping respondents in the corporate category. This was done to reflect the two separate predetermined interview questions that each one of these groups was asked and to make it easier for the thematic process. The transcribed document was then scanned line-by-line to find salient information to code.

Stage 2

In the second step, all emerging codes were then systematically ordered based on which set of interview questions participants responded to, in order to examine similarities so that they could be easily classified or clustered during the thematic process. As described by Mortensen (2020), it is important to align codes to easily identify which story the theme tells and how this story relates to other themes as well as to the overall research question.

Step 3

Saldana (2009) describes that coding as a cyclical process that requires a great amount of flexibility and pattern recognition from the qualitative researcher. Before the thematic analysis phase, all the coded data was re-examined by using an embedded software highlighter to distinguish as well as compare coded against un-coded segments to ensure all salient information was captured. Employing a natural coding method allows researchers to use a more open-minded approach to look for information that stands out. Hence, a few more coded segments were added because of their importance to the *case*. After the third step, there were 202

codes that emerged. These codes were then exported, saved, and made ready for the thematic analysis.

Themes and Method

Braun and Clarke (2006), described a thematic analysis as a moving-back-and-forth between the coded data and entire data set to identify patterns while simultaneously analyzing the data being produced. Mortensen (2020) presented thematic analysis as a suitable process for explorative qualitative research that allows a researcher to move from a messy data set to a map of the most salient themes. In an exploratory thematic analysis, the emerging themes are dependent on the data itself, as opposed to a deductive approach where a researcher searches for patterns based on a predetermined set of themes.

In the previous step (coding stages), natural and in-vivo coding methods were used to achieve patterns while also retaining respondents' information in its original form. Braun and Clarke (2006) defined a thematic analysis as a broader process that involves active reporting of patterns in a data set. In this thematic step, although some interpretation of the data was necessary to categorize or group similar words or phrases to achieve salient themes, the transcendental approach was employed to describe the information provided in the informant's real meaning.

Steps in the Thematic Analysis

Step 1. List of codes with their associated questions were extracted from the QDA Miner software into an Excel spreadsheet. This was done to allow the researcher to see all of the codes from the two categories of questions at a glance. This spreadsheet approach also made it easier to collate codes with similarities from both of the questions sets into broader themes. In this first step, 65% of the 202 codes, from both the community and corporate questions, were initially

categorized into 53 themes. About 74% of the community group coded responses were collated into themes, while 57% of the corporate coded responses were themed. The remaining 35% of the total codes were transferred to a new spreadsheet for further thematic analysis. For further details on the number of codes from each set of community and corporate questions, refer to Appendix I.

Step 2. This next step was conducted to further check for new themes or similarities in the first set of themes. The 72 uncategorized codes from the combined responses comprised 35% of the overall responses, 36% of the community responses, and 43% of the corporate responses. These uncategorized codes were collated, analyzed, and assigned categorical themes. At the end of step 2, the 72 uncategorized codes resulted in 22 new themes.

Step 3. In this step, the initial 53 themes were collated along with the new 22 themes for further analysis. It is worth noting that alpha-numeric labeling was assigned for organizing and following movement of each code into categories. However, at this third step, assigning alpha-numeric labels was no longer intuitive. Colors were assigned to identify similar themes. Similar themes were then merged again. By the end of this process, twenty themes emerged. Some of the themes that were more than three words in length were further analyzed. This final step condensed the initial 75 themes into eighteen. Appendix J contains a detailed coding, category and theme.

CHAPTER 4. RESULTS

Quantitative Analysis Results

TC is a complex event that has proven to be beyond what a single agency, private or public, can handle alone. Corporations have a vested interest in TC issues because it affects most of their operations and hence can impact their financial bottom line. Fortune 500 corporations have increasingly looked to be socially responsible community partners. The purpose of this study was to examine the effects of CSR ratings on TC using the TTI as a measure of congestion.

Explanation of the Assumptions

Assumption 1: Linearity of residuals: The models in this study rely on the assumption that the data follows a straight line, i.e., it fits the best straight line that explains the most data points given the set of parameters. Pearson residual versus predicted mean graph is used to plot residuals against linear predictors in order to identify non-linearity. Pearson plot specifically examined the linearity of the observed and fitted values (Zhang, 2016). The scatterplot in the statistical analysis exhibits no particular trend, the linearity assumption is met (Appendix B and D).

Assumption 2: The residuals of the model are normally distribution: The normal distribution condition assumes that residuals of the analysis are normally distributed with mean 0 and constant variance (Eq. 5). A QQ plots was constructed as a check for the point where the standardized residuals lie with respect to normal quantiles. If the assumption holds, standardized residuals follows a $N(0,1)$ distribution (Eq. 5). A strong deviation from the provided line indicates violates this assumption. The residual for TTI on the QQ-plot, as shown in Appendix C and E looks normal, meaning that the assumption holds.

Assumption 3: Homogeneity of variance: This assumption is conditioned upon the variance of the residuals being equal across groups or levels—meaning that the variance of the residuals should be constant at each value of the predictor variables. Based on the residuals versus fits plot in Appendix C and E the homogeneity of variance assumption holds.

The above assumptions were considered in order to obtain an unbiased estimate of the robustness of the causal effect of CSR on TTI. In addition, and to ensure that the coefficients of the IVs do not suffer from omitted variable biases, the authors added the following independent covariates: population, number of trips taken, number of registered vehicles, and number of bike shares. A covariate is assumed to be an IV that may possess an explanatory relationship with the DV.

Explanation of Tables

Figure 12 displays simple descriptive statistics for the DV and eight IVs. Some of the data points in the CSR indicators were unavailable during data collection. In the CSRHub data file, some of the corporation's ratings included NA (not applicable) because rating or information for that particular indicator was not available for that company. The CSRHub explained that they do not provide an overall score or rating for partial or missing information. Of the four CSR indicators shown in Diagram 12, governance has the most data points. This means that for the 30-month period data used in this study, corporations reported and were rated more on governance than the rest of the top category CSR indicators. Diagram 12 shows that the mean TTI for this model is 1.27246, meaning that on average, if it takes 20 minutes to drive from point A to point B during a normal traffic, it will take approximately 25 minutes to travel the same distance during traffic.

Simple Statistics						
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
TTI	4770	1.27246	0.08919	6070	0.97834	1.84977
Population	4770	334.33165	332.95860	1594762	30.10480	839.87480
Trips	4770	8818	12662	42063303	24.41010	47944
Vehicle	4770	467.90025	231.21440	2231884	5.49330	1215
Bike	4770	130.52623	132.74507	622610	1.33920	326.10600
Community	4628	49.59093	6.96300	229507	21.00000	82.00000
Employees	4642	57.92076	8.63718	268868	31.00000	83.66670
Environment	4603	54.91737	8.63095	252785	30.00000	82.00000
Governance	4657	51.91590	7.79093	241772	25.33330	84.00000

Figure 12. Simple statistics.

The first four columns in Table 7 show description statistics of the standardized data points for cities, counties, corporations, and number of road segments that were approximately two miles proximal to each corporation headquarters. The next five columns show information about the calculated TTI, including the mean, standard deviation, minimum, maximum, and how each city rank in terms of TTI. A pie chart and bar of the results displayed in Table 7 is located in Appendix F. New York has a total of 46 corporation—presenting the city with the most Fortune 500s followed by Houston, 20, and Atlanta, 14. Washington, DC, and Philadelphia have the least number Fortune 500s. This study considered the first twenty-five top-rated congestion cities in the INRIX 2018 Traffic Congestion Scorecard. Of these twenty-five cities, only the cities with two or more of the Fortune 500 corporations were included in this study. In addition, of the 500 plus terabyte driving speed data in the INRIX Massive Downloader, more than 2 terabytes of the data points were obtained for the analysis in this study. Furthermore, a high-performance computing system, “Big Thunder” with computing speed of 36 teraFLOP was utilized in managing the big dataset.

Table 7

Corporate, City, and Road Segment Statistics

City	County	Corporation	Road	Mean TTI	Std Dev	Minimum	Maximum	Rank
Washington, DC	Washington, DC	2	60	1.28	0.03	1.22	1.34	8
Philadelphia	Philadelphia	2	60	1.26	0.02	1.21	1.33	10
Los Angeles	Los Angeles	3	90	1.44	0.05	1.32	1.58	1
Miami	Miami-Dade	3	90	1.23	0.09	1.10	1.43	13
Columbus	Franklin	3	90	1.13	0.04	1.01	1.20	18
Denver	Denver	5	120	1.29	0.04	1.16	1.38	6
Phoenix	Maricopa	6	120	1.15	0.10	1.02	1.38	17
Boston	Suffolk	5	150	1.32	0.03	1.25	1.39	3
Seattle	King	3	150	1.29	0.04	1.14	1.37	5
Charlotte	Mecklenburg	5	150	1.25	0.10	1.10	1.58	11
Pittsburgh	Alleghany	6	180	1.24	0.03	1.17	1.31	12
Minneapolis	Hennepin	6	180	1.22	0.09	1.10	1.45	16
San Francisco	San Francisco	8	240	1.28	0.03	1.19	1.34	7
Dallas	Dallas	10	300	1.22	0.06	1.11	1.47	15
Chicago	Cook	13	390	1.23	0.03	1.17	1.33	14
Atlanta	Fulton	14	420	1.32	0.13	0.98	1.85	2
Houston	Harris	20	600	1.27	0.13	0.98	1.66	9
New York	New York	46	1380	1.29	0.03	1.21	1.40	4

The top category CSR random effects are displayed in Table 8. These results show that city effects at the level 2 for Atlanta, Columbus, Denver, Miami, Phoenix, and Washington, DC, in the HLM model is significantly different from the fixed effects at 5% level of significance. The effects of the other twelve cities, Boston, Charlotte, Chicago, Dallas, Houston, Los Angeles, Minneapolis, New York, Philadelphia, Pittsburgh, San Francisco, and Seattle in the model is not significantly different from the fixed effects of the overall model.

Table 8

Solution for Random Effects – Top Category CSR – Model 1

Effect	City	Estimate	Std Error Predicted	DF	t Value	Pr > t
Intercept	Atlanta	0.05527	0.02083	4563	2.65	0.008
Intercept	Boston	0.03713	0.02279	4563	1.63	0.1033
Intercept	Charlotte	0.04014	0.0234	4563	1.72	0.0864
Intercept	Chicago	0.03152	0.04747	4563	0.66	0.5067
Intercept	Columbus	-0.07381	0.02709	4563	-2.72	0.0065
Intercept	Dallas	-0.0316	0.03281	4563	-0.96	0.3355
Intercept	Denver	0.04991	0.01845	4563	2.71	0.0068
Intercept	Houston	0.001457	0.01951	4563	0.07	0.9405
Intercept	Los Angeles	0.04858	0.044	4563	1.1	0.2696
Intercept	Miami	-0.08088	0.02663	4563	-3.04	0.0024
Intercept	Minneapolis	-0.01252	0.01811	4563	-0.69	0.4893
Intercept	New York	-0.01669	0.05199	4563	-0.32	0.7481
Intercept	Philadelphia	-0.02639	0.03255	4563	-0.81	0.4175
Intercept	Phoenix	-0.09921	0.0199	4563	-4.99	0.0001
Intercept	Pittsburgh	0.01221	0.01889	4563	0.65	0.5182
Intercept	San Francisco	-0.00316	0.03556	4563	-0.09	0.9292
Intercept	Seattle	0.003232	0.02042	4563	0.16	0.8743
Intercept	Washington	0.06483	0.02873	4563	2.26	0.0241

The results of the random effects for the subcategory CSR is displayed in Table 9. Table 9 reveals results for the city random effects similar to that of the top category CSR random effects. Atlanta, Columbus, Denver, Miami, Phoenix, and Washington, DC, in the HLM model is significantly different from the fixed effects at 5% level of significance. Boston, Charlotte, Chicago, Dallas, Houston, Los Angeles, Minneapolis, New York, Philadelphia, Pittsburgh, San Francisco, and Seattle in the model is not significantly different from the fixed effects of the overall model.

Table 9

Solution for Random Effects Subcategory CSR Model 2

Effect	City	Estimate	Std Error Predicted	DF	t Value	Pr > t
Intercept	Atlanta	0.05979	0.02091	4386	2.86	0.0043
Intercept	Boston	0.03106	0.02303	4386	1.35	0.1775
Intercept	Charlotte	0.03795	0.02349	4386	1.62	0.1063
Intercept	Chicago	0.03399	0.04763	4386	0.71	0.4756
Intercept	Columbus	-0.06929	0.0275	4386	-2.52	0.0118
Intercept	Dallas	-0.02885	0.03293	4386	-0.88	0.381
Intercept	Denver	0.0456	0.01891	4386	2.41	0.0159
Intercept	Houston	-0.00612	0.01962	4386	-0.31	0.7551
Intercept	Los Angeles	0.05047	0.04415	4386	1.14	0.2531
Intercept	Miami	-0.0798	0.02671	4386	-2.99	0.0028
Intercept	Minneapolis	-0.00798	0.01818	4386	-0.44	0.6608
Intercept	New York	-0.01777	0.05216	4386	-0.34	0.7334
Intercept	Philadelphia	-0.03227	0.03273	4386	-0.99	0.3242
Intercept	Phoenix	-0.1037	0.02001	4386	-5.18	0.0001
Intercept	Pittsburgh	0.008758	0.01897	4386	0.46	0.6444
Intercept	San Francisco	-0.00132	0.0357	4386	-0.04	0.9704
Intercept	Seattle	0.01387	0.02049	4386	0.68	0.4987
Intercept	Washington	0.06566	0.02891	4386	2.27	0.0232

Model 1, Step 1

H_{10} : No difference exists in the fixed effect of the overall and random effect of each city.

H_{11} : Differences exist in the fixed effect of the overall and random effect of each city.

Model 1 Step 1 analysis was performed to check if including a random intercept, i.e., fitting a regression line for a random intercept alongside a fixed effect in the model, is significant. This step was performed to not only check the random effects but also to check the fixed effects and the amount of variance at each primary level (level 1) as well as check the significant amount of variance at secondary level (level 2). This test was conducted using equation 6, $H_0: \sigma_\alpha^2 = 0$ and $H_1: \sigma_\alpha^2 \neq 0$. The table below shows that the random intercept is significant in the model. Random intercept examines how much of the variance in the response is

at each level. The estimation of the random intercept is 0.003139 and it is significant at 5% level of significance, meaning that the null hypothesis was rejected because the variance of the random intercept is significantly different from zero (Figure 13).

Covariance Parameter Estimates					
Cov Parm	Subject	Estimate	Standard Error	Z Value	Pr > Z
Intercept	city	0.003139	0.001249	2.51	0.0060
Residual		0.005779	0.000121	47.77	<.0001

Figure 13. Covariance parameter estimates.

Model 1, Step 2

H2₀: Ratings at top category CSR are not related to TC

H2₁: Ratings at top category CSR are related to TC

Step 2 checked for the relationship of the four top category CSR indicators (IV=4) to TTI (DV=1). The model shows that holding city level factors equal zero, Community, Employees, and Environment are significantly related to TTI at a 5% level of significance (Table 10). The negative coefficients of Employees and Environment show both IVs have inverse relationship with TTI. For example, the main variable of interest for the top category CSR, Environment, showed that a one unit increase in the standardize environment rating holding all other variables constant, decreased TTI by 0.00406. The coefficient of each parameter in this model is small, but due to the large amount of data points loaded, these small coefficients were able to detect the variation in the DV.

Table 10

Solution for Fixed Effects – Top Category CSR – Model 1

Effect	Estimate	Standard Error	DF	t Value	Pr > t	Alpha	Lower	Upper
Intercept	1.2723	0.0185	14	68.78	0.0001	0.05	1.2326	1.312
Pop. Density	0.03056	0.0326	4563	0.94	0.3485	0.05	-0.03334	0.09447
Trips	-0.00161	0.0148	4563	-0.11	0.9131	0.05	-0.03062	0.0274
Vehicle	0.03598	0.01174	4563	3.06	0.0022	0.05	0.01296	0.05901
Bike	-0.0265	0.03499	4563	-0.76	0.4488	0.05	-0.0951	0.04209
Community	0.007313	0.001541	4563	4.75	0.0001	0.05	0.004292	0.01033
Employees	-0.00884	0.001593	4563	-5.55	0.0001	0.05	-0.01197	-0.00572
Environment	-0.00406	0.001497	4563	-2.71	0.0067	0.05	-0.00699	-0.00112
Governance	0.002435	0.001589	4563	1.53	0.1256	0.05	-0.00068	0.005551

Model 2, Step 1

H3₀: Ratings at a subcategory CSR are not related to TC after adjusting for city factors.

H3₁: Ratings at a subcategory CSR are related to TC after controlling for city factors

In Model 2 Step 1, subcategory CSR ratings (Figure 1), instead of the top category CSR data points, were fitted along with city factors as predictive IVs in the HLM procedure. It was assumed that the subcategory as drilled-down CSR data points would help draw better conclusion about the specific rated aspects of CSR actions that related to impacting TTI and therefore able to better explain the variation in TTI. For this model, a total of twelve subcategory CSR indicators and four city information were analyzed, i.e., IV=16 and DV=1. These IVs included 4 city variables and 12 subcategory CSR variables. The results show that one city factor, vehicle, and subcategory CSR ratings compensation and benefits; training, health and safety; energy and climate change; environment policy and reporting; resource management; leadership ethics; and transparency and reporting are significantly related to TTI at a 5% level of significance. Of these subcategory CSR ratings, the main variables of interest were community development and philanthropy, energy and climate change, and leadership ethics. Two out of

these three key variables, energy and climate change and leadership ethics were significantly related to TTI. For example, leadership ethics had a positive coefficient—meaning that one unit increase in the standardized leadership ethics rating holding all other variables constant, increased TTI by 0.006466. The negative coefficient estimate for energy climate change rating suggested that one increase in the standardized CSR rating, holding all other variables constant, increased TTI by 0.01924 as shown in Table 11 below.

Table 11

Solution for Fixed Effects – Model 2

Effect	Estimate	Standard Error	DF	t Value	Pr > t	Alpha	Lower	Upper
Intercept	1.2722	0.01856	14	68.54	0.0001	0.05	1.2324	1.312
Population density	0.03744	0.03272	4386	1.14	0.2526	0.05	-0.02671	0.1016
Trips	-0.00181	0.01485	4386	-0.12	0.9028	0.05	-0.03093	0.0273
Vehicle	0.03426	0.01179	4386	2.91	0.0037	0.05	0.01114	0.05738
Bike	-0.02818	0.03511	4386	-0.8	0.4222	0.05	-0.09701	0.04065
Community Dev & Philanthropy	0.001444	0.002004	4386	0.72	0.4711	0.05	-0.00248	0.005372
Human Rights & Supply Chain	0.000171	0.001771	4386	0.1	0.9232	0.05	-0.0033	0.003642
Product	0.002217	0.001603	4386	1.38	0.1666	0.05	-0.00093	0.005359
Compensation & Benefits	-0.02333	0.00244	4386	-9.56	0.0001	0.05	-0.02811	-0.01854
Diversity & Labor Rights	0.005484	0.002802	4386	1.96	0.0504	0.05	-0.00000934	0.01098
Training, Health & Safety	0.008233	0.002233	4386	3.69	0.0002	0.05	0.003855	0.01261
Energy & Climate Change	-0.01924	0.002294	4386	-8.39	0.0001	0.05	-0.02374	-0.01474
Environment Policy & Reporting	0.007401	0.003242	4386	2.28	0.0225	0.05	0.001044	0.01376
Resource Management	0.009863	0.002712	4386	3.64	0.0003	0.05	0.004547	0.01518
Board	-0.00001	0.0017	4386	-0.01	0.9935	0.05	-0.00335	0.00332
Leadership Ethics	0.006466	0.002788	4386	2.32	0.0205	0.05	0.000999	0.01193
Transparency & Reporting	-0.0065	0.002865	4386	-2.27	0.0233	0.05	-0.01212	-0.00089

Model 2, Step 2

H40: No variations in TTI is due to the city differences.

H41: There are variations in TTI that are due to the city differences.

The Model 2 Step 2 procedure was conducted to examine if city random intercept is in the model is significantly different from the intercept of the overall model, i.e., testing if random intercept is different from fixed intercept. HLM also allows the examination of how much of the variation in TTI is due to the city differences—referred to as variance partition coefficient (VPC). For example, VPC investigates the proportion of the total variance that is attributable to variation within-groups, or how much of the variance is found between-groups. Equation 7, $\rho = \text{Level 2 variance} / \text{Total residual variance} \times 100$, examines the effects of city on the overall model holding other IVs constant. For example, as shown in the table below that the random intercept of city of Atlanta estimate was 0.05527. Calculating VPC show that the proportion of the total variance at level 2 for the city Atlanta is approximately 4.20% for top category CSR and approximately 4.50% for subcategory CSR. However, random effect show that the city of Atlanta is significantly different from the overall model. The random effect of Charlotte is not significantly different from the overall model and showed that it explained 7.7% of the variation in subcategory CSR analyzed on TTI. The difference in the subcategory VPC for Atlanta (significantly different from the overall model) and Charlotte (not significantly different from the overall model) is 3.2% [7.7% - 4.50% = 3.2%].

Qualitative Analysis Results

Five main themes emerged to sum up the overall findings, which were used as the basis for reporting the viewpoints of participants as well as answering the research questions. The five themes are listed as follows:

1. TC is a costly social and business issue
2. ABI is a potential remedy for TC
3. CSR is not necessarily impacting TC
4. Corporations should do more to relieve TC
5. Commuter and consumer behaviors need to change

As discussed in the thematic session, these final themes that emerged were the result of multiple analyses that stem from multiple coding and thematic steps. The creation of these themes served as building blocks for reporting the findings. Through these five themes, the stories of participants' viewpoints were reported in broader terms and in their intended meanings. The five themes are summarized in short phrases as follows:

1. Social & Business Issues
2. Potential Remedy
3. Invisible CSR
4. Engaging Corporations in Partnerships/Conversation
5. Social Change

Social and Business Issues

Traffic congestion (TC) was perceived overwhelmingly as being a major social and business issue by the community group and the corporate group. The participants were asked about their daily experience with traffic congestion in the city of Atlanta, GA. Some participants

spontaneously expressed that traffic congestion is bad for humans and the environment. The Fortune 500 company participants were asked how traffic congestion in the city of Atlanta their business operations (Appendix I). This particular set of questions was aimed at getting the points-of-view of the two groups, corporate and community, regarding their personal experiences with TC. Participants talked at length and with passion about TC.

For some participants in the community group, interviews were an avenue for them to share their frustration with the seemingly “never ending” traffic congestion. These responses were shared with common phrases such as, *stressful, treacherous, terrible, shameful, worst, and pretty congested*, which formed the basis for the social and a business coding theme. The Fortune 500 group reported traffic congestion both as a social issue and business operations problem. The following words were coded to capture the corporate group’s viewpoints of traffic congestion: *bad, delays, losing consumer shipping time promise, cost matters, employees having meetings from their cars while in traffic congestion, corporations' freight operations worsen traffic congestion; congested routes, severe limited rails, air quality... danger of climate change, smog issues ultimately health issues, etc.*

Potential Remedy

The questions in this section were designed to examine if the ABI is seen as a potential way to reduce traffic congestion. These questions drew two opposing sides. Whereas the majority of respondents posited that the ABI infrastructure is a potential means of reducing the capacity on the roads, some participants thought it is a limited project serving a limited population. Some respondents brought up the well-known concept that building more roads merely encourages more people to drive, rather than decreasing congestion. Some interviewees also expressed that the ABI was a catalyst for gentrification, attracting wealthy young people to

the area, which they believed would increase taxes and housing costs while leaving out people of low socioeconomic status.

Another important aspect of the ABI remedy is the opportunity for improving health and active lifestyles. People stated that the ABI infrastructure enables them to engage in active commuting and regular exercise. In addition, people use it for leisure. Words coded in this category included: *it can reduce congestion; I walk to shops and restaurants; it's safe for me to walk; it's attractive; it's my happy place; it connects communities; ABI, not more roads, can reduce traffic congestion.* Some sentences from people who stated that the impact ABI has on traffic congestion still has a long way to go are: *more people are moving in; it's not yet completed so impact is not yet felt;* and *ABI is too crowded on weekends.*

Invisible CSR

Participants were asked questions about their knowledge of traffic congestion mitigation as it relates to CSR actions or reporting. While all corporate group participants expressed that their companies provided alternative transportation options for their employees, they did not link these actions directly to traffic congestion mitigation or recognize that these efforts could impact their CSR ratings from third-party sources. Corporate respondents did state that their organizations were involved in a number of cutting edge environmentally friendly initiatives that address emissions and air quality. The corporate group expressed that they are engaged in CSR because they are citizens of the earth and it is a core part of their business. However, when asked explicitly about reporting the dollar value that CSR provides to a company, none of the respondents replied that their corporation measured it. Neither do they expressly track the costs of congestion in relation to operational expenses. Some corporations asserted that they see intangible value in CSR, while others stated it was one thing to report CSR and it was another

thing to have CSR that impacts a substantial matter such as TC. Words that reflected this idea were: *CSR is a good thing, but practically speaking..., definitely see value of CSR, Corporations involved in public- private partnership care more, etc.*

When it comes to CSR, community residents were not aware of it or what it does. Contrary to what corporations thought about the value of CSR, the community group stated that they do not think corporations were doing enough to mitigate traffic congestion. The community group also expressed that corporations bring an influx of people into the city, particularly around the ABI. Some of the words coded from this category are *can't point to what corporations do for CSR, no data to show health and sustainability impact of these corporations, and corporations should do more than they are doing.*

Partnership and Conversation

Both community and corporate group participants agreed that there is more work to be done to avert the daily traffic congestion in Atlanta. When asked if corporations should do more to directly help alleviate traffic congestion, all community respondents and almost all corporate respondents agreed. One corporate response stood out. The respondent postulated that their organization is already engaged in building road ramps to ease congestion, but at the same time stated that even such an effort was not enough to mitigate TC in Atlanta. Some community participants alluded to the fact that corporations need to improve internal and external policies to intentionally reduce traffic congestion and the environmental footprint. Some coded phrases from the theme are: *they have to at least be having conversations; corporations have a lot of power and influence; corporations consider commuter alternatives for staff; important internally/externally to be socially responsible; it's best for corporations to support TC efforts, it benefits them, corporations should partner with TC reduction efforts; corporations should do*

more than they are doing... partner up stronger; corporations should partner with cities and non-profits; corporations involved in public-private partnership care more; happier, healthier employees are better assets to the company; and corporations should put more money; corporations take a stand on protecting routes... incentivize and encourage carpool redeveloping the city is necessary to accommodate a growing population.

Social Change

This theme touches on both commuters' modal choices and consumers' shipping choices. Several respondents expressed that behavioral change in how people choose to commute/travel is important. The community group expressed that people choose the convenience of their personal vehicles and sometimes prefer road delays and the stress they experience in traffic because they did not give other modal choices a chance or did not trust the transit system. The corporate group, on the other hand, expressed consumers' preferential taste of same-day or next-day delivery--saying that it was an *Amazon effect* that they needed to catch up on. The corporate respondents agreed that this *Amazon effect* increased the number of drivers they put on the roads, which potentially added to traffic congestion rates. Respondents' viewpoints coded under this theme included: *people consider commuter alternatives; people change travel behavior - a social change; and offer employees incentive for alternative commutes.*

CHAPTER 5. DISCUSSIONS AND CONCLUSIONS

Quantitative Analysis Discussion

In this study, CSR ratings are operationalized by examining them and their impact on a specific social event, TC. HLM analysis was employed to investigate the relationship between TTI and CSR rating indicators (community, employees, environment, and governance environment) and city characteristics (population, trip, vehicle, and bike), and subcategory CSR ratings and TTI. To achieve these two analyses, two separate models, in two steps, were fitted to the data.

Interpretation of Findings

Model 1

The purpose of this Model 1 Step 1 procedure was to examine if using HLM was sufficient to investigating the clustered data. This step allows the consideration of the impact that the nested effects of independent variables at the second level have on the dependent variable. If a simple linear regression or general linear model were used for a nested data structure, it will not be adequate to capture how much variation is at the second level (level 2), and how much is at first level (level 1). In addition, simple regression or general linear model will not be adequate to investigate how much of an effect city has on TTI after controlling for other variables.

In Model 1 Step 2, top category CSR fixed effect shows that all city characteristics, except vehicle were insignificant. All city variable had the signs of the coefficient in the right direction. For example, in relation to TTI, positive coefficient of population density suggested that the more populated an area is the greater the chance of more people driving, which therefore may increase road congestion. Likewise, the negative coefficient estimate for trips suggested that the more people ride in public transportation, such as buses and trains, the greater the chance of

fewer people driving, which therefore infers the possibility of a decrease in traffic congestion. The negative coefficients for CSR environment and employees ratings suggested that the as companies are rated higher in the area, has the opposite effect on TTI—that is, TTI goes down. However, the positive coefficient of community and governance in relationship to TTI suggested that a one unit standard deviation increase in these two variables will possibly cause an increase in TTI. Of all the items loaded for the top category CSR ratings and city factors in the model, only had community and governance had positive coefficients, which is considered to be in the opposite direction of the assumptions surrounding these variables. Therefore, the result for community and governance in the model is counterintuitive. The findings support the strength and immediacy social impact theory.

Model 2

In Model 2 Step 1, the model processed subcategory CSR indicator ratings rather than the top category CSR ratings along with the city factors. It was assumed that the inclusion of subcategory CSR indicator ratings would allow for the identification of specific areas of CSR indicators that provides a better explanation of the association or effect of CSR rating to TTI. With all city characteristics being insignificant in this subcategory analysis, it may be suggested that the city factors do not need to be presented in the model—meaning that subcategory CSR ratings alone were able to explain the associate and changes in TTI. Although insignificant, all city variables had the right signs for the model estimate of coefficients. However, several of the subcategory CSR rating produced a counter intuitive direction of the coefficient estimates for the parameters. For example, community development and philanthropy rating, human rights and supply chain rating, diversity and labor rights rating, training, health and safety rating, environment policy and reporting rating, resource management rating, and leadership ethics

rating have positive coefficient which suggested that increase in these subcategory rating will increase road congestion. Compensation and benefits rating, on the other hand, may be considered as a borderline, meaning that some aspects in this rating, e.g., higher compensation may suggest higher disposable income and may encourage employees who otherwise may not have been able to afford personal automobile to now do so, therefore, inferring a possibility of congesting the roads even more. The parameter estimate of the variables, energy and climate change rating, board rating, transparency and reporting rating suggested that increases in their rating will reduce road congestion. In addition, the key variable of interest, which is more closely related to road congestion, energy and climate change had negative signs for the coefficient estimates in all the models. Suggesting that this is a key finding and an item to follow up with during the qualitative phase of the research.

In Model 2 Step 2, examined the effects that each city had on TTI, Atlanta, Columbus, Denver, Miami, and Phoenix show that the variance of the random effect is significantly difference from the overall model. With the random intercept in the model, it was concluded that the city of Atlanta in the model contributed 4.2% of the variance in the outcome variable, which is TTI, a measure of TC. The contribution of 4.2% variance in the outcome variable is compared with the 7.7% variance of one of the cities were that not significantly difference from the overall model or fixed effect. The different in the subcategory VPC for Atlanta and Charlotte is 3.2% [$7.7\% - 4.50\% = 3.2\%$]. This 3.2% different is worth noting, however, the descriptive statistics (Table 7) show that Atlanta is the number two most congested city. This is significant deviation, and it is worth investing further in the qualitative research. The examination of this step could help explain the length or size theory, however, the finding did not support the social impact theory.

Qualitative Analysis Discussion

To learn if CSR actions, as rated by third party companies, are impacting the local traffic congestion, it is paramount to employ a research method that is capable of capturing the analysis of not just the number provided by the rating companies but also information provided by people with lived experiences, both individuals and corporations. The qualitative research aimed at taking into account the “lived” experiences of individuals as TC impacts them in their built environments (local communities) and the meaning they ascribe to these experiences. This aspect of the research sourced information from both the viewpoints of the city residents, in which ABI and employees are categorized, and corporations as it related to their logistics operations.

The interviews for the qualitative study backed up what was found in the quantitative analysis; that corporations and community do not see CSR as having real-world effects on local issues such as TC. Although corporations see TC as a financial burden, they do not seem to be aware of how they could mitigate TC through public-private partnerships. Furthermore, while corporations seem to value CSR, they themselves do not always see it as having practical use in their actual communities. Public interviews confirmed that community members do not see corporate CSR actions as having any actual effect on their lives. Because of this, this paper will further look at ways to incentivize or link TC and actual actions/items that corporations and communities can take together.

Traffic Congestion is a Complex Problem

Corporate View of Traffic Congestion

Corporate respondents see TC as a financial/cost issue. As shown in the Social and Business Issues themes Fortune 500 corporations in Atlanta reported that TC affects their business operations due to delay, losing consumers’ shipping promises, costs to replace damaged

goods due to TC, etc. Some corporations understand that they are driving TC in terms of their business operations and employees driving in to work. As discussed in the Social Change theme, corporations report that current consumer delivery preferences affect their operations as well as TC. Corporations feel pressured to meet consumers' expectations for same-day or next-day delivery, and they feel compelled to keep up with business competition and the gig economy.

Community View of Traffic Congestion

Almost all respondents, both corporate and community based, expressed frustration with TC, and many saw the interview as an avenue for them to share their irritation with the seemingly “never ending” TC and stress. These responses were shared through common phrases, such as, *stressful, treacherous, terrible, shameful, worst, and pretty congested*, within the Social and Business Issues coding theme. High Occupancy Vehicle or HOV lanes (carpool lanes) have been effectively converted to pay lanes known as Peach Pass. One respondent commented that the rich are taking advantage of the Peach Pass, clogging up lanes originally intended to encourage carpooling and reduce TC. HOV is not considered active transportation except where people ride on the city buses, e.g. Express or Gwinnett Bus, which can relieve TC. Respondents stated that corporations should contribute more or push agendas to speed TC relief efforts. One participant specifically said that the corporations “can't be selfish” over this issue that affects their own employees and business operations as well as the community at large.

Questions for Further Research

The issue of TC constitutes a whole web of issues in the present and future, and individual efforts by sectors of the city might not be enough to have an impact. Some corporate respondents acknowledged that building more infrastructure is not the answer because they tried assisting in the mitigation of TC by building infrastructure and it did not help. Both corporate

and community respondents suggested that even if employees or individuals were to change their modal choice or commuting behavior, shippers would override these efforts by increasing their own road usage to satisfy consumers' tastes. Then the question to ask is, would TC relief ever be realized? But like one respondent said, we have to at least start having the conversation--yet these conversations cannot take place in a vacuum. Public-private and all stakeholders have to be on board.

A respondent stated that Atlanta has been growing explosively since the Olympics in 1996. A few other respondents also pointed out that Atlanta transit systems were not built for nor could they match the population growth. One participant made a very great point that one large metro governing body could not all by itself look out for this specific issue. These interviewees suggested that unless all hands are on deck working together, consumers, government agencies, and corporations may be working in silos, rather than collaborating to combat a very complex issue that no one sector of the city can overcome alone. While individual corporate or governmental policies can have positive effects on TC, innovative partnership strategies will be needed to create meaningful change on the issue. Some strategies to look at might include corporations having variable resumption and closing times for employees, which would help relieve congestion as fewer people would need to drive at the same times; tax incentives for corporations that have certain percentages of employees carpooling or using mass transit; and expanding the ABI.

Corporate Social Responsibility

Gap Between Corporations' Statements on CSR - A PR Stunt or Expression of Values?

The corporate group initially expressed that they are engaged in CSR because they are citizens of the earth and it is a core part of their business. However, when asked about the

specific value of CSR, all corporate respondents reported that CSR ratings boost their public image and are one of the ways to earn them spots on the “100 best places to work” list. These corporate respondents also expressed that CSR is a strategy that their organization uses to attract employees and innovation. These statements seem to indicate that, to a corporation, the bottom line is getting the attention of the specific stakeholder they are targeting.

To highlight this issue, when asked, “is there an internal corporate effort on encouraging active commuting because your organization is big?”, the answers were generic. Most corporate respondents expressed that they have carpooling and vanpooling programs. Another corporate respondent pointed out that their corporation offered “ride your bike day” where employees are encouraged and given time off to participate. While corporations adopt these traffic reduction policies, there seems to be no direct internal effort to incentivize employee participation. An inference that can be drawn from this anecdote is that corporations see CSR as a public relations gambit rather than a real social action.

Public Does Not See Results

Some community respondents expressed that corporations get involved in CSR or report it simply because of the public image they get from it. Contrary to what corporations thought about the value of CSR, most members of the community group stated that they do not see local results from CSR. A few community respondents, such as ABI employees, noted that they had seen corporate volunteers cleaning around the ABI project. To this group, however, CSR may be viewed as an attraction scheme for investors only. Some of the words coded from the category are *can't point to what corporations do for CSR, no data to show health and sustainability impact of these corporations, and corporations should do more than they are doing.*

Is It Possible to Narrow the Gap Between “Talking” CSR and “Walking CSR”?

Based on what the community group and corporate group reported as evidenced in the above paragraphs, CSR is not having much practical impact on the local community. Many corporations are taking broader or more global initiatives, such as green supply chain sourcing, efficient use of energy, and leading globally in waste management. However, the corporate sector is missing opportunities to garner local loyalty, to be good environmental stewards, and to truly be community leaders. It is acknowledged that corporations will not do anything if it is not financially advantageous to them and their owners. When asked explicitly about reporting the dollar value that CSR provides to a company, none of the respondents replied that their corporation measured it.

Both community and corporate group participants agreed that there is more work to be done to avert the TC in Atlanta. When asked if corporations should do more to directly help alleviate traffic congestion, all community respondents and almost all corporate respondents agreed. Some community participants alluded to the fact that corporations need to improve internal and external policies to intentionally reduce TC and the environmental footprint.

While most corporate respondents indicated TC is costly to their business operations, they do not expressly track the costs of congestion in relation to operational expenses. This supports the findings of Weisbrod, Vary, and Treyz (2003), which cited a recent Texas Transportation Institute study of urban congestion, which estimated cost of TC in the Chicago and Philadelphia urban areas total \$4.1 and \$1.3 billion annually, respectively. Many businesses view TC as an issue that they do not have a responsibility to mitigate, despite the implied costs to their organizations. They view paying taxes as enough, not acknowledging their own vast power to influence almost all aspects of society. For example, a corporation that has a large number of

employees who commute to work could have a measurable impact on TC by allowing flexible working hours or working from home. This has not yet been proven in research, but it is a topic that this researcher wishes to embark on.

To inspire corporations to take on TC, future research must focus on the costs of TC to businesses and the savings that practical, local CSR actions can bring by reducing TC. As will be discussed in the next section, reducing TC also improves quality of life, which makes it easier for corporations to attract top talent. The benefits to a corporation's public image should not be dismissed in the age of social media mobs and consumers who are increasingly concerned about the ethics of the corporation from which they buy.

Corporations exist for the purpose of producing value to their shareholders; all Fortune 500 corporations are publicly traded on the stock market. Corporations desire to attract investors through positive stock market reports. In recent years, investors have increasingly been looking at the CSR of the companies in which they choose to invest. Reports show that high CSR ratings have an impact on corporations' bottom lines, giving businesses incentive to act in socially responsible ways. Even beyond this general benefit, addressing a substantial local community issue, such as TC, has the possibility to position a corporation as a major innovator. As a new contribution, the results from this study suggest that taking a key step or being a frontrunner in coming up with initiatives to mitigate TC could have a positive effect on corporations' stakeholders, investors, consumers, owners, as well the share price value (Minor & Morgan, 2011). Because corporations will be taking a pioneering step when everyone else is content with the status quo on TC, a social/environmental event that has proven to be beyond the capacity of what the government alone can solve, both the government and community will notice the step. Taking big bold steps and risks will earn the respect of many Americans if the private sector

mitigates public issues, and private industry taking the lead on these issues incentivizes the government to lessen stringent regulations down the line. This can drive stock and financial prospects for the company, making TC mitigation a win-win for corporate owners and society at large.

Consequences of ABI

ABI is a 25-year project, which started in 2005. The project is not yet completed; hence its effect cannot be fully measured. Respondents like the new redevelopment but stated that the current extent of the project is not enough to significantly impact TC. Whereas the majority of respondents posited that the ABI infrastructure is a potential means of reducing the capacity overloads on the roads, some participants thought that the ABI is in its infancy and serving a limited population. Both corporate and community groups agreed that the ABI is a great amenity to have but completion of the project is needed to accommodate the growing population. An unanticipated challenge to the ABI project could stem from a case of transportation “induced demand”, which refers to the idea that when additional roads are built people tend to drive more because they perceive that more free lanes means faster commutes, thereby congesting the roads again. Increasing roadway capacity encourages more people to drive, thus failing to improve congestion. In a similar vein, the attractiveness and active infrastructure capacity of the ABI project could attract more people to the project and therefore congest that area if accurate future planning is not in place.

For example, one of the unintended consequences of ABI is rapid gentrification in the surrounding neighborhoods. A few corporations have moved their headquarters near the ABI project, which brings an influx of TC into the city. Development companies are also building housing units targeting higher income residents. Businesses are bringing in more employees as a

result of the ABI's attractiveness, walkability, and proximity to jobs, restaurants, and shops. In addition, employees are also relocating near the ABI project in order to be closer to their jobs. Some interviewees feared that increased taxes and housing costs could leave out people of low socioeconomic status. People moving into the city is further putting a strain on the existing transportation infrastructure. A further research agenda that examines TC as a specific indicator of CSR, which is based or measured on a public-private partnership, could provide insights into innovative strategies to combat this cyclical TC issue that may in turn benefit all stakeholders.

Conclusions from Quantitative Analysis

This study was conducted to examine the relationship of CSR indicator ratings on TC. TTI was calculated as a measure of TC. Of the four top category CSR indicators ratings, community, environment, and governance were found to have significant relationship with TC, supporting social impact theory. A key variable of interest in the top category CSR, environment indicator, had a significant negative relationship with TC, meaning that as the CSR environment indicator rating goes up, TC around the respective headquarters of Fortune 500 companies analyzed in this study goes down. In addition, of the four city factors in the top category CSR, vehicle (at five percent significance level) had significant positive effects on TC, which suggested that as number of vehicle registrations increases, TC also increases.

The subcategories of CSR indicators were also examined against TC. With the exception of community development and philanthropy, human rights and supply chain, product, and board, all subcategory CSR indicators had significant relationship with TC. Some of these indicators that show significant relationships have counter intuitive results given their expected direction of their relationship to TC. For example, a positive coefficient in training, health and safety show that as this indicator increases, TC also increases. This is not a surprise because

training, health and safety is not linked to TC in the real-world. While all these CSR subcategories rate the social responsibility actions of corporations, none of them is directly related to actions taken by corporations to curb congestion, if any. A key finding of this study for companies and their raters to consider adding a specific ratings and reporting method to measure traffic mitigation efforts.

Although the analyses in this study show that a connection exists between CSR and TC, the extant literature and DOT reports revealed increased and continuous congestion in these cities. The authors will conduct interviews to study one of the most congested metropolitan areas in order to explore how TC trends and corporate social responsibility ratings apply on a local level.

Study limitation: There are no main or subcategories of CSR rating that report on corporations' traffic congestion mitigation actions, if any. Hence, this study used the energy and climate change CSR indicator as a proxy for reduction of emission/pollution since no direct ratings for traffic congestion action (that can explain increases or decreases in this rated CSR action).

Conclusions from Qualitative Analysis

TC has been reported to not only have effects on business operations but also the environment and people's health. In this study, three phenomena were examined: (1) corporate awareness of the effects that TC has on business logistics and vice-versa; (2) whether or not companies with high CSR ratings see congestion as an issue of social responsibility or isolate it as a financial problem; (3) stakeholders' points-of-view on TC, mitigation efforts, and CSR.

The results show that (1) corporations reported that TC affects their bottom lines and also acknowledged their own business operations as one of the major contributors to TC. (2) Some

corporations asserted that they see intangible value in CSR, while others stated it was one thing to report CSR and it was another thing to invest in CSR actions that impact substantial matters such as TC. Most corporations reported that they do not isolate TC as a cost but see it as a social responsibility. (3) Community group respondents discussed their unpleasant experiences with traffic. They did not perceive any personal benefits from CSR, nor did they see that corporations are taking any actions to mitigate TC. Community respondents expressed that the support and influence of corporations is needed to boost the impact of projects, such as the ABI, that mitigate TC.

As shown by the exploration of the ABI project in this qualitative research case study and as alluded to by local members, TC is an area where CSR can have a major local impact. Although some corporate respondents acknowledged that TC has a business cost, they are not taking steps to quantify it as such and thereby it does not appear that they are taking steps to tackle TC. For example, enacting internal policies that encourage flexible work schedules, establishing programs that specifically target TC relief, or investing in public-private partnership programs could be a big first step. Furthermore, corporations are not taking advantage of the potential innovation and public relations boost that directly tackling the issue of TC could bring to them.

Final Conclusions for Mixed Methods Study

This study followed an explanatory mixed-methods approach, which allows a researcher to first explore quantitative data and then follow up with qualitative data. In the quantitative study, the variables of interest were the four CSR indicators, community, employees, environment, and governance, with the environment being the key interest. Of the four indicators, community and environment have been extensively linked to CSR impact outside of

the corporation. The quantitative analysis showed that of the total twelve subcategories of CSR rating seven of them had significant effects on TC, particularly of interest are the subcategory indicator community development and philanthropy, energy and climate change (emissions/pollutions), board, and leadership ethics, with energy and climate change being the main interest. However, without the inclusion of city factors in the study analysis model, these CSR indicators by themselves had a weak explanation of the CSR indicators' effect on TC for the top category CSR but not the subcategory CSR—meaning that excluding the city factor from the model would not affect the interpretation of the results.

Given these results from the quantitative study, qualitative interviews were used to follow up and further inquire into the practical effect of these quantitative findings. The qualitative study, sought to investigate 1) corporate awareness of the effects that TC has business logistics and vice-versa; 2) whether or not companies with high CSR ratings see congestion as an issue of social responsibility or isolate it as a financial problem; 3) stakeholders' points-of-view on TC, mitigation efforts, and CSR.

The result of the qualitative analysis shows that corporations and community do not see CSR as having real-world effects on local issues such as TC. The qualitative study backed up what was found in the quantitative analysis—that CSR indicators, although, had a relationship and explained some of the effects on TC, the explained effects were weak. And although corporations see TC as a financial burden, they do not seem to be aware of how they could mitigate TC through public-private partnerships. Furthermore, while corporations seem to value CSR, they themselves do not always see it as having practical use in their actual communities. Public interviews confirmed that community members do not see corporate CSR actions as having any actual effect on their lives.

Implications

Implications for Corporate Executives

The findings in this study serve as evidence that taking key steps to mitigate TC could have a positive effect on corporations' stakeholders, investors, consumers, owners, as well the share price value (Minor & Morgan, 2011).

Implications for CSR Rating Companies

The findings of this study have established a significant but relatively weak inverse relationship between CSR indicators and TTI. Some of the assumptions that were posited to be reflective of changes in TC, including other variables that are meant to explain variation in TC, produced inconsistent results. This may be due in part on how CSR is measured or rated, and this may also need to change. The possibility exists that there may be so many stakeholders contributing to TC that even though the contribution of corporations that are rated high in CSR are important, it will not address the issue of TC alone. Another reason may be that in spite of all of the data loaded in the two models, to capture any confounding variation in TC, the statistical measurements in the analysis were unable to capture all factors that may better explain the association and effects of CSR on TC. TC is a complex issue with multitudinous factors, so more than one of these possibilities may be true at the same time.

Implications for Public Health

As suggested by the findings in this research, the effects of TC on employees, such as stress, mental health issues, depression, noise pollution, etc. can be averted and the health costs related to illnesses from TC, can be reduced if corporations intentionally start to align CSR to TC. In the case of the recent health pandemic, corporate policies, such as flexible work hours or work from home, cannot only be a strategic and significant measurable impact on reducing TC

and air pollution, as suggested from the results of the qualitative study, but can also ensure that business operations do not come to a halt during a mandated quarantine or social distancing policies due to pandemic.

Policy Implications

The weak association found in the quantitative analysis may suggest that CSR is not aligned with TC. This may point to CSR being divorced from accountability. Corporations spend large capital on its CSR actions, tracking, recording, and reporting, and they even use CSR to distinguish them from their competitors. CSR has also been proven to provide financial leverage through investments from investors and to talent acquisitions. Hence, it is important that the impact of CSR action be examined, and it is also important that CSR's financial contributions impact a social event or the population that it is targeting. Bain (2020) reported on the possibility that the Security Exchange Commissions may soon be requiring corporations to report on the use of their finances associated with ESG, i.e., CSR. Because of the misalignment and lack of accountability for how a corporation uses its CSR funds, this requirement has the potential to further impact the real-world consequences of CSR. This study aims to leverage information for corporate management to consider internal policies that incorporate congestion mitigation as a stand-alone indicator of CSR actions of corporations.

Another policy implication is an opportunity for public-private partnership. Cities may examine ways to incentivize corporations to directly link TC to CSR actions. This may be through tax incentive and combined programs. In addition, through the community development and philanthropy CSR subcategory, corporations can explore actual mitigating actions that corporations and communities can take together.

Implications for Supply Chain Corporate Executives

There is an opportunity for SC executives to explore programs that will improve the city and thereby the function of their business. In Atlanta, for example, one of the ABI projects goes through a major freight hub, i.e., a major highway close to the portion of the city's industrial and distribution centers bringing freight traffic into the city. There is certainly a space for SC executives to take a stand on protecting their freight routes on operations in cities where they have a large number of consumers that they service. Protecting the routes means that they give people and their workers the option to carpool or get on transit, by incentivizing and putting resources to that effect.

Implication for Further Research

An experimental investigation into specific corporate CSR actions, such as energy and climate change or community development and philanthropy CSR that can directly have mitigating effects on TC is needed. Such investigation may provide a more solid measurement and rating of CSR.

REFERENCES

- Arnkoff, D., Glass, C., Elkin, I., Levy, J., & Gershefski, J. (1996). Quantitative and Qualitative Research can Complement Each Other: Reply to Rennie. *Psychotherapy Research*, 6(4), 269–276. <https://doi.org/10.1080/10503309612331331798>
- Aupperle, K. E., Carroll, A. B., & Hatfield, J. D. (1985). An Empirical Examination of the Relationship between Corporate Social Responsibility and Profitability. *The Academy of Management Journal*, 28(2), 446–463. <https://doi.org/10.2307/256210>
- Barnea, A., Heinkel, R., & Kraus, A. (2013). Corporate social responsibility, stock prices, and tax policy. *The Canadian Journal of Economics / Revue Canadienne d'Economique*, 46(3), 1066–1084. JSTOR.
- Brusseau, J. (2012). *The Business Ethics*. Saylor Foundation.
<https://2012books.lardbucket.org/books/business-ethics/s17-02-three-theories-of-corporate-so.html>
- Cameron, R. (2011). *Mixed Methods Research: The Five Ps Framework*.
- Carroll, A. B. (2016). Carroll's pyramid of CSR: Taking another look. *International Journal of Corporate Social Responsibility*, 1(1), 3. <https://doi.org/10.1186/s40991-016-0004-6>
- Creswell, J. W. (2005). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research* (2nd ed.).
- Creswell, J. W., Fetters, M. D., & Ivankova, N. V. (2004). Designing A Mixed Methods Study In Primary Care. *Annals of Family Medicine*, 2(1), 7–12. <https://doi.org/10.1370/afm.104>
- Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and Conducting Mixed Methods Research*. Sage.

- Denscombe, M. (2008). Communities of Practice: A Research Paradigm for the Mixed Methods Approach. *Journal of Mixed Methods Research*, 2(3), 270–283.
<https://doi.org/10.1177/1558689808316807>
- Doz, Y. (2011). Qualitative research for international business. *Journal of International Business Studies*, 42(5), 582–590. <https://doi.org/10.1057/jibs.2011.18>
- Fernando, S., & Lawrence, S. (2014). A Theoretical Framework for Csr Practices: Integrating Legitimacy Theory, Stakeholder Theory and Institutional Theory. *Journal of Theoretical Accounting*, 10(1), 149–178.
- Giglio, D. (2013, October 15). *Big Corporate Fraud Scandals of the Last Two Decades* | NAI.
<https://pvteyes.com/big-corporate-fraud-scandals-last-two-decades/>
- Grant-Muller, S., & Laird, J. (2007). Costs of Congestion: Literature Based Review of Methodologies and Analytical Approaches Final Report. *White Rose Research Online*.
- Groenewald, T. (2004). A Phenomenological Research Design Illustrated. *International Journal of Qualitative Methods*, 3(1), 42–55. <https://doi.org/10.1177/160940690400300104>
- Hesselbein, F. (2010, June 9). How Did Peter Drucker See Corporate Responsibility? *Harvard Business Review*. <https://hbr.org/2010/06/how-did-peter-drucker-see-corp>
- Holme, R., & Watts, P. (2000). *Corporate social responsibility: Making good business sense*. World Business Council for Sustainable Development.
- Hong'e, M. (2016, August 17). *Coach, Disney suspected of using polluting suppliers in China* [News]. ECNS Wire. <http://www.ecns.cn/cns-wire/2016/08-17/222947.shtml>
- Izzo, M. F. (2014). Bringing theory to practice: How to extract value from corporate social responsibility. *Journal of Global Responsibility; Bingley*, 5(1), 22–44.
<http://dx.doi.org.ezproxy.lib.ndsu.nodak.edu/10.1108/JGR-10-2013-0013>

- Kemi C. Yekini. (2012). *Corporate Community Involvement Disclosure: An Evaluation of the Motivation & Reality*. Unpublished. <https://doi.org/10.13140/RG.2.1.4710.6720>
- Lev, B. (2005). *Intangible Assets: Concepts and Measurements*.
- Lucas, K., Philips, I., Mulley, C., & Ma, L. (2018). Is transport poverty socially or environmentally driven? Comparing the travel behaviours of two low-income populations living in central and peripheral locations in the same city. *Transportation Research Part A: Policy and Practice*, 116, 622–634. <https://doi.org/10.1016/j.tra.2018.07.007>
- Luetkenhorst, W. (2004). Corporate social responsibility and the development agenda. *Intereconomics*, 39(3), 157–166. <https://doi.org/10.1007/BF02933583>
- Mattera, M., Baena, V., & Cerviño, J. (2012). Analyzing Social Responsibility as a Driver of Firm's Brand Awareness. *Procedia - Social and Behavioral Sciences*, 58, 1121–1130. <https://doi.org/10.1016/j.sbspro.2012.09.1093>
- Nargolwala, M. A. (2006). *A study on impact assessment of corporate social responsibility with respect to community development programmes of industries of Gujarat* [Ph.D., Maharaja Sayajirao University of Baroda (India)]. <https://search.proquest.com/docview/1752039870/citation/C5968C52255E4BC0PQ/1>
- Neubauer, B. E., Witkop, C. T., & Varpio, L. (2019). How phenomenology can help us learn from the experiences of others. *Perspectives on Medical Education*, 8(2), 90–97. <https://doi.org/10.1007/s40037-019-0509-2>
- Nilsen, P. (2015). Making sense of implementation theories, models and frameworks. *Implementation Science : IS*, 10. <https://doi.org/10.1186/s13012-015-0242-0>

- O’Riordan, L., & Fairbrass, J. (2008). Corporate Social Responsibility (CSR): Models and Theories in Stakeholder Dialogue. *Journal of Business Ethics*, 83(4), 745–758.
<https://doi.org/10.1007/s10551-008-9662-y>
- Pathak, V., Jena, B., & Kalra, S. (2013). Qualitative research. *Perspectives in Clinical Research*, 4(3), 192. <https://doi.org/10.4103/2229-3485.115389>
- Piekkari, R., Welch, C., & Paavilainen, E. (2009). The Case Study as Disciplinary Convention: Evidence From International Business Journals. *Organizational Research Methods*, 12(3), 567–589. <https://doi.org/10.1177/1094428108319905>
- Putra, Y. H. S., Yati, S., & Wahyuni, N. (2015). Acting Green: Theoretical Framework on Corporate Social Responsibility. *Australian Journal of Basic and Applied Sciences*, 3.
- Rahdari, A. H., & Anvary Rostamy, A. A. (2015). Designing a general set of sustainability indicators at the corporate level. *Journal of Cleaner Production*, 108, 757–771.
<https://doi.org/10.1016/j.jclepro.2015.05.108>
- Schrank, D. L., Turner, S. M., & Lomax, T. J. (n.d.). *Estimates of Urban Roadway Congestion—1999*. 89.
- Sellers, M. (2009). *Corporate environmental strategy: Extending the natural resource based view of the firm* [Ph.D., University of Calgary (Canada)].
<https://search.proquest.com/docview/304845173/abstract/9591F0C8B3B04D07PQ/1>
- Social Impact Theory and Model*. (2016). <https://doi.org/10.1002/9781118833162.ch5>
- Spoth, R., Rohrbach, L. A., Greenberg, M., Leaf, P., Brown, C. H., Fagan, A., Catalano, R. F., Pentz, M. A., Sloboda, Z., Hawkins, J. D., & Society for Prevention Research Type 2 Translational Task Force Members and Contributing Authors. (2013). Addressing Core Challenges for the Next Generation of Type 2 Translation Research and Systems: The

- Translation Science to Population Impact (TSci Impact) Framework. *Prevention Science*, 14(4), 319–351. <https://doi.org/10.1007/s11121-012-0362-6>
- Steyn, B., & Niemann, L. (2014). Strategic role of public relations in enterprise strategy, governance and sustainability—A normative framework. *Public Relations Review*, 40(2), 171–183. <https://doi.org/10.1016/j.pubrev.2013.09.001>
- Tran, M. (2004, July 29). Shell fined over reserves scandal. *The Guardian*.
<https://www.theguardian.com/business/2004/jul/29/oilandpetrol.news>
- Weisbrod, G., & Fitzroy, S. (2011). Traffic Congestion Effects on Supply Chains: Accounting for Behavioral Elements in Planning and Economic Impact Models. *Supply Chain Management - New Perspectives*. <https://doi.org/10.5772/23057>
- Weisbrod, G., Vary, D., & Treyz, G. (2003). *Measuring the Economic Costs of Urban Traffic Congestion to Business*. 23.
- Wood, D. J. (2010). Measuring Corporate Social Performance: A Review. *International Journal of Management Reviews*, 12(1), 50–84. <https://doi.org/10.1111/j.1468-2370.2009.00274.x>

APPENDIX A. CORPORATION, CITY, COUNTY AND STATE

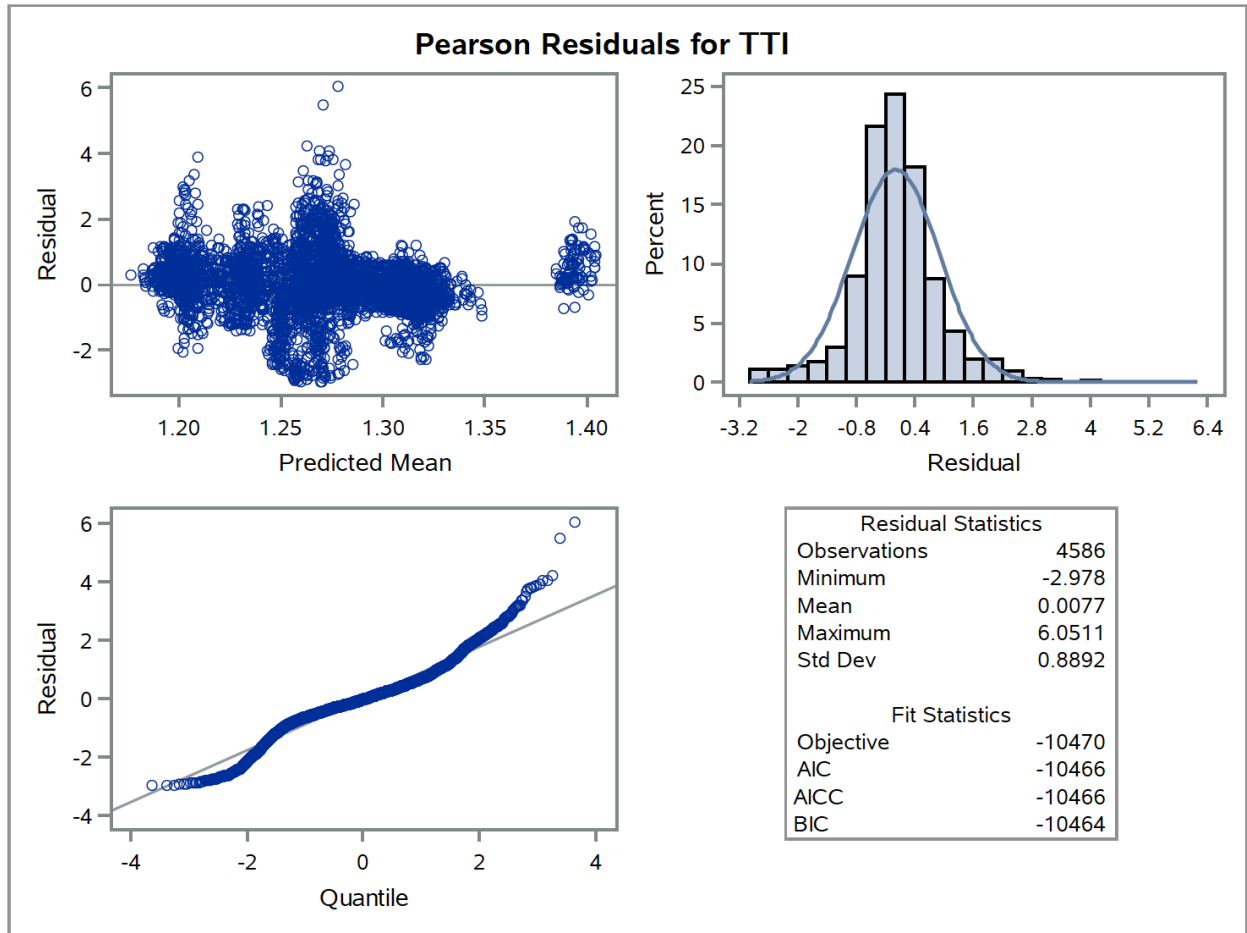
City	County	State	Number	Company	Included
Columbus	Franklin	OH	2	Nationwide	✓
				American Electric Power	✓
				L Brands	✓
Atlanta	Fulton	GA	14	Home Depot	✓
				United Parcel Service	✓
				Delta Air Lines	✓
				Coca-Cola	✓
				Southern	✓
				Genuine Parts	✓
				WestRock	✓
				SunTrust Banks	✓
				PulteGroup	✓
				Veritiv	✓
				NCR	✓
				Intercontinental Exchange	✓
HD Supply Holdings	✓				
Graphic Packaging Holding	✓				
Washington, DC	Washington	DC	2	Fannie Mae	✓
				Danaher	✓
Phoenix	Maricopa	AZ	4	Avnet	✓
				Freeport-McMoRan	✓
				Republic Services	✓
				ON Semiconductor	✓
Los Angeles	Los Angeles	CA	3	CBRE Group	✓
				AECOM	✓
				Reliance Steel & Aluminum	✓
San Francisco	San Francisco	CA	9	Wells Fargo	✓
				Visa	✓
				PG&E	✓
				Gap	✓
				salesforce.com	✓
				Charles Schwab	✓
				Williams-Sonoma	✓
Levi Strauss	✓				
Denver	Denver	CO	4	DaVita	✓
				Molson Coors Brewing	✓
				DCP Midstream	✓
				Western Union	✓
Miami	Miami-Dade	FL	3	World Fuel Services	✓
				Lennar	✓
				Ryder System	✓

City	County	State	Number	Company	Included
Chicago	Cook	IL	11	Boeing	✓
				Archer Daniels Midland	✓
				United Continental Holdings	✓
				Exelon	✓
				AbbVie	✓
				McDonald's	✓
				Jones Lang LaSalle	✓
				LKQ	✓
				Conagra Brands	✓
				Motorola Solutions	✓
				R.R. Donnelley & Sons	✓
Northern Trust	✓				
Old Republic International	✓				
Boston	Suffolk	MA	5	General Electric	✓
				Liberty Mutual Insurance Group	✓
				State Street Corp.	✓
				American Tower	✓
				Wayfair	✓
Minneapolis	Hennepin	MN	6	Target	✓
				U.S. Bancorp	✓
				General Mills	✓
				Ameriprise Financial	✓
				Xcel Energy	✓
				Thrivent Financial for Lutherans	✓
Charlotte	Mecklenburg	NC	5	Bank of America	✓
				Nucor	✓
				Duke Energy	✓
				Sonic Automotive	✓
				BrightHouse Financial	✓

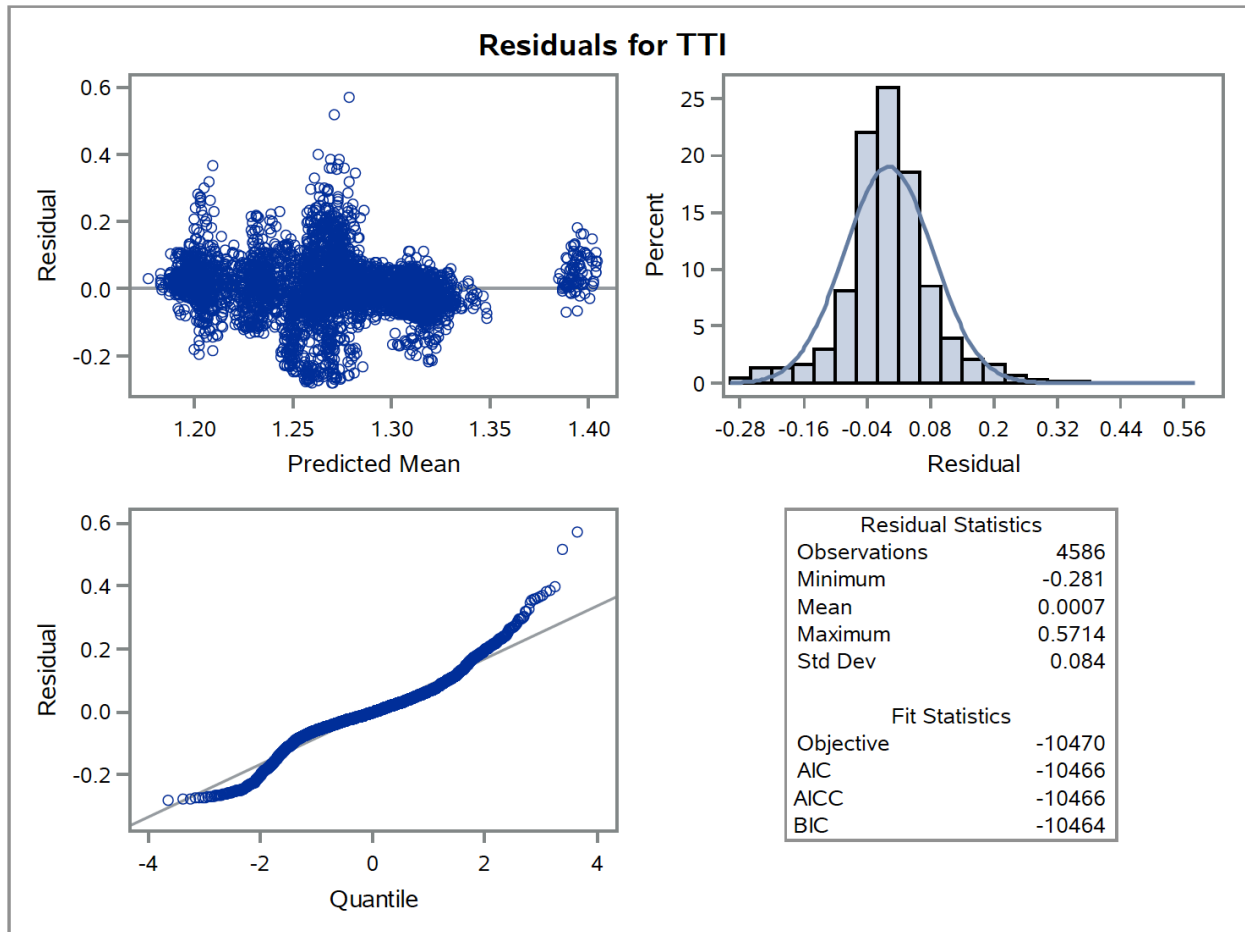
City	County	State	Number	Company	Included
New York	New York	NY	46	JPMorgan Chase	✓
				Verizon Communications	✓
				Citigroup	✓
				MetLife	✓
				Pfizer	✓
				Goldman Sachs Group	✓
				Morgan Stanley	✓
				American International Group, Inc.	✓
				New York Life Insurance	✓
				American Express	✓
				Teachers Insurance and Annuity Associa	✓
				Twenty-First Century Fox	✓
				Travelers	✓
				Philip Morris International	✓
				INTL FCStone	✓
				Bristol-Myers Squibb	✓
				Bank of New York Mellon	✓
				Icahn Enterprises	✓
				Colgate-Palmolive	✓
				Omnicom Group	✓
				Marsh & McLennan	✓
				CBS	✓
				BlackRock	✓
				Loews	✓
				Arconic	✓
				Estee Lauder	✓
				Guardian Life Ins. Co. of America	✓
				Viacom	✓
				Consolidated Edison	✓
				L3 Technologies	✓
				Interpublic Group	✓
				PVH	✓
				First Data	✓
				Coty	✓
				News Corp.	✓
				Voya Financial	✓
				Jefferies Financial Group	✓
				Assurant	✓
				Foot Locker	✓
				Alleghany	✓
				Blackstone Group	✓
				Hess	✓
				ABM Industries	✓
				S&P Global	✓
				Ralph Lauren	✓
				Tapestry	✓

City	County	State	Number	Company	Included
Philadelphia	Philadelphia	PA	2	Comcast	✓
				Aramark	✓
Pittsburgh	Pittsburgh	PA	6	Kraft Heinz	✓
				PNC Financial Services	✓
				PPG Industries	✓
				United States Steel	✓
				Alcoa	✓
				WESCO International	✓
Dallas	Dallas	TX	10	AT&T	✓
				Energy Transfer	✓
				Southwest Airlines	✓
				Tenet Healthcare	✓
				HollyFrontier	✓
				Texas Instruments	✓
				Jacobs Engineering Group	✓
				Dean Foods	✓
				Builders FirstSource	✓
				EnLink Midstream	✓
Houston	Harris	TX	20	Phillips 66	✓
				Sysco	✓
				ConocoPhillips	✓
				Enterprise Products Partners	✓
				Plains GP Holdings	✓
				Halliburton	✓
				Occidental Petroleum	✓
				EOG Resources	✓
				Waste Management	✓
				Kinder Morgan	✓
				Group 1 Automotive	✓
				Quanta Services	✓
				CenterPoint Energy	x
				Targa Resources	✓
				Calpine	✓
				Westlake Chemical	✓
				National Oilwell Varco	✓
Cheniere Energy	✓				
Apache	✓				
Marathon Oil	✓				
Seattle	King	WA	6	Amazon.com	✓
				Starbucks	✓
				Nordstrom	✓
				Alaska Air Group	✓
				Expeditors Intl. of Washington	✓
				Weyerhaeuser	x

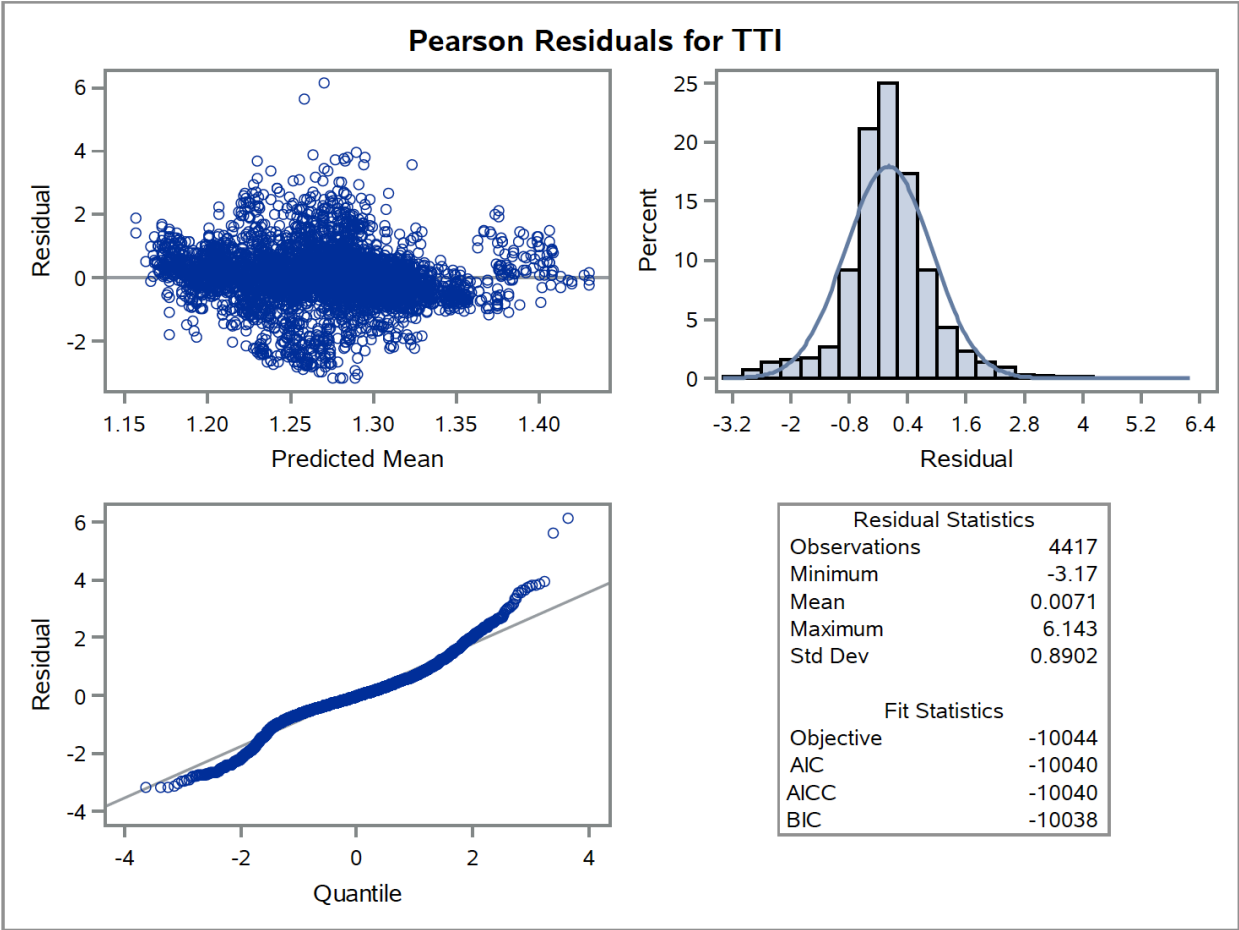
APPENDIX B. PEARSON RESIDUALS - MODEL 1 STEP 2 – TOP CATEGORY CSR



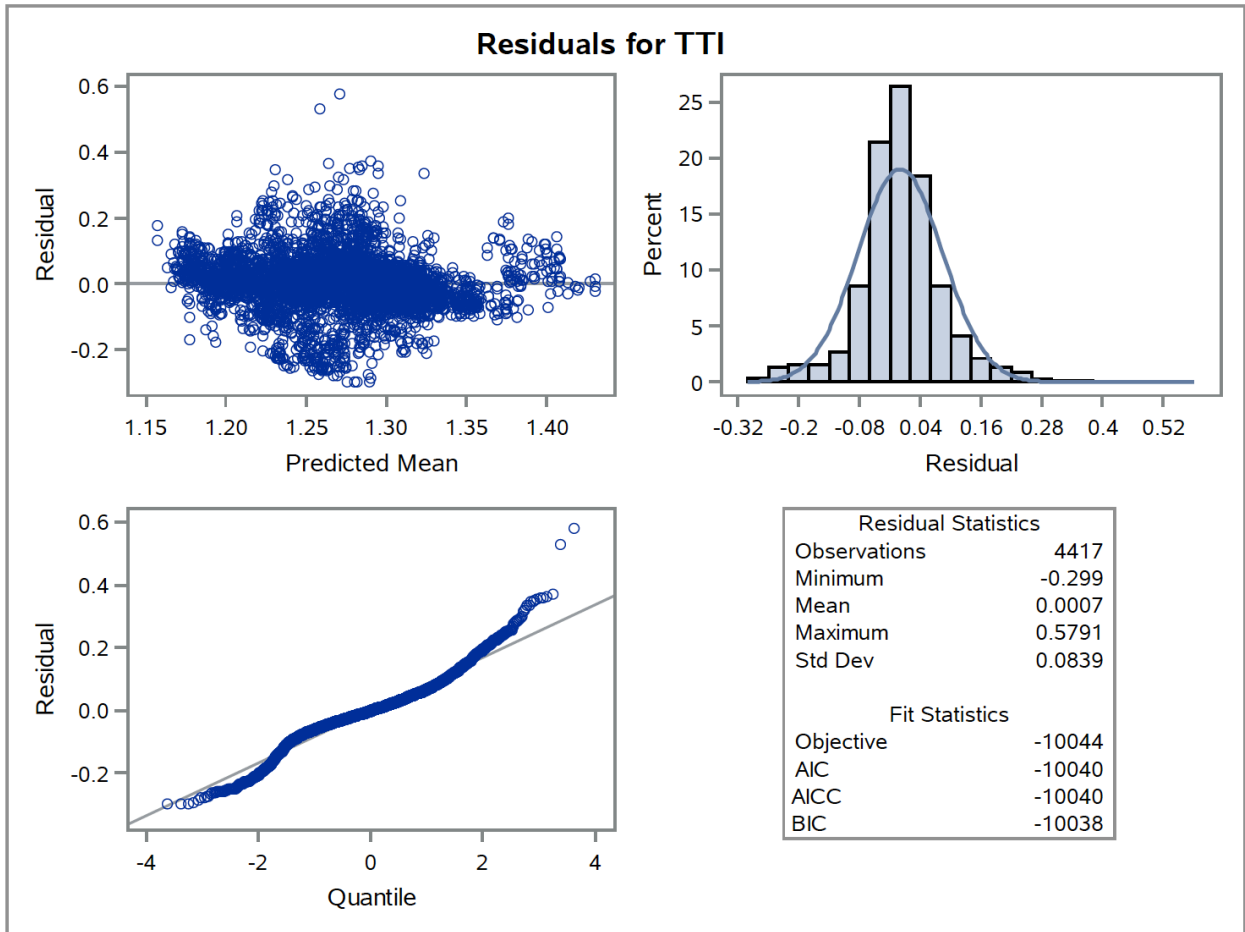
APPENDIX C. RESIDUALS - MODEL 1 STEP 2 – TOP CATEGORY CSR



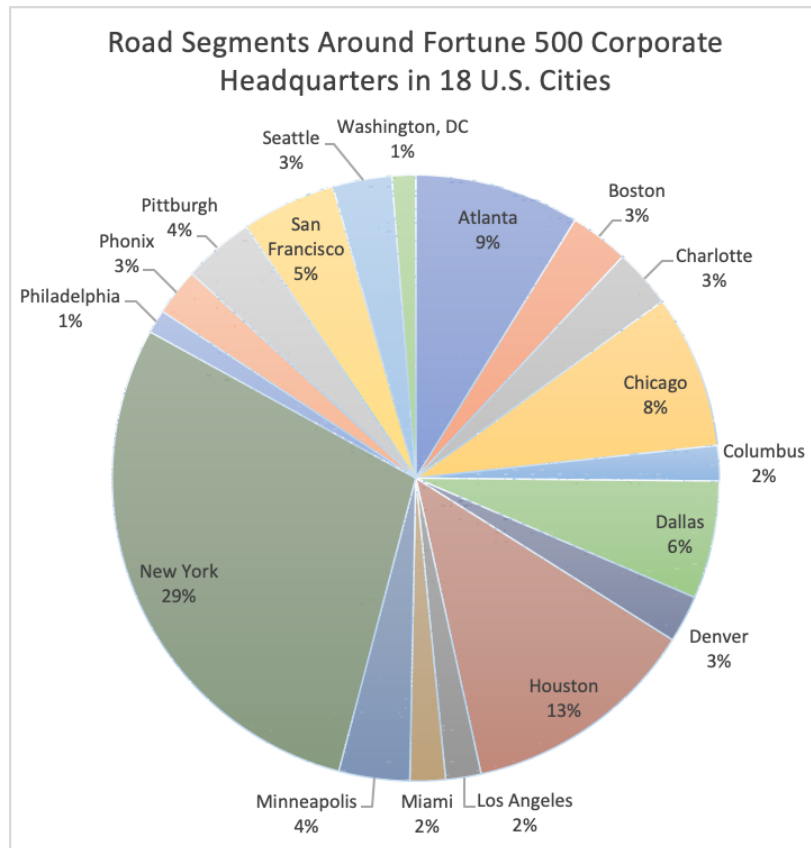
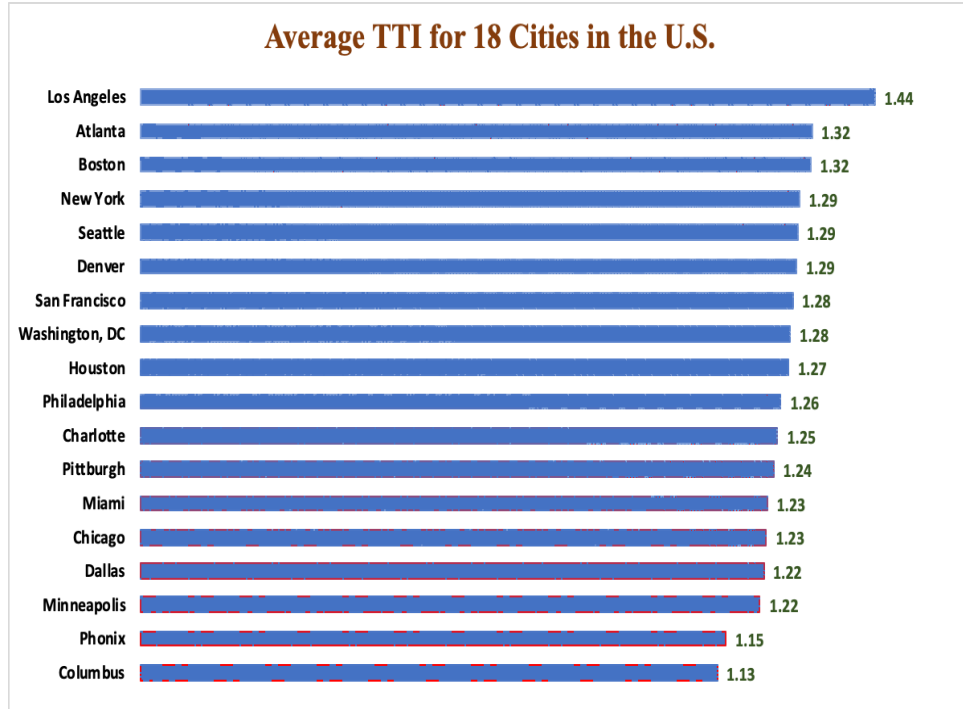
APPENDIX D. PEARSON RESIDUALS - MODEL 2 STEP 1 – SUBCATEGORY CSR



APPENDIX E. RESIDUALS - MODEL 2 STEP 1 – SUBCATEGORY CSR



APPENDIX F. AVERAGE TTI FOR 18 U.S. CITIES



APPENDIX G. IRB APPROVAL



September 25, 2019

Dr. Joseph Szmerekovsky
Department of Transportation, Logistics, and Finance

Re: IRB Determination of Exempt Human Subjects Research:
Protocol #BA20064, "Traffic Congestion and Corporate Social Responsibility: A Mixed Method Study"

Co-investigator(s) and research team: Bukola Bakare
Date of Exempt Determination: 9/25/2019 Expiration Date: 9/24/2022
Study site(s): Atlanta, GA – varied locations
Sponsor: Robert Wood Johnson Foundation

The above referenced human subjects research project has been determined exempt (category #2(i)) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, Protection of Human Subjects). This determination is based on the revised protocol submission (received 9/20/2019).

Please also note the following:

- If you wish to continue the research after the expiration, submit a request for recertification several weeks prior to the expiration.
- The study must be conducted as described in the approved protocol. Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.
- Notify the IRB promptly of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
- Report any significant new findings that may affect the risks and benefits to the participants and the IRB.

Research records may be subject to a random or directed audit at any time to verify compliance with IRB standard operating procedures.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.
Sincerely,

A handwritten signature in purple ink that reads "Kristy Shirley".

Kristy Shirley, CIP, Research Compliance Administrator

For more information regarding IRB Office submissions and guidelines, please consult https://www.ndsu.edu/research/for_researchers/research_integrity_and_compliance/institutional_review_board_irb/. This Institution has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.

INSTITUTIONAL REVIEW BOARD

NDSU Dept 4000 | PO Box 6050 | Fargo ND 58108-6050 | 701.231.8995 | Fax 701.231.8098 | [ndsu.edu/irb](https://www.ndsu.edu/irb)

Shipping address: Research 1, 1735 NDSU Research Park Drive, Fargo ND 58102

NDSU is an EQ/AA university.

APPENDIX H. STUDY CONSENT STATEMENT

Corporate Social Responsibility and Traffic Congestion: A Mixed Methods Study Consent Statement

September 10, 2019

Dear Participant,

This self-conducted study by Dr. Joseph Szmerekovsky and graduate student, Bukola Bakare, studies private/public partnerships and traffic congestion in Atlanta. We are conducting interviews to assess corporate, community, and public agency perceptions of congestion mitigation efforts. During this 40- to 60-minute, one-on-one interview, you will answer questions about your experience with traffic congestion and the Atlanta city redevelopment by Atlanta BeltLine, Inc.

No risk is anticipated for you to take part in this interview.

You will not directly benefit from your participation in this study. However, your participation in this study may contribute to the increased knowledge of traffic mitigation efforts in Atlanta.

Your participation is voluntary; you may refuse to participate or answer certain questions or discontinue your participation at any time with no penalty to you. By taking part in this interview, you indicate your willingness to participate. All research records will be kept private. Your information will be combined with information from other people taking part in the study and we will write about the combined information. You will not be identified in these written materials.

You have rights as a research participant. If you have questions about your rights or complaints about this research, then you may talk to the researcher or contact the NDSU Human Research Protection Program at 701-231-8995 or toll free at 1-855-800-6717, ndsuirb@ndsu.edu, or by mail at NDSU HRPP Office, NDSU Dept. 4000, PO Box 6050, Fargo, ND 58108-6050.

Thank you for taking part in this research. If you have questions about this project or wish to receive a copy of the results, please contact me at 770-905-6050 or email bukola.bakare@ndsu.edu or contact my advisor, Dr. Joseph Szmerekovsky at 701-231-8128 or email joseph.szmerekovsky@ndsu.edu.

Sincerely,

Bukola Bakare, Ph.D. Candidate
Joseph Szmerekovsky, Ph.D.
NDSU Department of Transportation, Logistics and Finance

APPENDIX I. INTERVIEW QUESTIONS

Interview Questions - Corporation

1. In your opinion, has the congestion in Atlanta gotten better or worse since the Atlanta Beltway, Inc. (ABI) project?
2. Do your business operations involve freight movements or transportation-related activities aside from employees' commutes?
3. Has your organization experienced freight transportation or employee delays due to traffic congestion?
4. Does your organization report corporate social responsibility (CSR)?
5. When did your organization start participating in CSR reporting?
6. What motivated your organization to start reporting CSR?
7. Does your organization have certain areas of CSR that it tends to veer towards?
8. Does your organization follow its CSR rating by third parties?
9. Was there a time when your organization noticed any form of a spike in your CSR rating?
10. If so, what specific CSR indicator experienced the spike. Did your organization investigate the possible cause and provide a solution?
11. What would you say is the reason your organization is focused on managing growing its CSR rating?
12. Does your organization generally try to analyze how CSR is translating into improved customer/client relations or product shifts?
13. Does your organization attribute any value to your CSR reporting?
14. If so, in what way. If no, why not and why is it reporting?
15. In your opinion, are corporations that are rated high on CSR more likely to have an effect on traffic congestion?
16. Is your organization involved in a corporate or private/public partnership of any sort?
17. Is your organization involved in a corporate or private/public partnership in city redevelopment, such as the Atlanta BeltLine?
18. What type of private/public partnerships has your organization, past or present, been involved in?
19. In your opinion, are corporations that are involved in a public/private partnership more likely to show higher levels of CSR?
20. If so, does this mean they care more about congestion and its effects compared to companies that do not partner with local organizations.
21. Is there an internal corporate effort on encouraging active commuting?
22. In your opinion, it is important for corporations to partner with cities/efforts to reduce traffic congestion to improve air quality/HEALTH?

Interview Questions - Community

1. Has the Beltline been embraced and enjoyed by many residents?
 2. Do you or your organization sees CSR reporting or urban redevelopment as having a bigger effect on traffic congestion in Atlanta?
 3. The mission of the Atlanta Beltline, Inc. (ABI) is to revitalize neighborhoods, improve transit and connect communities, which includes its efforts toward sustainability, transit, public health, and urban revitalization. Is this goal currently being achieved? Can such urban revitalization reduce congestion?
 4. How many corporations participate in ABI programs and at what level of engagement, e.g., on the board, philanthropy, or employee volunteering activity?
 5. Has the ABI 22-mile trails increased active transportation in and around the city?
 6. In your opinion, should more corporations' partner with cities/efforts to reduce traffic congestion to improve air quality and health.
-

APPENDIX J. THEMATIC ANALYSIS PROCESS

<u>Themes</u>	<u>Category</u>	<u>Sub-Category</u>	<u>Data</u>
1. TC is a costly social & business issue	Tax/housing challenge	Unanticipated economy challenges with increased taxes & housing	Challenges arise as a result of ABI
			Unanticipated economy impact
			Issues with housing affordability
			It's attractive (H)
			Result of redevelopment—re-emergent economy/more investment
			Tax increase is a problem
		The rich moved near ABI	
		We have stewardship of tax increment & reporting requirement	We have stewardship of the tax increment
			A quarterly reporting is required
	City redevelopment can cause tax increases	City redevelopment faces pushback (because of tax increments)	
	Marginalized experience	Mixed experiences & limited access brings gentrification	Gentrification comes in... a problem
			Mixed experiences of redevelopment users - marginalized population
			It's only attracting certain people-gentrification
		Corporations have money, power, & should do more, so is everyone	Limited access to redevelopment
			The rich can move near ABI
		Corporations have money, power, & should do more, so is everyone	Gentrification comes in... a problem
			Mixed experiences of redevelopment users - marginalized population
			It's only attracting certain people-gentrification
	Corporations have money, power, & should do more, so is everyone	Limited access to redevelopment	
		The rich can move near ABI	
		Corporations have a lot of power	
		Corporations should put more money	
		Corporations should do more than they are doing... partner up stronger	
		We also solicit corporations for donations	
	Profit and non-profit entities volunteer or adopt a program		
	I mean if everybody does the little bit that they can do		
	Delays cost	Their policies... tie back to our mission	Depends on their policies
			Ties back to kind of our mission
Freight/employee delays and lateness to meetings or dialing in from their cars		Not i'm aware of	
		People are late to meetings or to dial in on the car	
TC programs: have van & ride, carpooling, or work from home		Employees miss meetings...it's stuck in traffic	
	We do have van and ride		
Our employees experience TC	Traffic congestion reduction programs		
	Carpooling or work from home		
Less population served	Achieve goal and lot more direct transportation	Many people/employees experience traffic congestion to and fro...	
	Limited redev not too impactful on TC reduction	We are achieving those goals	
		Trails and transit	
	ABI crowded on weekends	Lot more direct transportation	
		Limited redevelopment	
Severely limited rail system, routes and unsafe	Extent of TC mitigation not too impactful		
	Incomplete redevelopment project		
	ABI is crowded on weekends		
Business brings congestion	Still pretty congestion/worst	Weekend crowd	
	Moving lots of equipments/shipping	A severely limited rail system in Atlanta	
		ATL TC challenge... infrastructure wasn't up for metro	
	Changing consumers—shipping direct—Amazon effect (Amazon Prime)	Roads are no designed for long AT commute	
		Buses...limited reach and unsafe	
	We are putting drivers on the roads, it just congests the roads	Give me a commute train	
		It's still pretty congested	
Corp freight worsen TC	I would say worst		
	We are moving a lot of equipment...		
TC is terrible and challenging	We are shipping products		
	The changing of the consumers, lot more direct to consumer shipments		
	It's sort of the Amazon effect, "send it to me"		
	We're putting more drivers on the road as well		
	It just congests the road because the way we live		
	Corporations' freight operations worsen traffic congestion		
	Now, they want to take advantage		
	The traffic congestion is terrible and challenging		
	It's still pretty congested		

2. ABI is a potential remedy	Attracts young talents	Embraced and attractive	Redevelopment embraced by residents It's attractive City attractiveness and leisure
		People moving in, connects communities, economy got better	People moving in because of ABI ABI is sustainable and connects communities More people moving... economy got better
		Attracts people & business to move near but also add to congestion	People moving toward jobs...companies moving toward redevelopment Redevelopment can attracts people & add to congestion Corporations relocating near redevelopment contribute to congestion ABI brings housing/business developments Crowded...people moving in for jobs
	ABI Project reliefs congestion	Reduces TC & increases safe AT	City revitalization reduces TC Revitalization improved AT safety Urban redevelopment reduces TC
		Do not think ABI and more roads can reduce	Doesn't think ABI can reduce TC TC can be caused by development
		ABI likely to impact environment not CSR	CSR reporting not having bigger impact Responsibility part...ABI project likely to impact environment
		More roads not the answer	More roads can't reduce TC? More infrastructure is not the answer
	Treacherous roads unhealthy	Benefited from increased mood and it's my happy place	I have benefited Improve mood - happy place
		Attractive and used for leisure and exercise	City attractiveness leisure ABI is used for exercise
		Walk ways lowers heart issues; not driving reduces footprint	It reduces my footprint in terms of driving Walkways... basically lowers things like heart
		Roads are congested, treacherous, & stressful	Traffic not reducing Traffic congestion stress
		Happier, healthier, employee make better company	Happier, healthier employees are better assets to the company Air quality.. danger of climate change Smog issue ultimately health issue
		Residents commute actively	City redevelopment having bigger impact Long term resident People embrace active commuting in city AT redevelopment contribute to active lifestyle
	Less population served	Achieve goal and lot more direct transportation	We are achieving those goals Trails and transit Lot more direct transportation
		Limited redev not too impactful on TC reduction	Limited redevelopment Extent of TC mitigation not too impactful Incomplete redevelopment project
		ABI crowded on weekends	ABI is crowded on weekends Weekend crowd
		Severely limited rail system, routes and unsafe	A severely limited rail system in Atlanta ATL TC challenge... infrastructure wasn't up for metro Roads are no designed for long AT commute Buses..limited reach and unsafe Give me a commute train
	Environmental friendly operations	It's best for corp to support TC efforts, it benefits them	In the best interest of large corporations to support the city... Corporation benefits.. business opportunities Corporations should partner with TC reduction efforts
		Although big on commuting but big on car 5 days a week	Although very big on commuting by bus.. I'm driving in a car five days a week
		Good in theory, not practical	Although very big on commuting by bus.. I'm driving in a car five days a week
		Good in theory, not practical	CSR is a good thing...but practically speaking TC reduce happens fast in theory...but slowly in practical
		Corp supports but needs start the conversation	Corp have to support project like the ABI's They have to at least be having conversations

3. CSR is not necessarily impacting TC	Be practical; influence	Corporation contributes to TC mitigation/ABI	Corporations contribute to TC mitigation efforts Corporations contribution - philanthropy
		Important internally/externally to be socially responsible	It's very important to be socially responsible Internally and externally about environmental responsibility
		We are involved pretty high and certainly giving	Once we got involved... pretty high from the beginning Certainly in giving We love being involved in universities...
		Corporations should partner with cities	Fortune 500 partners Corporations should do more than they are doing... partner up stronger Partnership with cities and non-profits (FN)
		Super/pretty committed	The earth/air is a shared resource Once we got involved... pretty high from the beginning
		Corp culture, core/key thing is letting people know we do cutting edge--right thing or only indirectly	We want people to think...we're doing cutting edge things It's just a corporate culture Always been a key thing that we do Socially right side of things company Taking part... core of where we are I would say only indirectly
	Real-time/impactful sustainability data	Want customer/employee/suppliers feel comfortable and be recognized/advertise/perception	Want customer/empl to feel comfortable you are socially responsible Recognized by suppliers Want to be a good citizen but want to advertise it It's a perception...recruiting capability Very important to appear...good citizen
		Important internally/externally to be socially responsible	It's very important to be socially responsible Internally and externally about environmental responsibility
		Sustain innov major initiative--reduced miles/fuel usage	Sustainability/innov is a major initiative So we look at reduced miles, fuel usage
		How well we recruit & sure client experience is good	Exactly applying the CSR to how well are we doing in recruitment We're making sure client experience is good
		Internal effort for TC relief exist	Yes. Absolutely A big concern
	Report versus practice	It's best for corp to support TC efforts, it benefits them	In the best interest of large corporations to support the city... Corporation benefits.. business opportunities Corporations should partner with TC reduction efforts
		Although big on commuting but big on car 5 days a week	Although very big on commuting by bus... I'm driving in a car five days a week
		Good in theory, not practical	CSR is a good thing..but practically speaking TC reduce happens fast in theory...but slowly in practical
		Corp supports but needs start the conversation	Corp have to support project like the ABI's They have to at least be having conversations
	Environmental friendly operations	Good/reduce our environment carbon footprint	Good environment footprint Reduce our overall carbon footprint
		Corporate citizen of the earth	We are corporate citizens of the earth* Want to be a good citizen but want to advertise it Very important to appear...good citizen
		Earth and air are shared resources	
		Danger emissions-air quality (climate change) is health issue/cost	Air quality.. danger of climate change Smog issue ultimately health issue Clean air campaign Yes, to improve quality of air, life and cost
	CSR is valuable but not tangible	Definitely see value, starting to recognize it's important	They are starting to recognize that it's important He definitely see value of CSR
		No measure of value to CSR	I'm not aware of a measure I guess yes, but I don't know I will be guessing

4. Corporations should do more to relief TC	Project attracts businesses	Now, they want to take advantage	Now, they want to take advantage
		Business taking advantage and now it's crowded	Now, they want to take advantage Business taking advantage of redevelopment and it's crowded
	CSR attracts consumers	Want customer/employee/suppliers feel comfortable and be recognized/advertise/perception	Want customer/empl to feel comfortable you are socially responsible Recognized by suppliers Want to be a good citizen but want to advertise it It's a perception...recruiting capability Very important to appear...good citizen
		How well we recruit & sure client experience is good	Exactly applying the CSR to how well are we doing in recruitment We're making sure client experience is good
	CSR protects brand	Investigate [spike] and try to understand	They investigate and try to understand If we were following it I'm sure we would have noticed it
		Definitely see value, starting to recognize it's important	They are starting to recognize that it's important He definitely see value of CSR
	Incentivize alternate transportation	Offer employees health and commute incentives	Health incentives We offer employees AT incentives to commuting
		Corporations should partner with cities	Fortune 500 partners Corporations should do more than they are doing... partner up stronger Partnership with cities and non-profits
		Corp stand, protect routes, reduce people out by incentive or charge	Corporations take a stand on protecting routes... incentivize and encourage carpo We've reduce people...they work from home Incentivize people to carpool to mitigate TC Charge for parking to encourage alternative transportation Take advantage of public transportation So people can commute... get money for carpooling Hold rallies on some days of the week
	CSR is valuable but not tangible	Definitely see value, starting to recognize it's important	They are starting to recognize that it's important He definitely see value of CSR Consider commute alternative on their own staff
		No measure of value to CSR	I'm not aware of a measure I guess yes, but I don't know I will be guessing

5. Change modal choice and corporation shipping mode/change needed from both corporations and individuals	A changed consumer/modal choice 9	People change travel behavior - a social change	Need for culture/social behavior change People's traveling behavior
		Consider commuter alternative for staff	Commuter alternative
		Changing consumers--shipping direct--Amazon effect [Amazon Prime]	The changing of the consumers, lot more direct to consumer shipments It's sort of the Amazon effect, "send it to me"