



Ridership Personas Workshop

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Ridership Advisory Council Meeting

5 April 2023

Warm-Up Exercise

Respond to one of each question type!

As an individual...

- What do you think people first notice about you?
- What part of your identity are you most proud of?
- What causes are you passionate about?
- What groups do you participate in?

As a transit rider...

- How would you describe your usage of MARTA?
- What is the most important transit service feature?
- How do you discuss MARTA with others?
- What is one mobility need currently not being met?

We just simulated the process of creating personas!



Fictitious people describing core users / customers—typically includes a name, a picture, and details about the characteristics, behaviors, and attitudes of the persona in question

Why a personas approach?

- Personas research originated in the mid-2000s
- Prevalent in fields such as product design, marketing research, health informatics, etc.
- Commonly-cited benefits in literature:
 - Generates evaluation guide for decisions
 - Stimulates more innovative thinking
 - Fosters inter-disciplinary, multi-perspective team collaboration
 - Assists with communication across stakeholders
 - Frames problem-solving scope

Problem History

MARTA (C-team) is searching for ways to bolster **empathy** in decision-making processes

- ❖ Humanized understanding of context via emotional identification → How will different user groups be impacted? Can these impacts be distributed equitably?
- ❖ Discussed creation & implementation of personas profiles with other transit agencies

Presentation Outline

Background

Typology of segmentation approaches

Examples of personas research

Data & Methods

ARC transit on-board survey

Statistical model (don't be scared!)

Results

Class names & descriptions

Visualize membership features

Wrap-Up

Key limitations & takeaways


Feedback from YOU

Classifying MARTA Customers


Key Concepts

Types of Market Segmentation


Geographic Segmentation:
Consists of creating different groups of customers based on geographic boundaries.




Demographic Segmentation:
Consists of dividing the market through different variables such as age, gender, income, etc.



Psychographic Segmentation:
Consists of grouping the target audience based on their behavior, lifestyle, attitudes and interests.



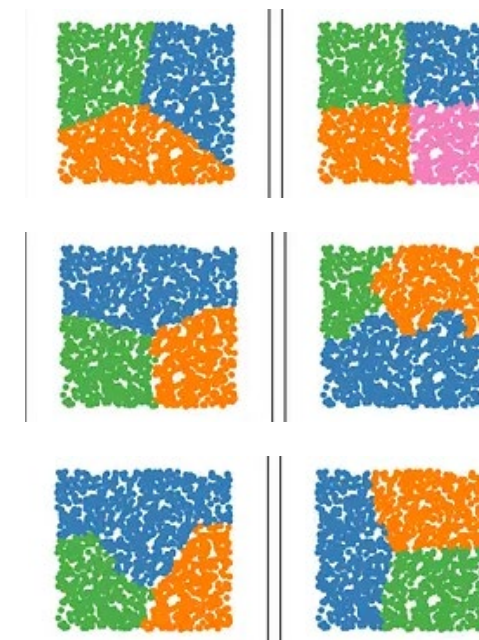
Behavioral Segmentation:
Focuses on specific reactions and the way customers go through their purchasing processes.



QuestionPro



“Data mining”



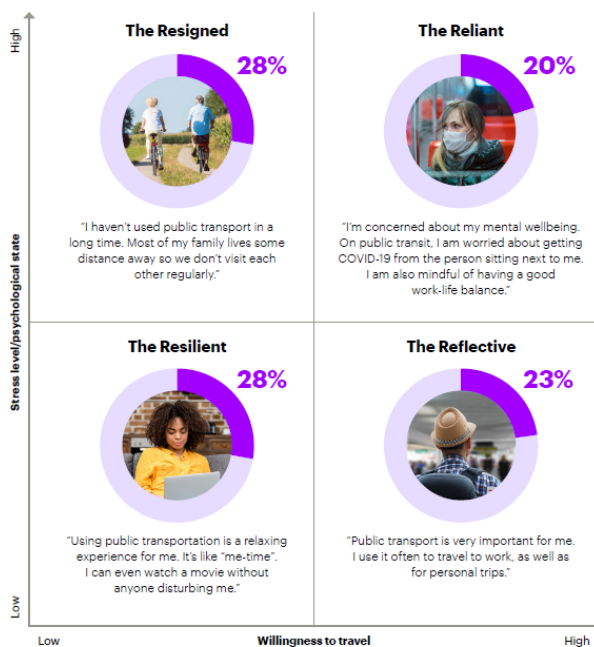
Transit Personas Examples

Hamilton, Ontario Academic Research

- Inputs
 - Travel behavior
 - Employment status
 - Geography
 - Perceived behavioral control
- Outputs
 - 7 expert-based personas
 - 55.5% of survey sample

London, NYC, Singapore Accenture Report

Figure 2. Four passenger types will steer public transit operators to the future



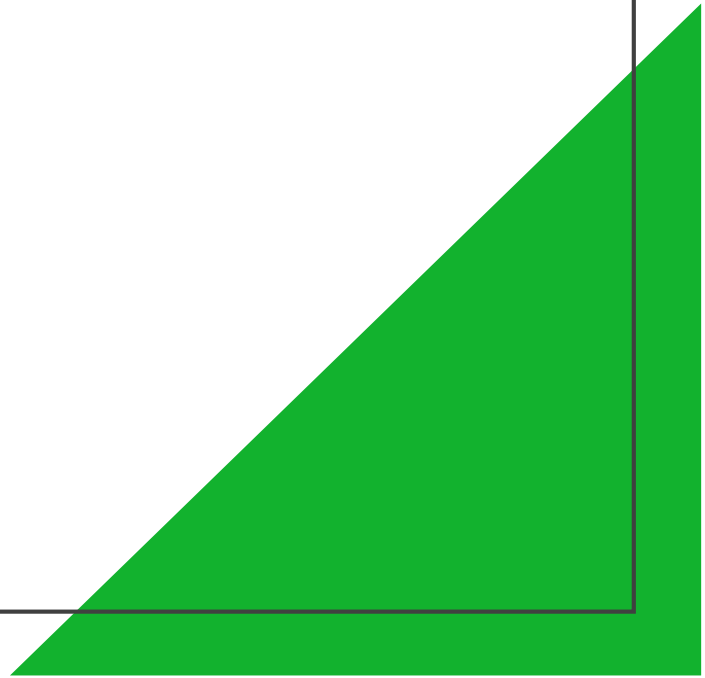
Sound Transit (Seattle) Station Design Guide



Data & Methods

Which inputs can/should we consider?

What method works best for our goals?



OTHER INFORMATION ABOUT THIS TRIP

12. What time did you BOARD this transit vehicle? _____ : _____ am / pm (circle one)
13. Will you (or did you) make this same trip in exactly the opposite direction today? No
 Yes - At what time did / will you leave for this trip in the opposite direction? _____ : _____ am/pm (circle one)
14. What fare payment methods did you use for this one-way trip? (select all that apply)
 Cash / One-way Trip 1 Day Pass 2 Day Pass 3 Day Pass 4 Day Pass
 7 Day Pass 30 Day Pass 2 Trip Pass 10 Trip Pass 20 Trip Pass
 Employer Partnership Program University Pass Program Student Pass Program (K-12)
 Other _____
- Free: Under 46 inches Other Free
15. What type of fare was this? Regular
Discount Fare: Senior Disabled / Medicare
16. Did you use a Breeze Card? Yes, plastic card Yes, paper ticket No
17. If transit service was not available, how would you make this trip?
 Walk Driven by someone else Uber, Lyft, etc. Taxi Bike share
 Drive alone Carpool / Vanpool Would not make trip Personal Bike
18. How often do you ride public transit?
 5 or more days a week About once a week About once a month Once a year
 2 to 4 days a week 2 to 3 times a month Several times a year First time
19. Do you use any of the following services in the Atlanta area? (check all that apply)
 Uber, Lyft, etc. Car Share (e.g. Zipcar, etc.) E-Scooter (e.g. Bird, Lime, etc.) None

2019 Transit Onboard survey conducted by Atlanta Regional Commission (ARC) and MARTA

- Over 40,000 total surveys
- Transit riders on all six systems in 20-county ARC study area
- Intercept interview with passengers for current trip

ABOUT YOU AND YOUR HOUSEHOLD

20. How many working vehicles (cars, trucks, or motorcycles) are available to your household? _____ vehicles
20a. [If Q20 is more than NONE] Could you have used one of these vehicles for this trip? Yes No
21. Including YOU, how many people live in your household? _____ # people
22. Including YOU, how many people who live in your household are making this trip with you? _____ # people
23. Including YOU, how many people (over age 15) in your household are employed full or part-time? _____ # people
24. What is your employment status? (check the one response that BEST describes you)
 Employed full-time Not currently employed, but seeking work Retired
 Employed part-time Not currently employed, and not seeking work Homemaker
- 24a. If employed, did/will you go to work since you left or before you will return home? (check all that apply)
 No Yes, since left home Yes, before returning home
25. What is your student status? (check the one response that BEST describes you)
 Not a student Yes - Full time College / University Yes - Part time College / University
 Yes - K - 12th grade Yes, other type of student
- 25a. If a student, did/will you go to school since you left or before you return home? (check all that apply)
 No Yes, since left home Yes, before returning home
26. Do you have a valid driver's license? Yes No
27. What is your AGE?
 Under 6 6-15 16-17 18-24 25-34 35-44 45-54 55-64 65 and older
28. Are you of Hispanic, Latino, or Spanish origin? No Yes
29. What is your race? (check all that apply) NOTE: Please answer **BOTH** Question 28 about Hispanic origin and Question 29 about race. For this survey, Hispanic origins are not races.
 American Indian/Alaska Native Black/African American Asian
 White/Caucasian Native Hawaiian/Pacific Islander Other: _____
30. What is your gender? Male Female Other
31. Do you speak a language other than English at home? No Yes - Which language? _____
- 31a. [If #31 is Yes] How well do you speak English? Very Well Well Less than well Not at all
32. Which of the following BEST describes your TOTAL ANNUAL HOUSEHOLD INCOME in 2018 before taxes?
 Below \$5,000 \$20,000 - \$29,999 \$50,000 - \$59,999 \$100,000 - \$119,999
 \$5,000 - \$9,999 \$30,000 - \$39,999 \$60,000 - \$74,999 More than \$120,000
 \$10,000 - \$19,999 \$40,000 - \$49,999 \$75,000 - \$99,999

Analytical Method

QUESTION: Given variables we **observe** in our data, can we identify **unobservable** groupings of riders that are maximally similar within a group and maximally dissimilar between groups?

ANSWER: Utilize Latent Class Analysis (LCA)!

Three major components of LCA models:

1. Input variables that determine the number of classes (groupings)
2. Input variables that determine the probability of an individual belonging to each class
3. Supplementary variables that further describe the class membership

* Different “diagnostic tools” available to make decisions regarding the above

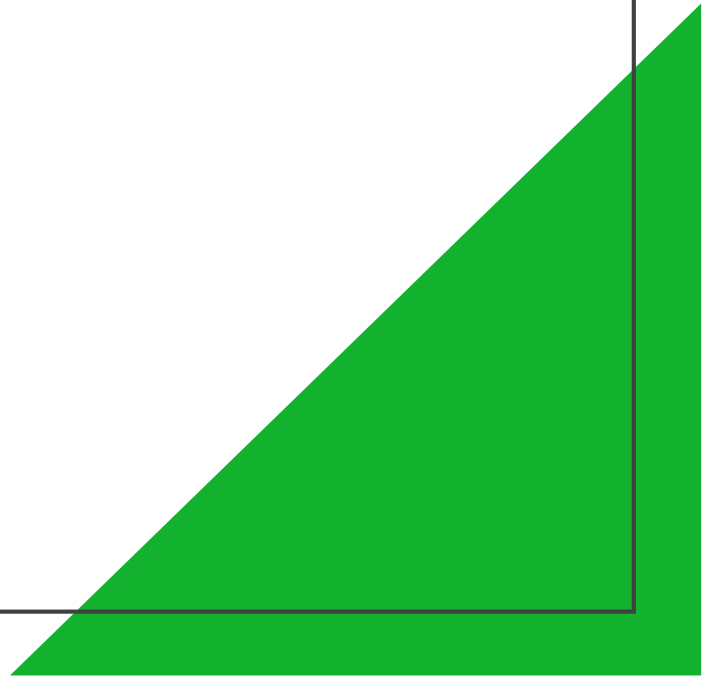
Variable Considerations

Variable	Recoded Breakdown
Age	<ul style="list-style-type: none"> ≤24 years old 25 to 44 45 to 64 ≥65 years old
Trip Purpose	<ul style="list-style-type: none"> Airport Education (K-12 & university) Medical Work Other (includes eating out, recreation, shopping)
Student Status	Yes or No
Annual Household Income	<ul style="list-style-type: none"> <\$30,000 per year 30 to \$50,000 \$50 to \$75,000 ≥\$75,000 per year
Personal Vehicle Access	<ul style="list-style-type: none"> Yes if the respondent has a driver's license AND their household owns at least one vehicle No otherwise
Transit Use Frequency	<ul style="list-style-type: none"> Frequent if ride at least two days per week Infrequent otherwise

Results

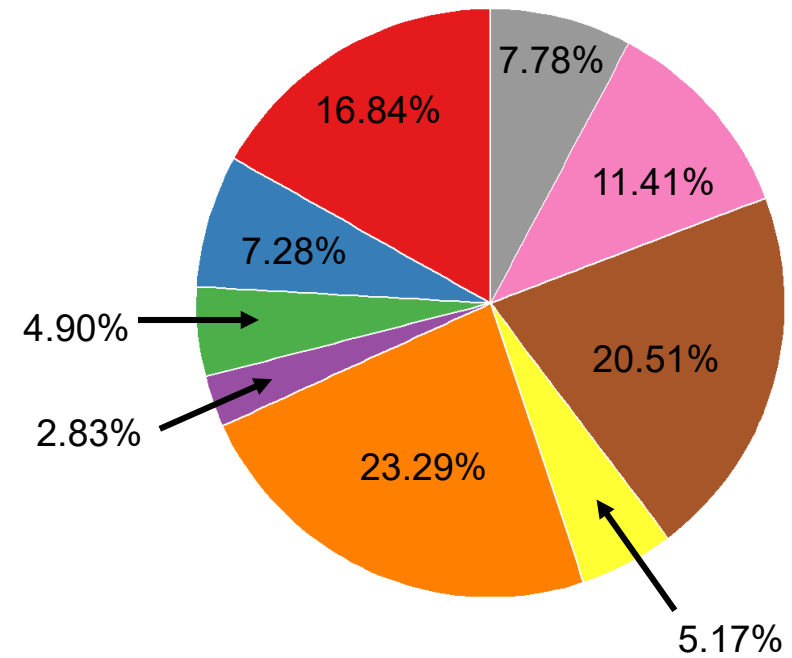
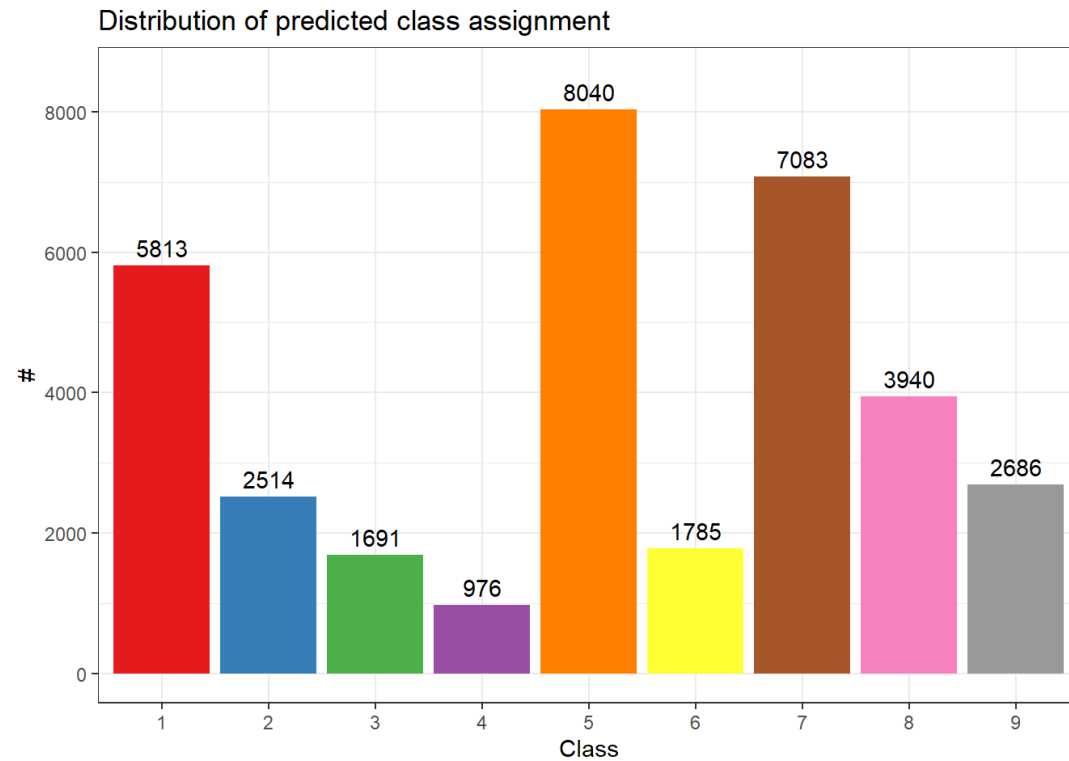
How many classes are generated?

What are the class compositions?

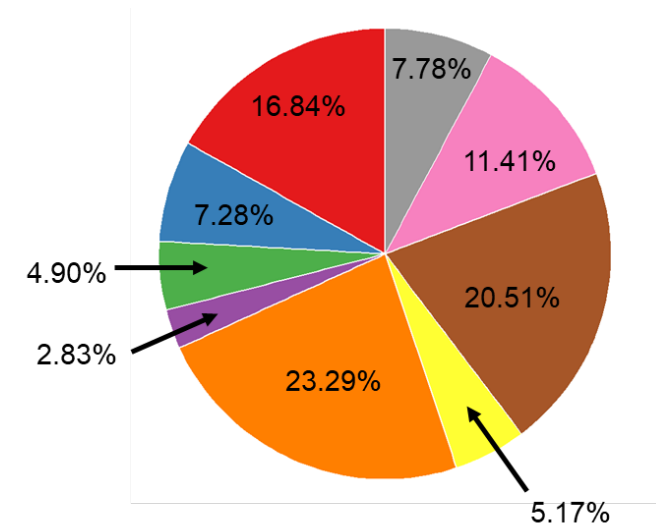
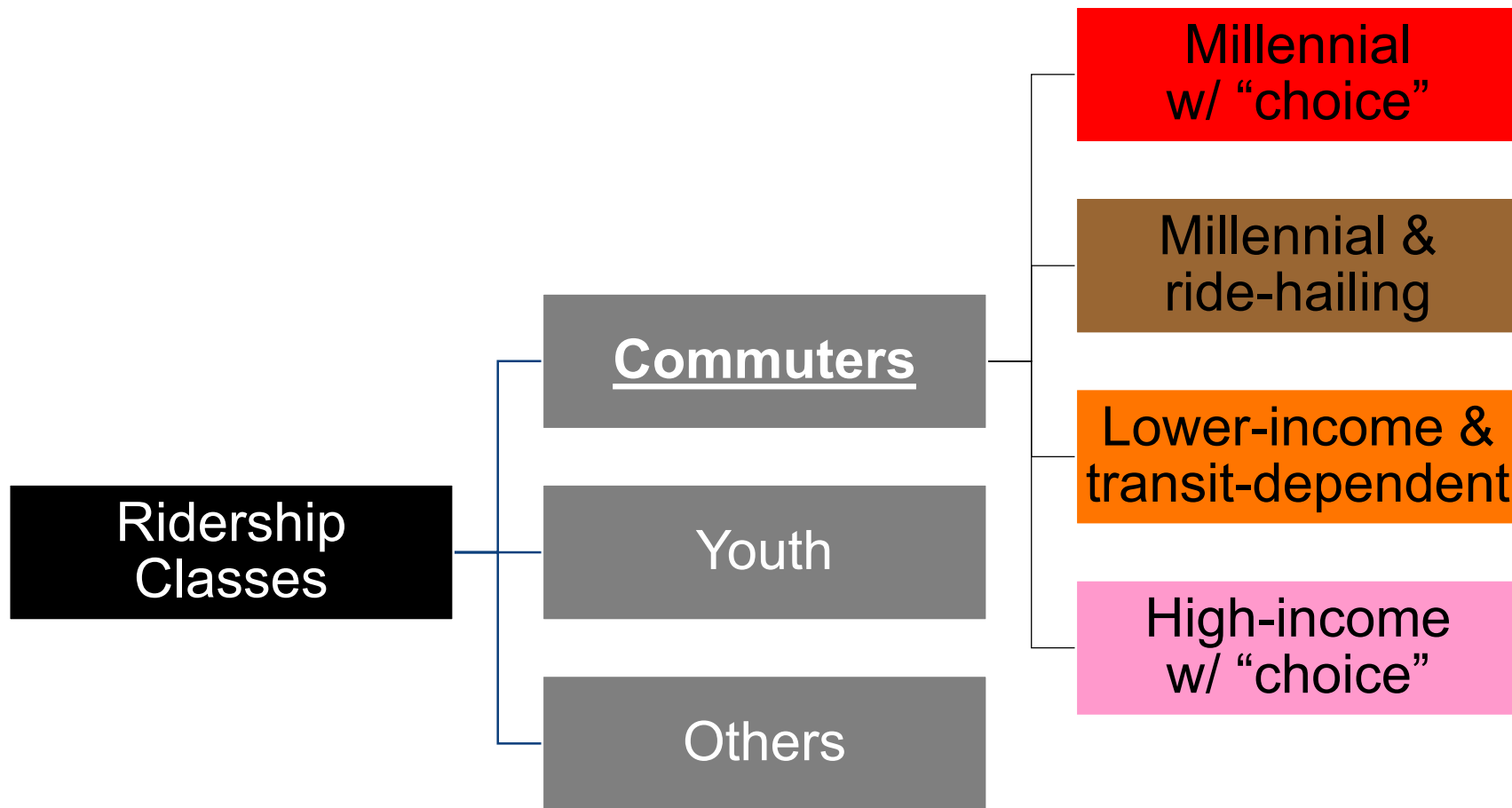


LCA Classifications

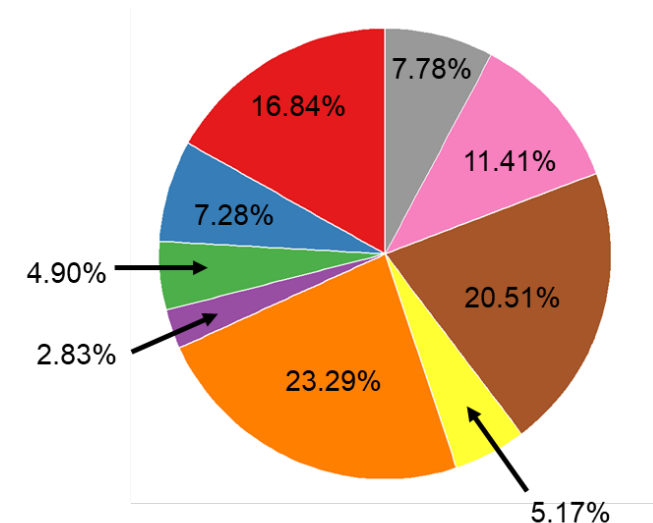
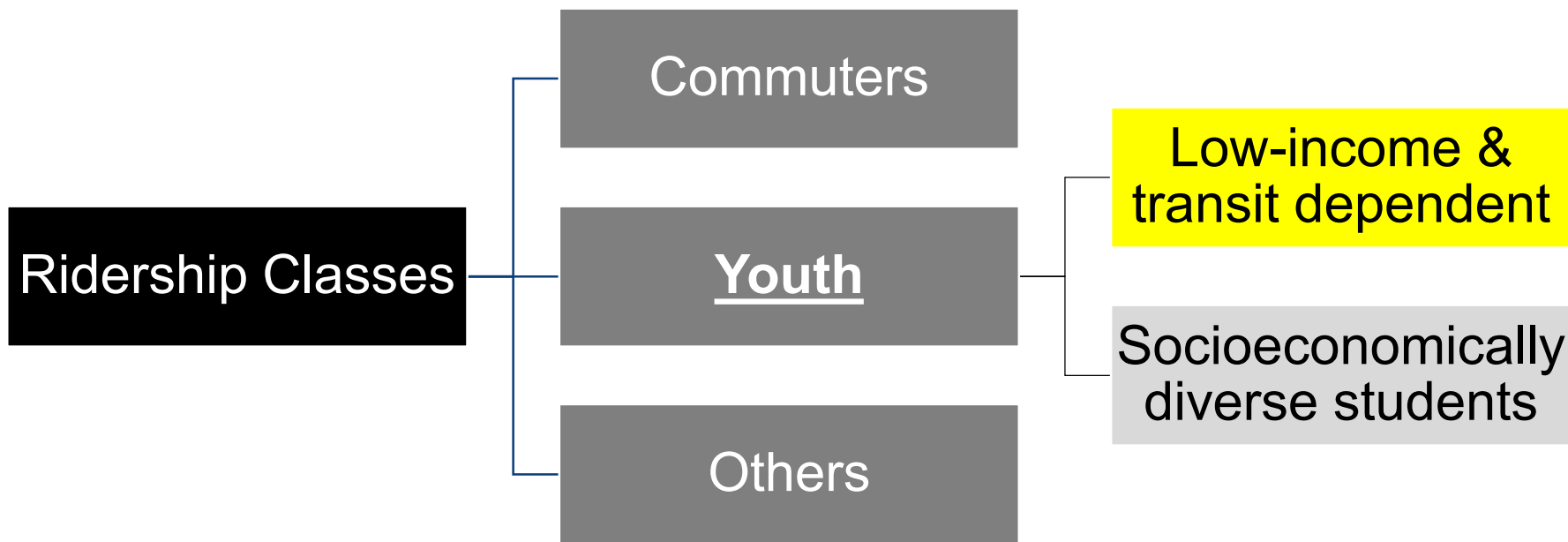
- Final sample size of 34,528 respondents
- 9-class model was deemed best-fitting



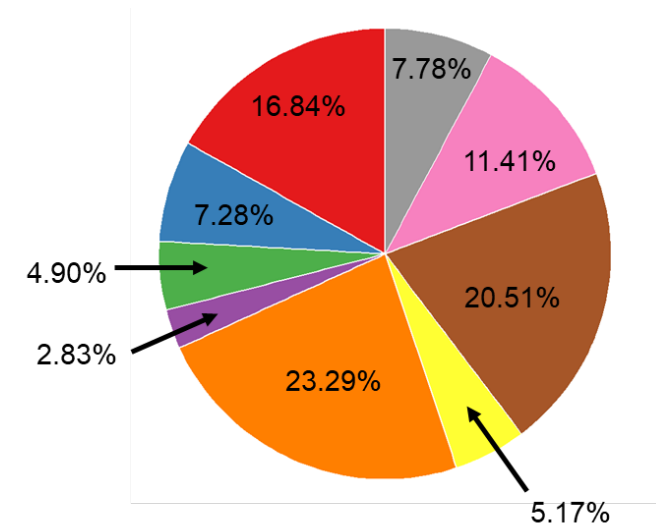
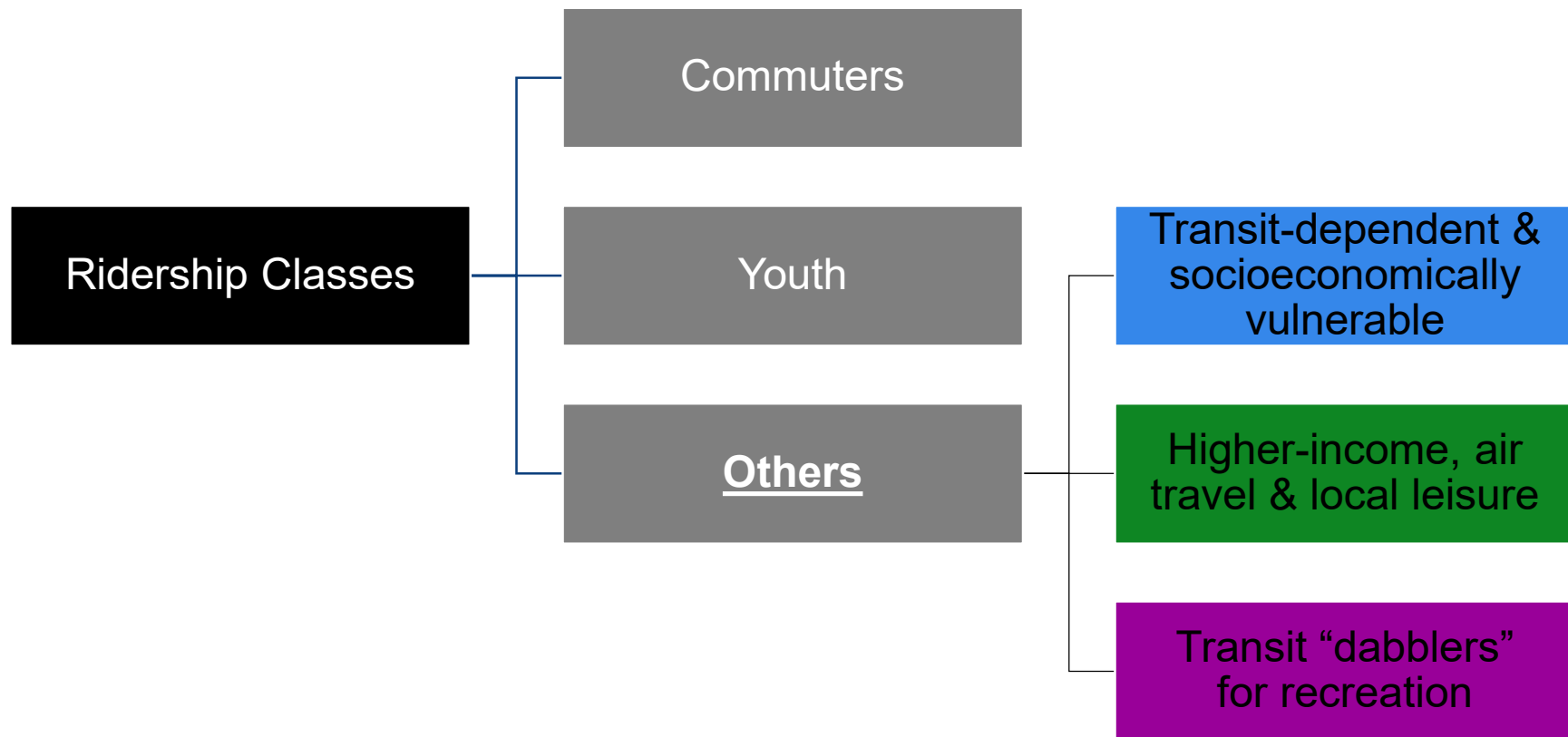
Class Grouping #1: Predominant Commuting Purpose



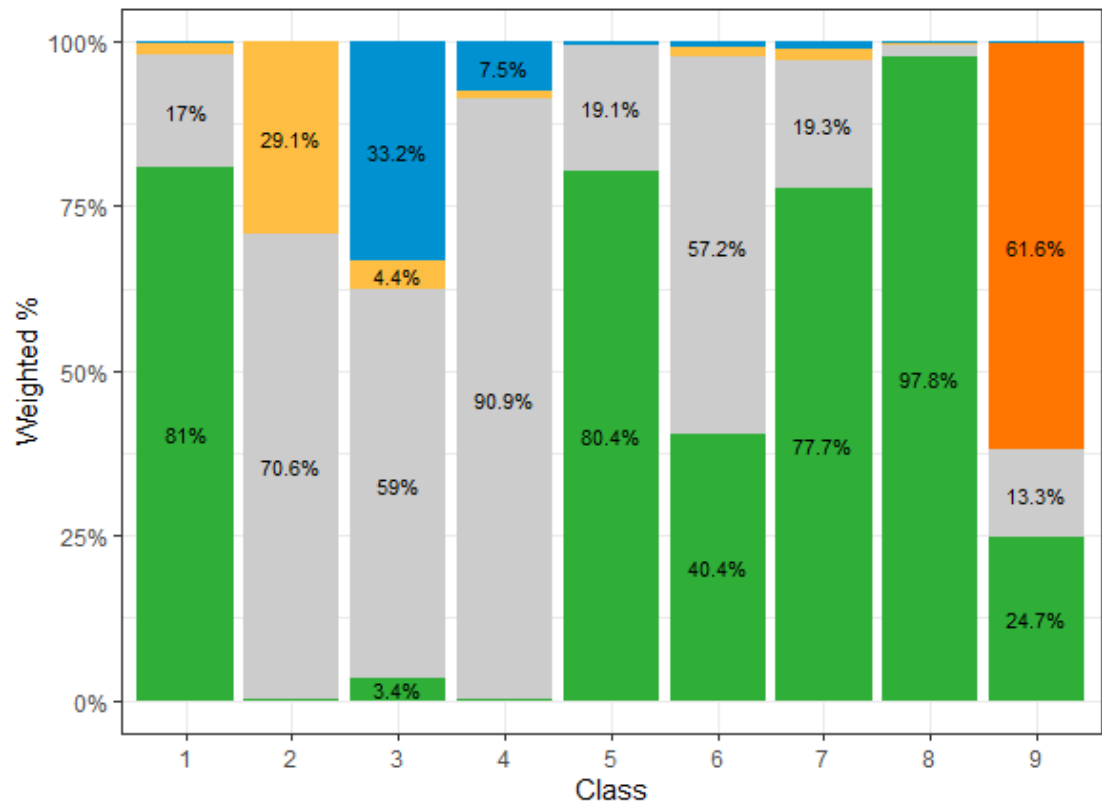
Class Grouping #2: The “Younger Crowd”



Class Grouping #3: Other Distinguished Riders



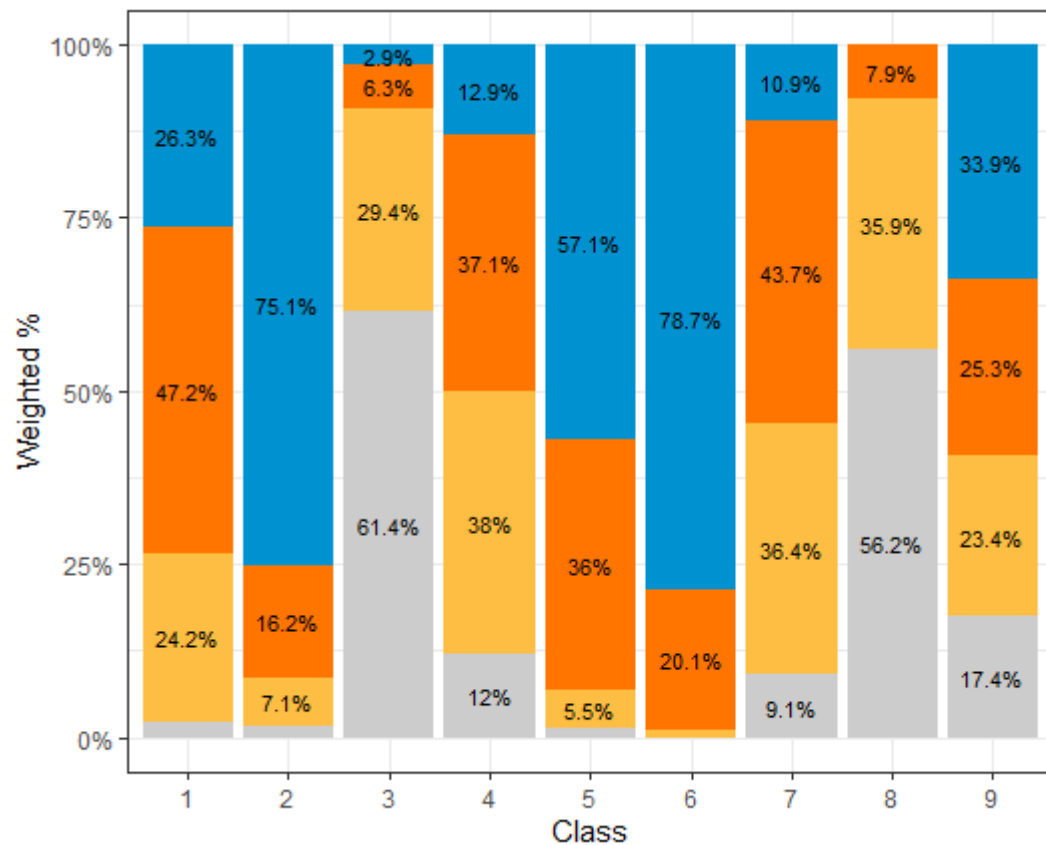
Distribution of Trip Purpose



Key

- 1: Millennial “choice” commuters
- 2: Transit-dependent, socioeconomically vulnerable
- 3: Higher-income air travel & local leisure
- 4: Transit dabblers for recreation
- 5: Low-income transit-dependent commuters
- 6: Low-income transit-dependent youth
- 7: Millennial ride-hailing commuters
- 8: High-income “choice” commuters
- 9: Socioeconomically diverse students

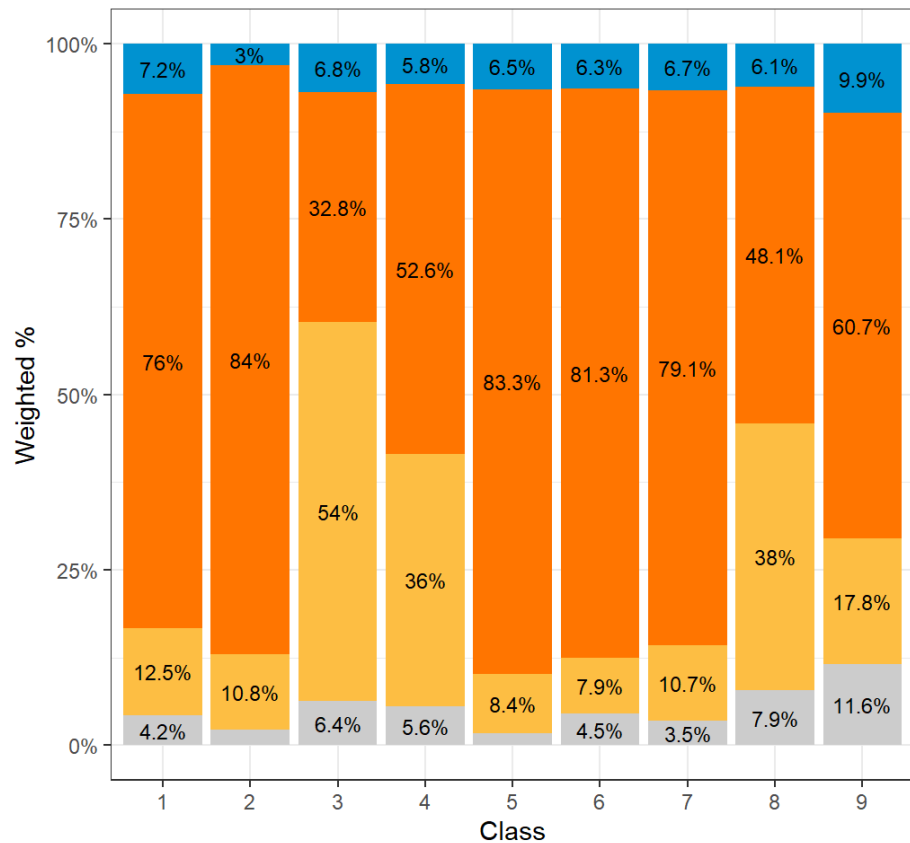
Distribution of Annual Household Income



Key

- 1: Millennial “choice” commuters
- 2: Transit-dependent, socioeconomically vulnerable
- 3: Higher-income air travel & local leisure
- 4: Transit dabblers for recreation
- 5: Low-income transit-dependent commuters
- 6: Low-income transit-dependent youth
- 7: Millennial ride-hailing commuters
- 8: High-income “choice” commuters
- 9: Socioeconomically diverse students

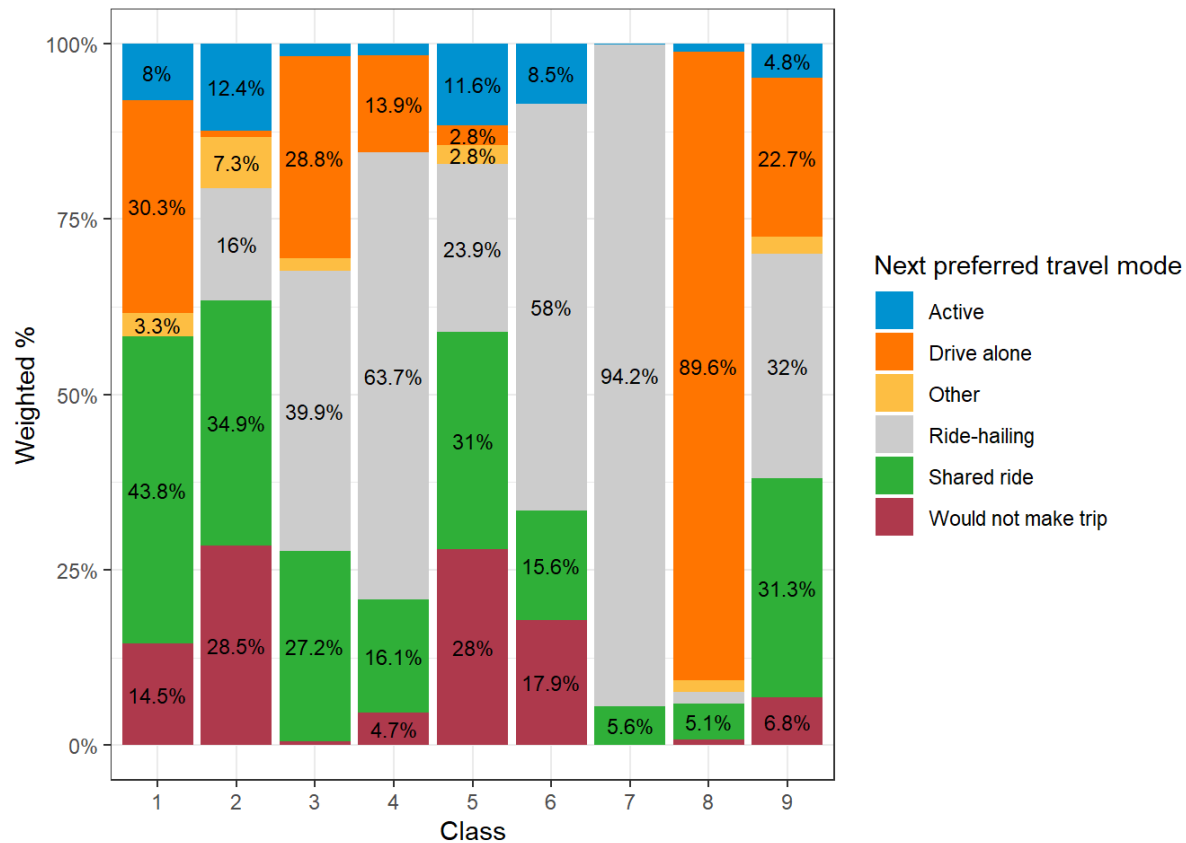
Distribution of Racial/Ethnic Identity



Key

- 1: Millennial “choice” commuters
- 2: Transit-dependent, socioeconomically vulnerable
- 3: Higher-income air travel & local leisure
- 4: Transit dabblers for recreation
- 5: Low-income transit-dependent commuters
- 6: Low-income transit-dependent youth
- 7: Millennial ride-hailing commuters
- 8: High-income “choice” commuters
- 9: Socioeconomically diverse students

Distribution of Next Preferred Travel Mode

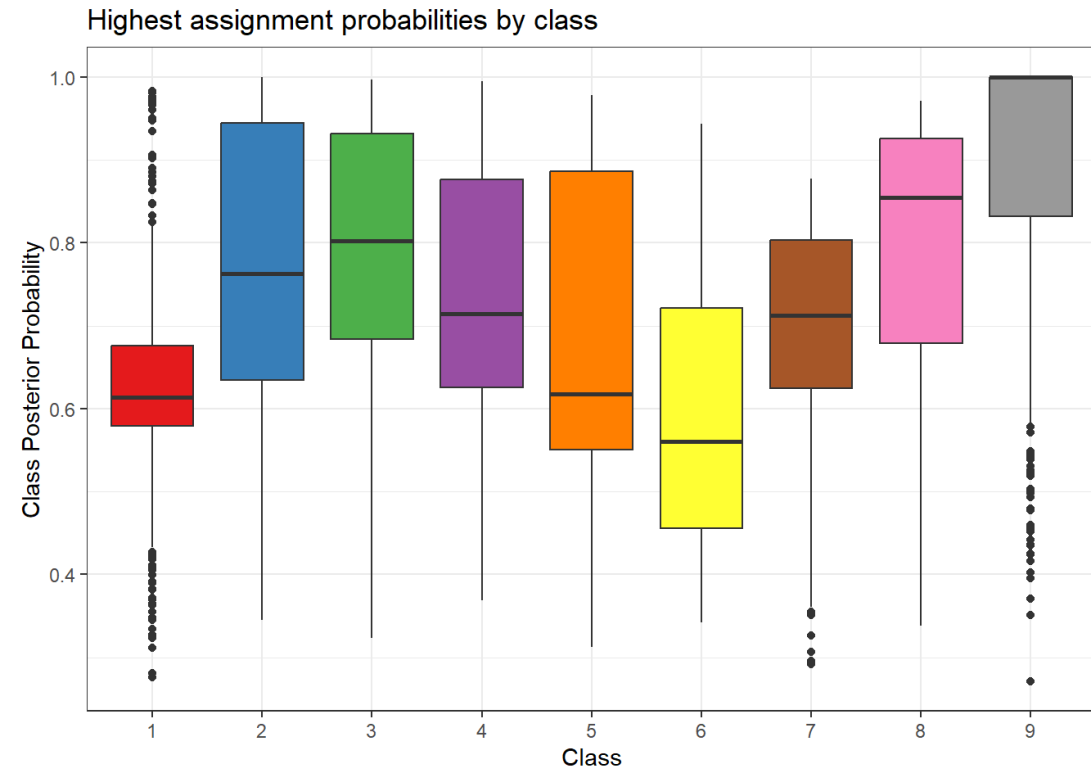


Key

- 1: Millennial “choice” commuters
- 2: Transit-dependent, socioeconomically vulnerable
- 3: Higher-income air travel & local leisure
- 4: Transit dabblers for recreation
- 5: Low-income transit-dependent commuters
- 6: Low-income transit-dependent youth
- 7: Millennial ride-hailing commuters
- 8: High-income “choice” commuters
- 9: Socioeconomically diverse students

Class membership is not rigid

- Each survey respondent receives a probability of belonging to each class
- Respondent assigned to class associated with highest probability
- However, the actual value of this highest probability *varies* across respondents
- Multiple memberships / sub-classes



Illustrating “Fluidity”

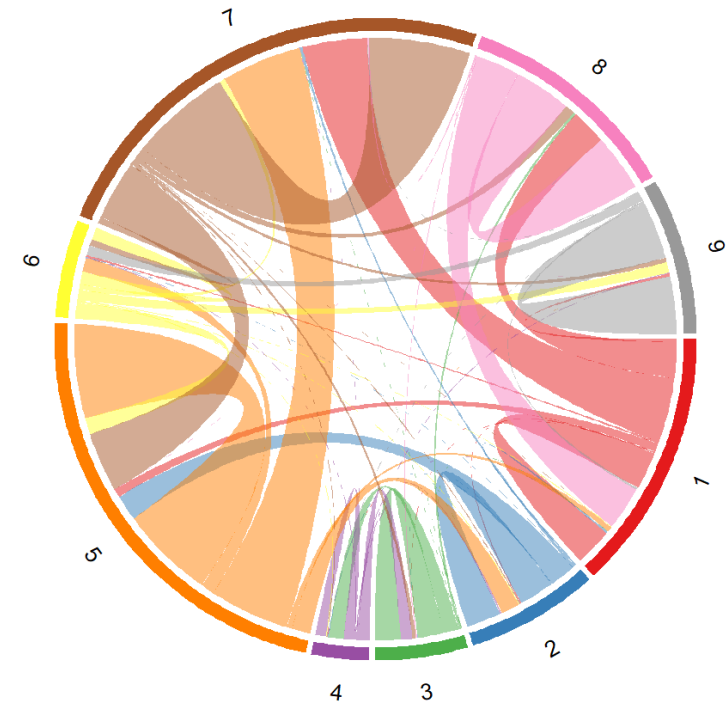
Example Cases

Person A:

- Highest probability of 44% for Class 5
- Next highest is 42% for Class 1
- Income is \$30,000 to \$50,000. No vehicle access. Trip purpose for work.

Person B:

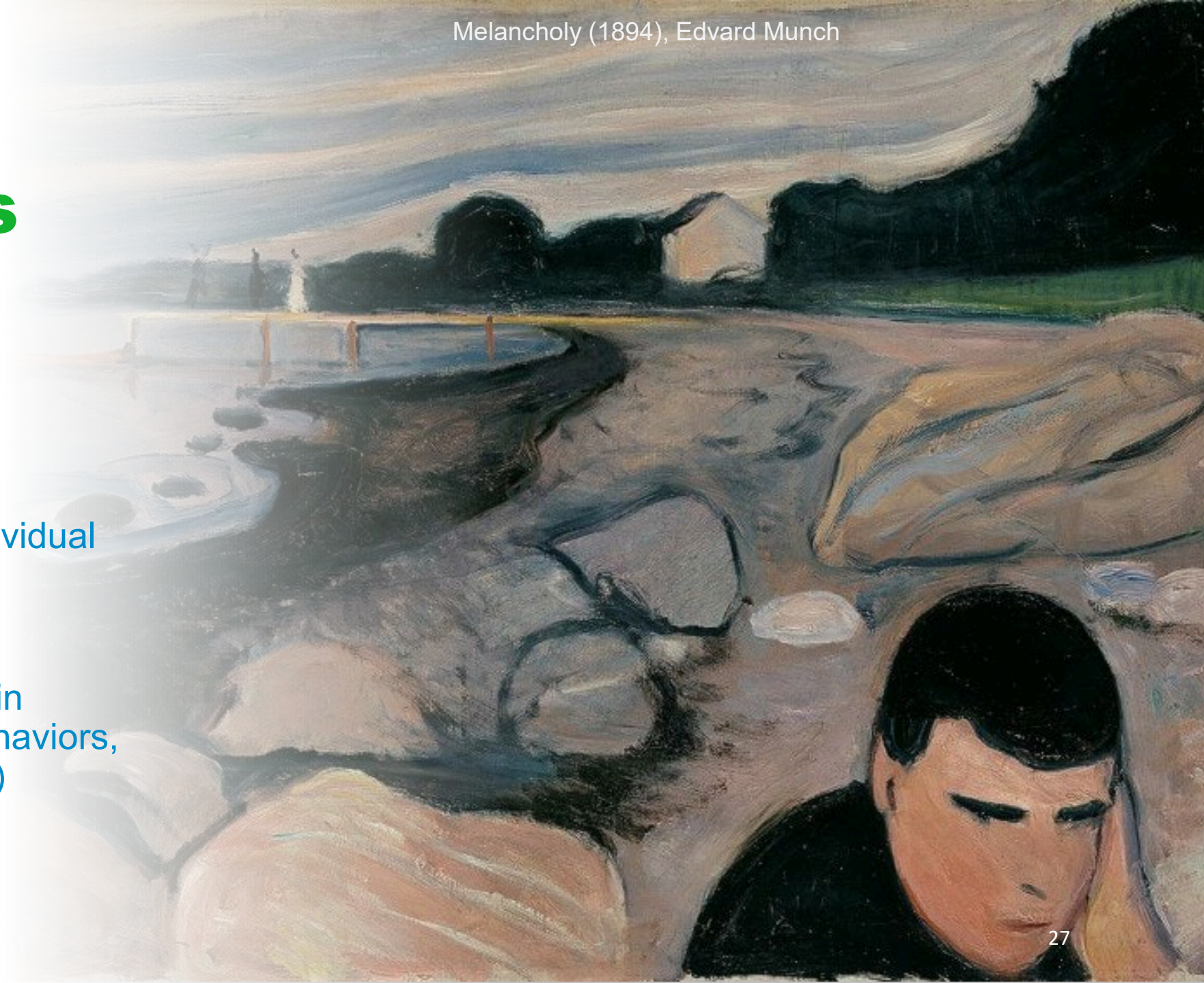
- Highest probability of 48% for Class 4
- Next highest is 41% for Class 3
- Income is \$30,000 to \$50,000. Trip purpose for recreation. Infrequent transit user.



Cool-Down Exercise

3 Limitations

- Survey was not specifically conducted for this study
- Questions pertain to the individual trip they are currently taking
- Pre-COVID: potential shifts in ridership characteristics, behaviors, and attitudes (not assessed)





Several Circles (1926), Wassily Kandinsky

3 Takeaways

- INITIAL GOAL: Identify distinct groups MARTA user and usage patterns
- INITIAL OUTCOME: Generated 9 classes of riders as general foundation of understanding
- NEXT GOAL: Develop persona profiles for empathy & equity in decision-making

Summary Table of Personas

Class Name	Transit Frequency	Vehicle Access	Age Range	HH Income	Employment Status	Student Status	Race / Ethnicity	Trip Purpose	Alternate Mode
Millennial “choice” commuters	Frequent	Yes	Millennial	Mixed: Lower	Yes	No	Majority Black	Work	Car, but no ride hailing
Transit-dependent, socioeconomically vulnerable	Frequent	No	Older	Low	Majority No/Retired	No	Majority Black	Other/ Medical	Transit dependent
Higher-income air travel & local leisure	Infrequent	Yes	Mixed: Lean older	High	Next highest Retired	No	Majority White	Other/ Airport	Car, more ride hailing
Transit dabblers for recreation	Infrequent	Mixed: Lean yes	Middle	Middle	Mostly Yes	Mixed: Some yes	Black-White Mix	Other	Mostly ride hailing
Low-income transit-dependent commuters	Frequent	No	X-ennial	Low	Yes	No	Majority Black	Work	Transit dependent
Low-income transit-dependent youth	Frequent	No	Younger	Low	Mostly Yes	Mixed: Even split	Majority Black	Other/ Work	Transit dependent, more ride hailing
Millennial ride-hailing commuters	Frequent	Mixed: Even split	Middle	Middle	Yes	No	Majority Black	Work	Ride-hailing
High-income “choice” commuters	Frequent	Yes	Older	High	Yes	No	Black-White Mix	Work	Drive alone
Socioeconomically diverse students	Frequent	Mixed: Lean yes	Younger	Mixed: Even	Next highest Unemployed	Yes	Highest Hisp. & Other	Education/ Work	Car, less transit dependent



Reflecting on potential revisions and applications

- What are your thoughts on the number and composition of classes?
- Do you recognize yourself in any one group? What key attributes are being overlooked?
- Are there other ridership classes that should be explicitly designated?



Thank You

