

# Exploring the Relationship Between Race, Class, and Transit Usage among Triangle, NC Residents

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## Background

Disparities in who has access to reliable transit lead to differences in employability and job access among Americans.

- According to a 2017 analysis of 20 major metropolitan areas conducted by Algernon Austin, **people of color own personal vehicles at lower rates than white people.**
- Latino and Asian American workers are twice as likely as white workers not to have a personal vehicle at home, and African American workers are three times as likely.

As a result of underinvestment in transit, those already marginalized by race have the additional economic burden of having less access to job centers. As shown by Gautier and Zenou's 2010 economic analysis, **a lack of car access dramatically impacts labor-market outcomes.**

- Because the number of jobs reachable by car is higher than those accessible via public transit, white people find jobs quicker and experience shorter unemployment spells (Gautier & Zenou, 2010).
- Ethnic minorities, however, have a smaller pool of jobs they can accept because of their slower mode of transportation (Gautier & Zenou, 2010).
- As a result, **white workers earn higher wages due to their better bargaining position compared to racial minorities** (Gautier & Zenou, 2010).

In other words, **commute patterns and wealth acquisition are limited without access to cars and reliable transit, and such limitations are distinctly felt by those racially marginalized.**

## Research Question

**How does financial insecurity correlate with Chapel Hill's public transit ridership for low-income or racially marginalized residents of the Triangle, NC?**

**Hypothesis 1:** There is a positive relationship between financial insecurity and transit ridership

**Hypothesis 2:** Those who are racially marginalized will use transit more often than those not marginalized.

## Methodology

I designed a **10-question survey study** to determine the relationship between financial security and transit ridership.

The survey questions used to operationalize financial security include **three agreement questions in which respondents must mark to what extent the following statements describe them: 1) "My finances control my life" 2) "Thinking about my personal finances can make me feel anxious," 3) "I am concerned that the money I have or will save won't last."**

I included one question in my survey to operationalize bus ridership: **"How many days in a typical week do you utilize buses in Chapel Hill (including Chapel Hill Transit buses, GoTriangle buses, or the Point-to-Point/P2P)?"** Respondents had the choice to respond with a number between 0 and 7.

### Data Calculations – Mean Financial Insecurity Score

I computed a mean financial insecurity score for each respondent based on how they responded to the financial well-being scale questions.

- "Not at all" = 0, "A little" = 1, "A moderate amount" = 2, "A lot" = 3, "A great deal" = 4

For example, if a respondent said "a little," "a moderate amount," and "a great deal" as his responses to the financial well-being scale, his mean financial insecurity score is 2.33. I interpret this value as moderate financial insecurity. The higher the score, the more financially insecure one is.

## Regressions

$$1) BusFrequency_t = \beta_0 + \beta_1 MeanFinancialInsecurity_t + \epsilon_t$$

First, I ran a bivariate regression that compares mean financial insecurity to bus ridership for all residents of the Triangle.

$$2) BusFrequency_t = \beta_0 + \beta_1 MeanFinancialInsecurity_t + \beta_2 RaceMarginalized_t + \epsilon_t$$

Second, I ran a multivariate regression showing how mean financial insecurity relates to bus ridership while controlling for racial marginalization. I ran this regression to determine if those racially marginalized are more likely to rely on Chapel Hill public transit than white residents.

## Findings

Table 1. Bivariate Regression (All Residents)

	Estimate	Std. Error	T value	Pr (> t )
(Intercept)	1.8774	.7446	2.521	.015*
MeanFinancialInsecurity	.4283	.2987	1.434	.158

\* indicates statistical significance based on .01 significance level.

For every 1 unit increase in mean financial insecurity, bus ridership increases by .43 days a week. Thus, this model predicts that as financial insecurity increases, so does bus ridership. **This finding coincides with hypothesis 1.** However, the slope coefficient for mean financial insecurity is not significant, so we cannot be sure that these results are generalizable to the Triangle population.

Table 2. Multivariate Regression (Findings by Race)

	Estimate	Std. Error	T value	Pr (> t )
(Intercept)	1.9267	.7593	2.538	.0145*
MeanFinancialInsecurity	.4624	.3111	1.486	0.1437
RaceMarginalized	-.2925	.6680	-.438	0.6635

\* indicates statistical significance based on .01 significance level.

Furthermore, as shown by the *RaceMarginalized* coefficient, there is a negative relationship between racial marginalization and bus ridership. **This finding defies hypothesis 2.** Rather, those who are racially marginalized in the sample ride the bus less frequently than white respondents. However, this result is not statistically significant and cannot be generalized to the entire Triangle, NC population.

## Discussion

If this study were replicated with the same findings and the resulting relationships held statistical significance, I would frame transit access in the Triangle as an economic justice issue. For individuals with greater financial insecurity to be most reliant on unreliable public transit infrastructure means that commute access is unequal across socioeconomic backgrounds. I suggest for policymakers who have a say in how urban design is facilitated in the Triangle look to these results as justification for expanding and improving existing public transit infrastructure.

## References

- 1) Austin, A. (2017). To Move Is To Thrive: Public Transit and Economic Opportunity for People of Color. Demos. <https://www.demos.org/research/move-thrive-public-transit-and-economic-opportunity-people-color>
- 2) Gautier, P. A., & Zenou, Y. (2010). Car ownership and the labor market of ethnic minorities. Journal of Urban Economics, 67(3), 392-403. <https://doi.org/10.1016/j.jue.2009.11.005>