

Grant Deliverables and Reporting Requirements for UTC Grants

<b>UTC Project Information</b>	
Project Title	The effects of land-use policy on commuting distance and road related adverse health outcomes or Aligning Transportation Policy with Residential Location Preference Among Tradeoffs
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT: \$44,907 Cornell: \$12,888
Total Project Cost	\$57,795
Agency ID or Contract Number	Sponsor Source: Federal Government CFDA #: 20.701 Agreement ID: 69A3551747119
Start and End Dates	Start date: 01/01/2019 End date: 12/31/2019
Brief Description of Research Project	Integrating land use and transportation policy is widely understood as an efficient approach to meet sustainable transport objectives, yet impacts on residential location preference may limit policy effectiveness. Even though an integrated policy strategy is often proposed as more equitable, sustainable, and economically beneficial, choosing appropriate policy measures requires weighing a set of potentially conflicting goals, such as CO2 emissions, road-traffic safety, oil security, tax revenue, economic competitiveness, and consumer impact. Consequently, policy makers need to understand how combinations of land-use and transport policies effect land use and transportation consumer behavior and whether the policies complement or contradict each other. By gaining insight into the tradeoffs between policy mixes, planners and policy makers can more effectively align policy with preference to efficiently address the needs of the current land-use and transportation system.

	<p>While many studies have focused on the effects of integrated land use and transportation policy on travel demand, the effects on residential location preference are largely unaddressed. In this paper, we argue incorporating the effects on residential location preference is especially important for aligning policy decisions with policy goals. This study uses the Atlanta Regional Commission (ARC) 2011 travel survey, matched to block group characteristics, to ask several questions.</p> <ol style="list-style-type: none"> <li>(1) How do households change their residential location preference in response to simultaneous changes in motor fuel tax and public transit provision?</li> <li>(2) How does this response influence changes in expected tax revenue, accessibility, and urban compactness?</li> <li>(3) What do the underlying tradeoffs mean for an optimal integrated policy mix?</li> </ol> <p>Using the travel survey data, matched to block group characteristics, this study uncovers an important constraint: an integrated consumer-driven policy mix can influence households to either a more compact and accessible city or a more sprawled, revenue-generating region. To understand the distribution of the policy mix impacts across the region, we estimate the effect of these policy decisions sub-regionally.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	<p>We estimate a residential location choice model covering the 10-county Atlanta regional area and estimated effects of a 6,216 policy mix scenario simulations – composed of altering levels of public transit provision and moto fuel tax – on residential location preferences. We then predict policy mix impacts on a trilemma set of policy goals: an increase in motor fuel tax revenue, urban density, and public transit accessibility. Finally, we conduct a robust cross-scale analysis on the overall effectiveness of policy goals across simulations – at the census block, tract, and county levels.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>Results from the residential location choice suggest: Households are less attracted to zones that increase their commute costs and even more so for households in the bottom income quantile; public transit accessibility correlates with higher household income location preferences; and households who commute via public transit to prefer zones with public transit access confirming the residential self-selection. At the regional level we found zero simulations that successfully increase motor fuel tax revenue, urban density, and public transit accessibility. At the census block level, we find that increases in transit operations is on average associated to meeting the solution criteria. Specifically, a 100% increase in the transit operations cost is</p>

	<p>associated with a block being 1.19 times more likely to meet the trilemma criteria. Similarly, a one-dollar increase in the motor fuel tax is associated with a block being 1.57 times more likely to meet the trilemma criteria. The blocks that most successfully satisfy the trilemma policy goals are located within suburban communities along the major transportation corridors.</p> <p>Policymakers seeking to align policy with preference can only satisfy two out of the three policy objectives regionally. Through changes in moto fuel tax and public transit provision, a policymaker can successfully achieve increases in tax revenue, density, and access for certain census blocks but cannot at the regional level. Any policy mix will disproportionately harm/benefit certain blocks which will have disproportionate effects on residential location preferences across the region. We suggest that policymakers must define the order of importance for their policy goals and the acceptable level of loss at the aggregate for the sake of improving targeted sub-regional areas. This requires future studying of the interactions within policy bundles and their corresponding interactions with households to further enhance our understanding of the greater urban policy context.</p>
<p>Web Links</p> <ul style="list-style-type: none"> <li>• Reports</li> <li>• Project website</li> </ul>	<p><a href="http://ctech.cee.cornell.edu/final-project-reports/">http://ctech.cee.cornell.edu/final-project-reports/</a></p>