First-generation status in context • Part 3

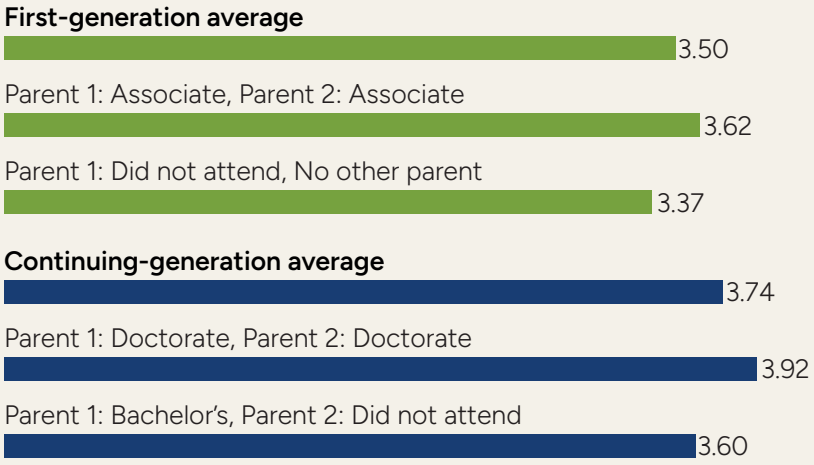
Exploring the complexities of detailed parental education

What more can we learn about first-generation students when we look directly at *both* parents' degrees?

In previous research, we showed that definitions of first-generation status had implications on student population size, college readiness and application behavior. In this brief, we go one step further by looking at specific parent educational attainment.

Consider these two students: one student has a single parent who never attended college. The other student has two parents who each obtained an associate degree. Both are generally considered first-generation, yet these groups of students differ in terms of academic preparation like GPA. We see similar variations with continuing-generation students as well.

Average GPA by first-generation status and definition



Action plan:

- Test your definition of first-gen students. What does your data say?
- Be deliberate in how you define first-gen students. Is your definition aligned with your goals and student needs?
- Be transparent about this definition. It has meaningful implications on students' self-identity and understanding.

First-generation status in context, part three: Exploring the complexities of detailed parental education

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Introduction

Over the course of this season, we released the first two installments of a three-part series taking a deep dive into first-generation status among students applying to college via Common App. In part one, we showed that seemingly minor decisions about whose degrees, and which degrees, are considered can have significant repercussions for who exactly is counted as a first-generation student. In part two, we expanded on this exploration and further examined how these varied definitions for first-generation students can drastically alter their overall demographic profile and observed needs as a population.

In this third and final brief on the subject, we call attention to the fact that first-generation status, while a valuable and important concept, is fundamentally a coarsened view of the degree attainment of students' parents. Recognizing this, we ask: what value can be gained, and what more can we learn about students, when we instead look directly at more detailed parental degree groupings?

For example, is a student whose parents' highest degree is a Doctorate actually that similar in meaningful ways to a student whose parents' highest degree is a BA – even though they are both generally considered continuing-generation?

Likewise, is a student whose parents' highest degree is an AA actually that similar in meaningful ways to a student whose parents never attended college at all – even though they are both generally considered first-generation?

And what more can be gleaned not just by looking at the highest parental degree, but also the precise combination of parental degrees among a student's parents? For example, a student who has a single parent who obtained a bachelor's degree and a student who has two parents who each obtained a JD are both generally considered continuing-generation. But even so, these categories of students may be meaningfully different from one another in terms of their demographic profile and needs. Similarly, a student who has a single parent who never attended college and a student who has two parents who each obtained an associate degree are both generally considered first-generation; these groups of students can nonetheless be quite distinct in terms of their application behaviors and academic preparation.

We explore these differences in this brief to better understand the consequences of assessing parental education in the binary paradigm of first-generation status, regardless of the specific definition used. We do this not to suggest that such binary classifications can't be valuable and useful when applied judiciously, but rather to show that there are multiple ways to approach this task of trying to understand what assets and needs a student brings to the table based on their family educational background. Exactly what approach is most appropriate will always be a contextual decision, and we hope with this brief to expand the scope of this conversation.

Mirroring the structure of our second brief, we examine a wide array of student indicators of college readiness, socioeconomic status, and application behaviors – but rather than examining these indicators across differing definitions of first-generation status, we examine these indicators across finer-grain parental education groupings.

To recap, each research brief in this series is guided by the questions summarized below:

Brief 1: **Trends in parental education and family structures over time**
(Link) How have key components for defining first-generation status, like household structure, parental degree attainment, and related family structure details, changed over time? For what share of applicants are these considerations potentially relevant for understanding their college accessibility needs?

Brief 2: **The many definitions of first-generation status and their implications**
(Link) How do various definitions of first-generation change who is considered part of this population? Further, how does the definition change our understanding of first-generation applicants' college readiness, socioeconomic status, and application behaviors on average?

Brief 3: **Exploring the complexities of detailed parental education**
(Present brief) What more can we learn about applicants' college readiness, socioeconomic status, and application behaviors when we look at more granular parental educational attainment groups (e.g., highest degree obtained, or precise combination of parental degrees obtained?) versus the binary classification of first- and continuing-generation?

Contents

Key findings

1. **Looking solely at a student's first-generation status conceals very meaningful differences by detailed parental degree combination groups across all measures we examine.** For example, 4.1% of students whose parents have a Doctorate and a Professional Degree report being eligible for a Common App fee waiver (one proxy we use for low-income status), while 52.2% of students who report only a single parent with a Bachelor's do. In other words, students in this latter group are almost 13 times as likely to be eligible for a fee waiver – despite both groups generally being considered continuing-generation. Similarly, 31.1% of students whose parents each have an Associate degree report being eligible for a Common App fee waiver, while 81.4% of students who report only one parent who never attended any college do. Again, despite both groups generally being considered first-generation, this latter group is more than twice as likely to be eligible for a fee waiver.

2. **While looking at a student's highest parental degree provides slightly more information than first-generation status alone, there exists at times large variation within these groups based on the other parent's degree across nearly all measures we examine.** To put it one way: detailed parental education combination groups with the same highest parental degree level (e.g., Doctorate and Doctorate versus Doctorate and Did Not Attend) can sometimes look just as different from one another as first-generation and continuing-generation students do on average.

3. **Roughly speaking, using a student's detailed parental degree combination provides the same predictive power about their college readiness as using their first-generation status, underrepresented racial/ethnic minority status, high school type, and fee waiver eligibility combined.** In other words, we can say that the amount of information conveyed about a student's college readiness by detailed parental degree combinations is equivalent to all of these other pieces of information together. This is true across measures like GPA, SAT (when reported), average reported AP score, and more.

4. **Higher levels of parental education (considered either using highest parental degree or detailed parental combinations) positively correlate with higher levels of college readiness, higher levels of observed individual and community resources, and more competitive application behaviors, across all measures we examine.**

5. **Students who report information about only one parent are generally outliers when compared against all other students in their same highest parental degree group.** This parallels what we often see in existing education and socioeconomic research on the unique circumstances and challenges of single-parent households when compared with two-parent households. It may thus be of value for programs and institutions to consider tracking single-parent families separately from first-generation status as another indicator of socioeconomic status.

6. **The most common highest parental degree levels among domestic applicants in 2022 were:** a bachelor's degree (26.6%), no college attendance (25.3%), and a master's degree (19.1%).

7. **The most common parental degree combinations among domestic applicants in 2022 were:** reporting two parents with no college attendance (19.2%), two bachelor's degrees (12.5%), a master's and a bachelor's (9.4%), reporting only one parent with no college attendance (6.0%), and having one parent with a bachelor's and another who did not attend (5.2%).

8. **Altogether, insights here point to the potential value in keeping sight of complexity in parental degree attainment when possible,** but ultimately this decision needs to be made contextually based on data collection, operational, and complexity constraints.

Exploring highest parental degree and detailed parental degree combinations

Throughout the past two briefs, we've emphasized just how complicated it can be to define first-generation status, and how consequential such definitions are in characterizing this population of students. In this brief, we temporarily step away from those definitions to explore finer-grain details about parental education levels directly. That being said, many of the same quirks and wrinkles raised in our earlier briefs still apply here: whose degrees, and which degrees, do we consider as we do so?

To focus our attention on the big picture in this present brief, we will look only at a student's listed parents (regardless of whether living or whether they share a household with the student, and not inclusive of other caregivers in their household like step-parents) and we include all degrees regardless of timing of receipt or institutional country. This is to mirror the Higher Education Act definition for first-generation status that Common App and many other organizations follow: "an individual both of whose parents did not complete a baccalaureate degree, or, in the case of any individual who regularly resided with and received support from only one parent, an individual whose only such parent did not complete a baccalaureate degree." Importantly, note that while the exact numbers in our results are subject to change based on these decisions, the overarching trends and patterns remain consistent.

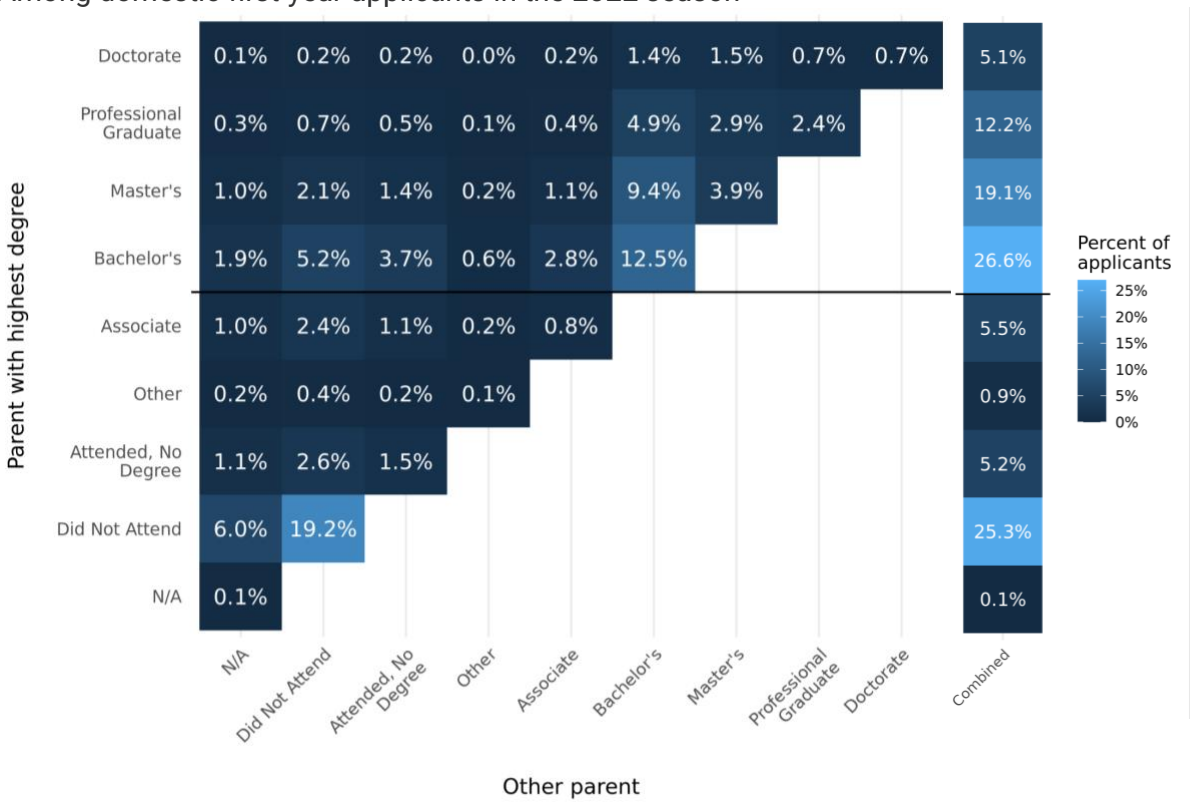
To begin our exploration, Figure 1 is a tiled heatmap showing the proportion of domestic Common App applicants in the 2022-2023 season (n = 1,181,613) whose parents had each highest level of degree attainment, as well as each possible *combination* of parental degree attainment. This plot is most directly answering: How common is each highest parental degree attainment among our applicants? And then, how common are each of the possible parental degree *combinations* among our applicants? All data displayed in figures throughout this brief are also available in a spreadsheet format more amenable to researchers and screen reader software here (access password: 5iea2bUj).

Beginning with the right-most panel of tiles ("Combined"), each square displays the proportion of domestic first-year applicants in the 2022-2023 season whose parents' highest degree was as indicated on the y-axis to the left. For example, 5.1% of applicants had parents whose highest degree among them was a Doctorate, while 12.2% of applicants had parents whose highest degree among them was a Professional Graduate degree (MBAs, JDs, and medical degrees). Note that "N/A" indicates that the student either did not list a parent or lacked information about them. Tiles appearing above the solid black line are generally considered continuing-generation (as they represent students whose parents' highest degree was at least a Bachelor's degree), while tiles appearing below the solid line are generally considered first-generation (as they represent students whose parents' highest degree was less than a Bachelor's degree). Results here indicate that a Bachelor's was the most common highest parental degree at 26.6%, followed by Did Not Attend at 25.3%, and a Master's at 19.1%.

To examine the more detailed groupings of parental degree combinations, each tile in the main panel represents one possible degree combination for a student's parents. Each row going left-right breaks out students whose highest parental degree was as indicated on the vertical y-axis label; each column then represents the degree of the other parent (either the same degree, or lower). For example, the top-right tile represents students with two parents who each obtained a

Doctorate (0.7% of all domestic applicants in the 2022 season). The next tile to the left also focuses on students whose highest parental degree was a Doctorate, but shows the proportion of these students whose other parent instead had a Professional Graduate degree (also 0.7% of applicants). The values of each tile in a row will sum to the value in the "Combined" tile on the right (plus or minus rounding error). Again, tiles above the black line are combinations where at least one parent has a bachelor's and so would be classified as continuing-generation students under our standard definition, while tiles below the black line would be classified as first-generation.

Figure 1. Share of applicants by highest parental degree and parental degree combination
Among domestic first-year applicants in the 2022 season



In sum, we observe that the most common parental degree combinations are two parents who did not attend (i.e., Did Not Attend and Did Not Attend; 19.2%), two parents who each had a bachelor's (Bachelor's and Bachelor's; 12.5%), one parent with a master's and another with a bachelor's (Master's and Bachelor's; 9.4%), having only one parent who did not attend (Did Not Attend and N/A; 6.0%), and having one parent with a bachelor's while the other did not attend (Bachelor's and Did Not Attend; 5.2%). We also see that it is relatively uncommon for both parents to have the same highest degree (e.g., Doctorate and Doctorate) except in the case of two parents who did not attend and two parents who had a bachelor's. For example, the plurality of applicants whose parent with the highest degree had a Professional Graduate degree had another parent with a Bachelor's degree (4.9% of all applicants, the highest value in that row). This speaks to the potential value of tracking both parents' degrees – e.g., because a student having one parent with a Doctorate does not imply the other parent does, as well.

Examining individual and community resources across highest parental degree and detailed parental degree combinations

With the composition of detailed parental degree attainment in the applicant pool better understood, we can now look at how these different highest degree level and degree combination groups relate to key indicators of individual and community resources (i.e., our proxies for socioeconomic status), using a similar sort of investigation as conducted in our second brief. Fundamentally, we want to know: to what extent might there be meaningful differences among students who fall into the same first-generation status, yet have parents with different highest degrees or degree combinations? These are the differences that would be missed when focusing solely on first-generation status, and, as we show, could result in making stronger assumptions about students' resources than is warranted.

Figures 2a and 2b are scatterplots that display the rates of applicant eligibility for a Common App fee waiver (one measure we use to approximate low-income status) across each highest parental degree level and detailed parental degree combination. Mirroring the format of Figure 1, each row up-and-down along the y-axis plots out the degree level of the parent with the highest degree, and then each point within that row represents a different degree level for the other parent, or all students in that degree level combined (the larger "Group Average" point). Each point is positioned along the x-axis according to the proportion of students who reported eligibility for a fee waiver in the indicated parental education group, and points are sized according to the relative size of each group within the row. For convenience, we have also added a final row in each figure showing population-level averages for all applicants, all first-generation applicants, all continuing-generation applicants, and all applicants for whom no parental information is available at all.

To begin our review of the results, we will focus first on the group-level averages in each highest degree level row. For example, among continuing-generation students, students whose highest parental degree was a Professional Graduate degree had the lowest overall rate of fee waiver eligibility at 7.1%, while students whose highest parental degree was a Bachelor's was the highest at 19.9%. These values represent a meaningful spread in either direction from the overall continuing-generation student rate of 15.4%, and further note that the rate of fee waiver eligibility among the Bachelor's group is nonetheless nearly three times as high as that of the Professional Graduate degree group.

We see a similar trend when examining patterns among the first-generation degree levels: students whose highest parental degree was an Associate had the lowest rate of fee waiver receipt at 44.5%, whereas students whose parents Did Not Attend had the highest rate at 66%. Put another way, students whose parents did not attend college are about 50% more likely to be eligible for a fee waiver than students whose highest degree was an Associate – despite both being classified as first-generation.

Figure 2a. Rates of fee waiver eligibility by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations

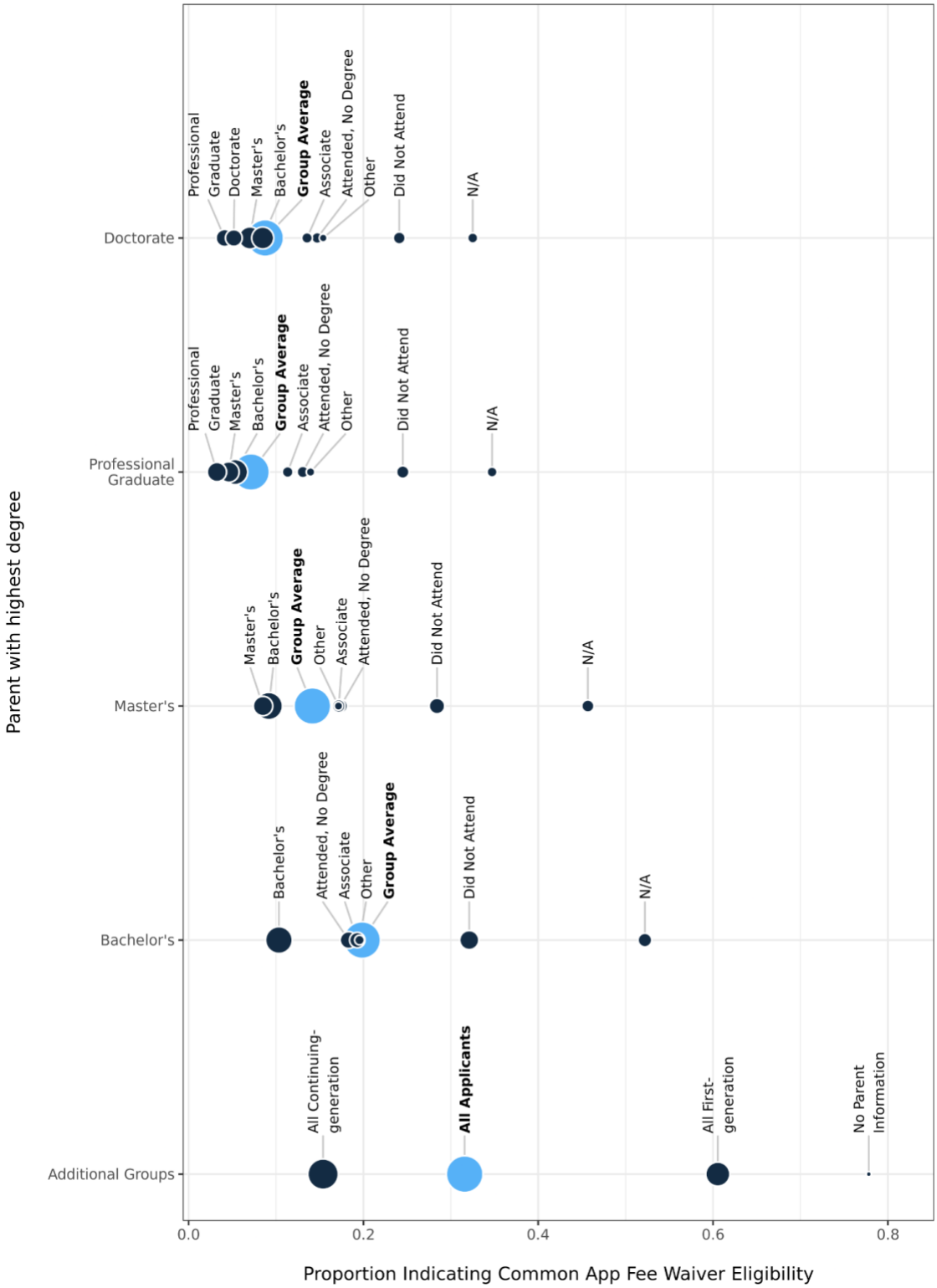
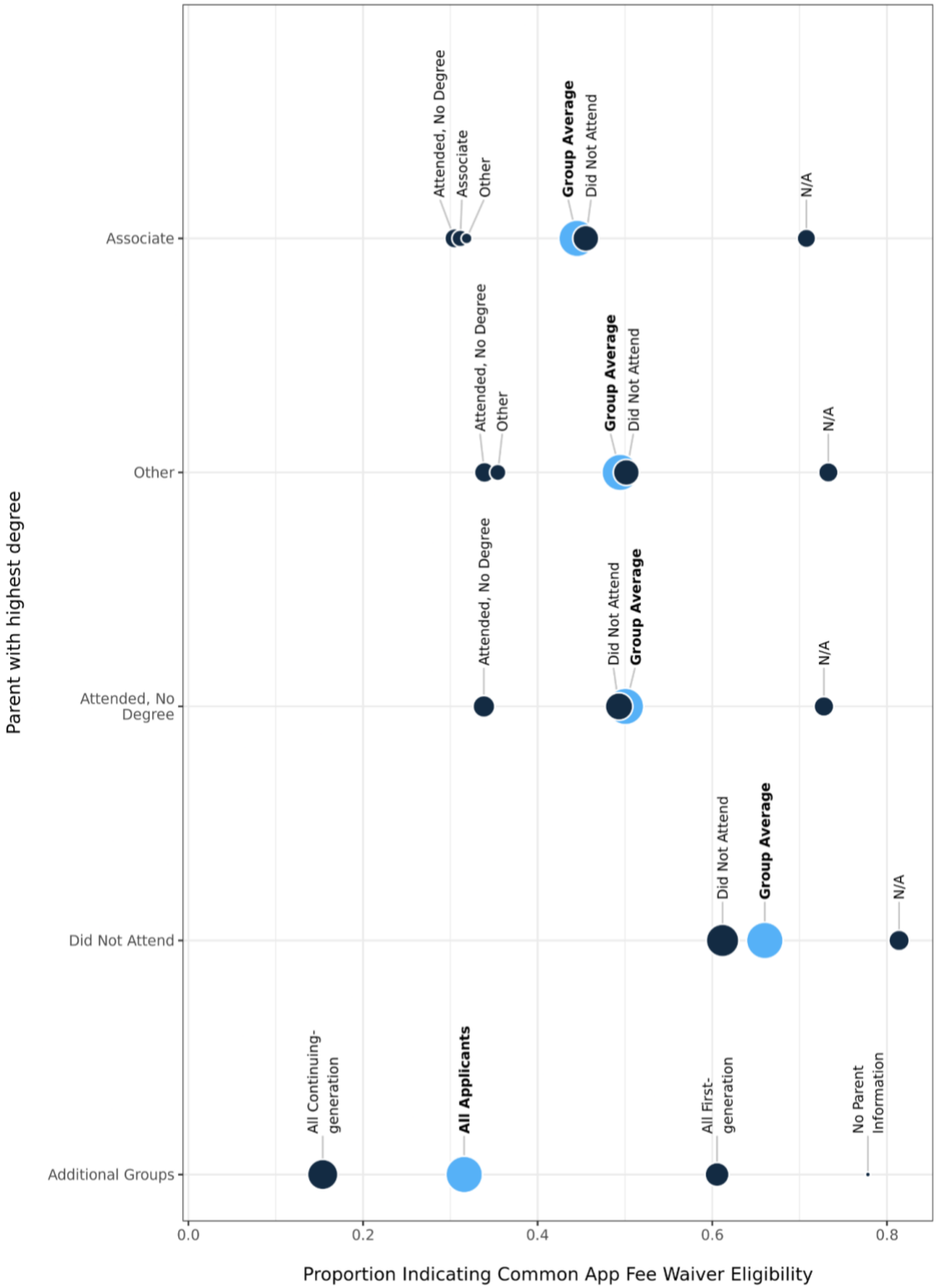


Figure 2b. Rates of fee waiver eligibility by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations



When we turn to examining detailed parental degree combinations within each first-generation status group, the variation becomes even more acute. For example, we see that 8.8% of all applicants whose parent with the highest degree has a Doctorate were eligible for a Common App fee waiver (the blue "Group Average" point). That being said, within this group, that rate can swing as low as 4.1% for applicants whose other parent has a Professional Graduate degree, or as high as 32.5% for students who didn't have another parent to list ("N/A") – a within-group range of 28.1 percentage points. Put another way, students who only have one parent with a Doctorate are nearly seven times as likely to be eligible for a fee waiver as students whose parents have a Doctorate and a Professional Graduate degree. Yet both combinations fall under the Doctorate highest degree level, and both combinations fall under the continuing-generation status.

We can contrast this with the "Attended, No Degree" group average of 50.1%. Within this row, 33.8% of students whose other parent also attended college without a degree were eligible for a fee waiver, while 72.8% of students who didn't have another parent to list were eligible, creating a within-group range of 39 percentage points. Interestingly, students who had only one parent with a Doctorate (the highest rate of fee waiver eligibility in the doctorate group) have quite similar levels of fee waiver eligibility to students who had two parents who attended college, but did not receive a degree (the lowest rate of fee waiver eligibility in the attended college group; 32.5% versus 33.8%). Note that this is true even though the former students are firmly classified in our standard definition as continuing-generation, while the latter students are firmly classified as first-generation.

Ultimately, the main point of these plots is to emphasize and explore how large the differences can be among students within the same classification of first-generation status, as well as within the same groupings by their parents' highest education level. One way to benchmark how meaningful these differences are is to compare it against the observed difference between all first-generation students and all continuing-generation students: we can see at the bottom of both plots that 15.4% of all continuing-generation applicants and 60.5% of all first-generation applicants were eligible for a Common App fee waiver, a difference between groups of 45.1 percentage points.

But if we look at the lowest eligibility point among continuing-generation students in Figure 2a (Professional Graduate and Professional Graduate at 3.2%) and the highest eligibility point among continuing-generation students (Bachelor's and N/A at 52.2%), the difference between these two points is actually 49 percentage points – larger than the aforementioned difference between first-generation and continuing-generation averages (45.1 percentage points). The same is true if we look at the lowest eligibility point among first-generation students (Associate and Attended, No Degree at 30.5%) and the highest eligibility point among first-generation students (Did Not Attend and N/A at 81.4%) with a difference of 50.9 percentage points. To put a fine point on it: parental education combination groups with the same first-generation status can look more different from one another than first-generation and continuing-generation students do on average.

In some cases, even the difference between the lowest eligibility group and highest eligibility group among students with the same highest parental degree (i.e., within rows) can be comparable in magnitude: for example, looking only at the Bachelor's row, the lowest eligibility

point at 10.3% (Bachelor's and Bachelor's) and highest eligibility point at 52.2% (Bachelor's and N/A) makes for a difference of 41.9 percentage points.

What these results tell us, in sum, is that:

1. Looking solely at a student's first-generation status does not always accurately characterize students' individual and community resources, as there exists so much variation across parental degree combinations within the same first-generation status.
2. Looking solely at a student's highest parental degree may also not present the most accurate picture, as there exists so much variation within these groups based on the other parent's degree.
3. Students who report information about only one parent are generally far outliers when compared against all other students in their same highest parental degree group. This parallels what we often see in existing education and socioeconomic research on the unique circumstances and challenges of single-parent households when compared with two-parent households.

As we will see throughout the rest of this brief, these trends and findings continue for nearly every measure that we examine. For concision in the main narrative, we include in the appendix parallel visualizations for several other relevant measures of applicants' individual and community resources as follows:

- Share of applicants identifying as an underrepresented minority (URM)[1] race/ethnicity (Appendix Figures A1a and A1b)[2]
- Share of applicants living in a ZIP-code with below-median household income (Appendix Figures A2a and A2b)[3]
- Share of applicants living in a rural or small town community (Appendix Figures A3a and A3b)
- Average share of adults in the applicant's ZIP-code with a BA or higher (Appendix Figures A4a and A4b)

In general, we see the same overarching trends as we saw with fee waiver eligibility. The only exception is in the share of applicants living in a rural or small town community, where students whose highest parent degree was an Associate were by far the most likely to live in a rural or small town community; students whose parents attended but did not receive a degree, or did not attend, skewed more towards the middle of all groups.

[1] We use the term underrepresented minority (URM) in alignment with conventions employed by the National Science Foundation. In this report, applicants identifying as Black or African American, Latinx, Native American or Alaska Native, or Native Hawaiian or Other Pacific Islander are classified as URM applicants.
[2] For those interested in more research on detailed applicant race/ethnicity, please see our accompanying research briefs here and here.
[3] For this analysis, we use ZIP-code-level Census data on median household income for each applicant's submitted home address relative to the national median household income.

Examining college readiness across highest parental degree and detailed parental degree combinations

Turning now to examining these same trends across a variety of college readiness measures, Figures 3a and 3b are identical in format to Figures 2a and 2b, but for the average scaled GPA students report in each highest parental degree and detailed parental degree combination group.[4]

Beginning again with results by highest parental degree, we see a consistent overlapping "stair-step" pattern to scaled GPA (just as we saw with fee waiver eligibility) as parental education levels decrease (moving down across the Y-axis rows) where applicants in higher degree levels generally report higher scaled GPAs. We also see some spread within the continuing-generation degree levels. Students whose highest parental degree was a Doctorate had the highest average scaled GPA at 0.96 (3.84 on a 4.0 scale), while students whose highest parental degree was a Bachelor's had the lowest at 0.92 (3.68 on a 4.0 scale). This spread is substantially smaller among the first-generation degree levels, with Associate students reporting an average scaled GPA of 0.89 (3.56 on a 4.0 scale) and Did Not Attend students reporting an average scaled GPA of 0.87 (3.48 on a 4.0 scale).

That being said, when we look at detailed parental degree combination groups, the overlap across rows indicates that the degree attainment of the parent with the lower (or equal) degree can be as important as the parent with the higher degree. For example, applicants with one only parent with a Doctorate report an average scaled GPA of 0.91 (or 3.63 on a 4.0 scale), while applicants with two parents with associate degrees also report an average scaled GPA of 0.91. Despite being in totally separate first-generation statuses and quite far apart in terms of highest degree level, these student groups have the same reported GPA on average.

As before, we can benchmark meaningful ranges and differences by looking at the difference between first-generation and continuing-generation applicants on average. In this case, first-generation applicants report an average scaled GPA of 0.87, and continuing-generation applicants report an average scaled GPA of 0.93 for a difference of 0.06 (or roughly a 3.50 versus 3.74 on a 4.0 scale, for a difference of 0.24 GPA points).

The highest average scaled GPA among continuing-generation applicants in Figure 3a is in the Doctorate and Doctorate combination at 0.98, whereas the lowest is the Bachelor's and no other parent to list (N/A) combination at 0.88 – a difference of 0.10, larger than the overall first-generation and continuing-generation difference (0.06). The highest average scaled GPA among first-generation applicants in Figure 3b is in the Associate and Associate combination at 0.91, whereas the lowest is in the Did Not Attend and N/A combination at 0.84 – a difference of 0.07.

[4] Scaled GPA is an applicant's reported GPA divided by their reported GPA scale after excluding extreme outliers and other obviously erroneous values. We do not see detectable differences in trends when instead examining the scaled GPA measure as reported by school counselors.

Figure 3a. Average scaled GPA by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations

Figure 3b. Average scaled GPA by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations

Further, the largest within-row range is among applicants whose highest parental degree was a Professional Graduate degree: the lowest point being the Professional Graduate and N/A group at 0.90 and the highest point being the Professional Graduate and Professional Graduate group at 0.97 – a difference of 0.07.

We share several additional measures of college readiness in the appendix as follows:

- Rates of SAT/ACT score reporting (Appendix Figures A5a and A5b)[5]
- Average reported SAT/ACT score when reported (Appendix Figures A6a and A6b)
- Average number of passing AP test scores reported (Appendix Figures A7a and A7b)[6]
- Average AP test score reported (Appendix Figures A8a and A8b)

The patterns and trends surfaced above for scaled GPA are repeated almost identically across all measures described here.

Examining application behaviors across highest parental degree and detailed parental degree combinations

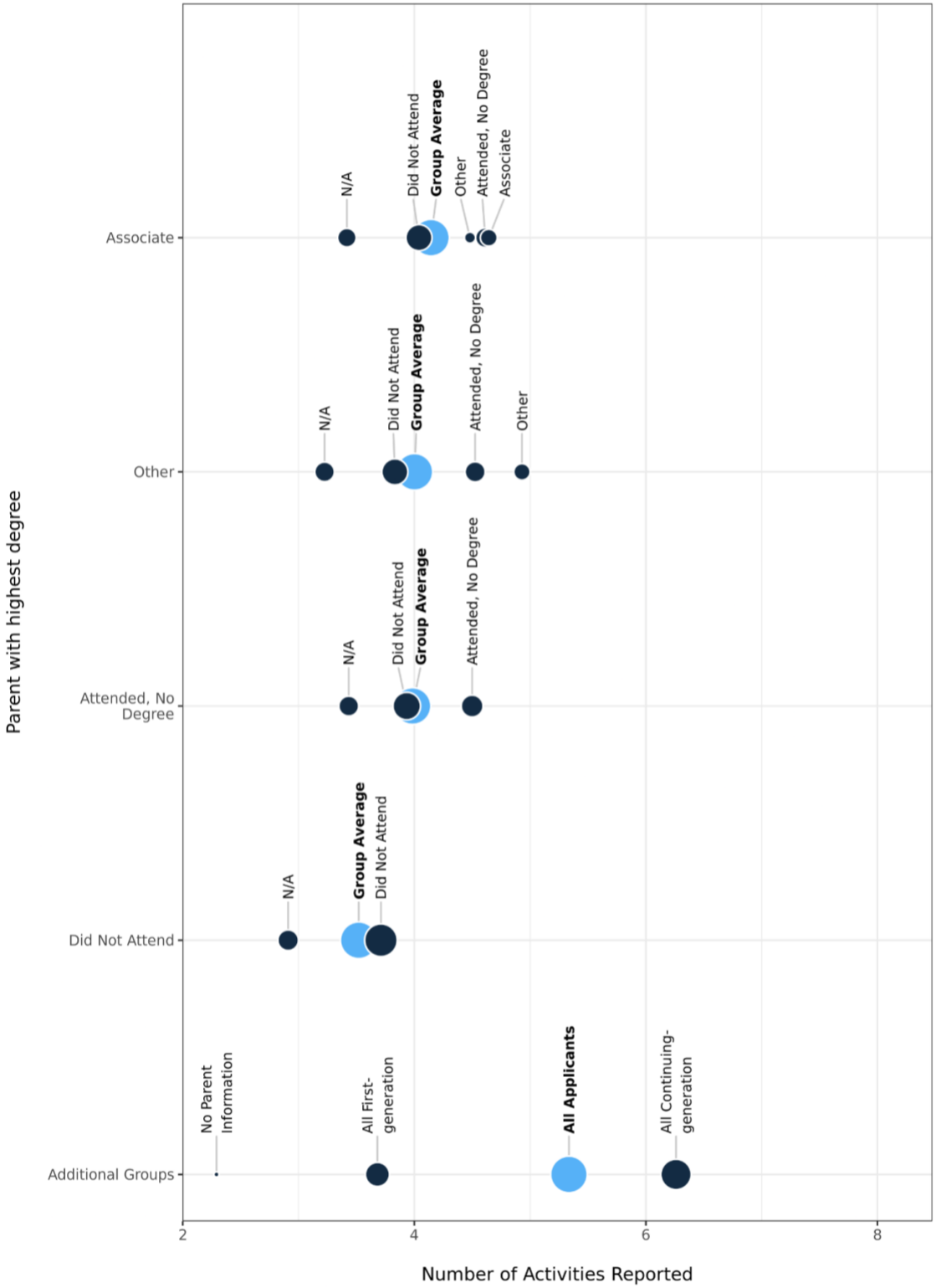
Finally, we now turn to examine the average number of extracurricular activities reported across parental education combination groups in Figures 4a and 4b as an illustrative example of an application behavior indicator. For those interested in more in-depth research on extracurricular activity reporting, please see our accompanying research brief here from last season.

As was the case with college readiness indicators, the overarching patterns and trends in the data remain generally the same here: broad ranges/differences within rows, as well as within classifications of first-generation status, that mirror or even dwarf the difference between first-generation and continuing-generation applicants on average.

[5] For those interested in more research on test score reporting behaviors, please see our accompanying research brief here.
[6] We consider 3 or above to be a passing AP test score.

Figure 4a. Number of extracurriculars reported by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations

Figure 4b. Number of extracurriculars reported by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations



In the appendix, we provide additional visualizations for each of the following measures:

- Average number of applications submitted (Appendix Figures A9a and A9b)
- Average number of academic honors reported (Appendix Figures A10a and A10b)
- Average admissions rate of institutions applied to (Appendix Figures A11a and A11b)
- Share of applicants submitting a binding Early Decision application (Appendix Figures A12a and A12b)[7]
- Share of applicants intending to pursue a master's degree or higher (Appendix Figures A13a and A13b)

Trends are generally mirrored across the indicators with a few notable exceptions. First, we see relatively more variation among the higher degree levels (e.g., Master's and above) and relatively less among the lower degree levels (e.g., Associate and below) for the average admissions rate of institutions applied to, share of applicants submitting a binding early decision application, and share of applicants intending to pursue a master's degree or higher. That these all trend together make some sense given that binding early decision tends to be a phenomenon prevalent among more selective institutions, and students who already intend to pursue advanced degrees at this stage may be focused on more selective institutions given the edge they can provide in graduate program applications.

Also of note is that there is less of a clear trend in the number of applications sent by parental degree attainment as there is in other measures. This may be a result of the strong correlation between lower parental degree attainment and fee waiver eligibility (as we saw in Figures 2a and 2b), given that we've observed a strong positive correlation between fee waiver eligibility and applications sent in past analyses on the subject.

Conclusion

Altogether, these findings bring attention to the idea that we are likely losing a very meaningful degree of information about students by focusing solely on the binary measure of first-generation and continuing-generation status. This is illustrated clearly by how different students can look from one another within the same first-generation status; indeed, parental degree combination groups within the same first-generation status can often look more different from one another than the overall first-generation and continuing-generation averages do. These results are remarkably consistent across the wide array of measures we examine throughout this brief.

One way to quantify how much information we're losing about students is to assess the predictive power[8] of using a student's first-generation status alone to infer their college readiness indicators, and then compare that against using a student's highest parental degree or detailed parental degree combination instead. In other words, if we were to guess a student's reported GPA using just first-generation status alone, how far off would we be on average? And

[7] For those interested in more research on early application trends, please see our accompanying research briefs here and here.
[8] For these supplementary analyses, we used Root Mean Squared Error (RMSE) to calculate predictive power on each college readiness measure described in this brief.

how much closer would we be (if at all) when using a student's highest parental degree instead, or detailed parental degree combinations?

The technical details of this procedure is somewhat outside of the scope of this brief, but to summarize our exploratory analyses: We find that across every college readiness measure we examine, using detailed parental degree combinations produces a very meaningful improvement in predictive power over first-generation status alone. Put one way: using a student's detailed parental degree combination group on its own to guess a student's GPA is more accurate than using first-generation status, URM race/ethnicity status, fee waiver eligibility, and high school type combined. Roughly speaking, we can say that the amount of information conveyed about a student's college readiness by detailed parental degree combinations is equivalent to all of these other pieces of information together.

This is again not to suggest that first-generation status cannot be useful and important as a way of characterizing students, but rather that it should be seen as one such method of many with appreciable drawbacks and trade-offs. Program managers and policy leaders could instead choose to focus on highest parental degree attainment explicitly, or even go one step further to embrace the full complexity of detailed parental education combinations. That being said, these added nuances may not always be feasible or even desirable depending on the context (e.g., due to data collection constraints, or operational complexity costs, student confusion, etc.); there is thus no single right answer for this puzzle that can apply across all contexts.[9]

As such, our intention across these three briefs has been to make clear how first-generation status is an exceptionally complex construct, one that needs to be handled with all due diligence and intention. Whether deciding how to handle certain definitional wrinkles like international degrees, or which exact definition for first-generation status should be used, or whether it is feasible to look explicitly at students' parental degree combinations, we argue that the best approach remains the same: be deliberate and transparent about the decisions made when characterizing students to ensure strong alignment between program goals/activities and program beneficiaries and their needs. Just as importantly, students should be made aware of and supported in understanding how your program or institution thinks about this concept of first-generation status, especially as it has meaningful implications for student self-identity and understanding.

This concludes our three-part research brief series into first-generation status. For those who have followed along across all three parts, we hope this has helped spark useful and data-informed conversations in your own contexts. We will continue to release a number of additional research briefs this season on different topics, and may of course revisit this topic again in the future pending interest and need.

[9] And this is again not even considering some of the definitional nuances that program administrators would need to sort out when it comes to whose degrees and which degrees to count for highest parental degree or detailed parental degree combinations (e.g., what if a student has more than two caregivers?)..

Appendix

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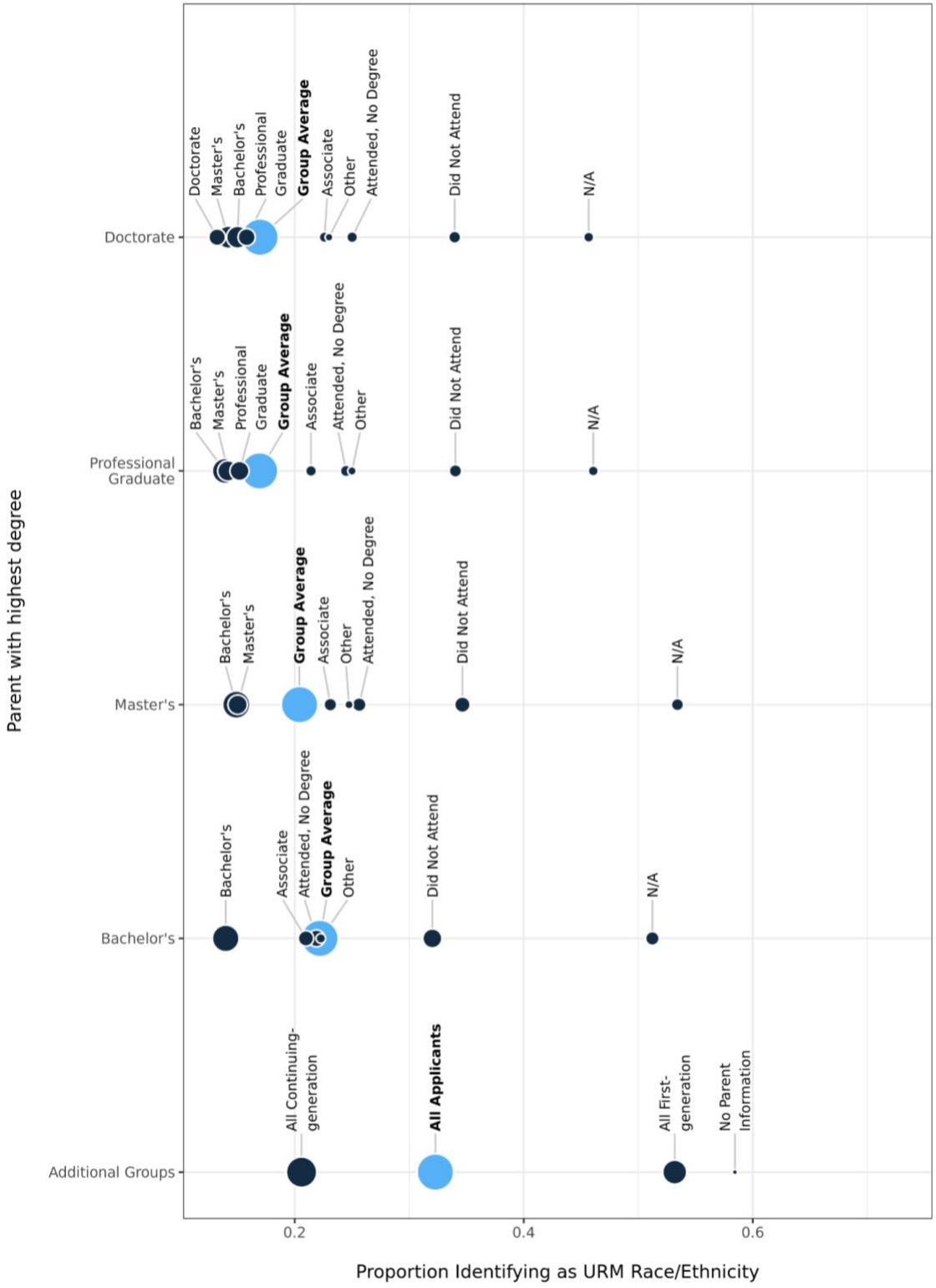
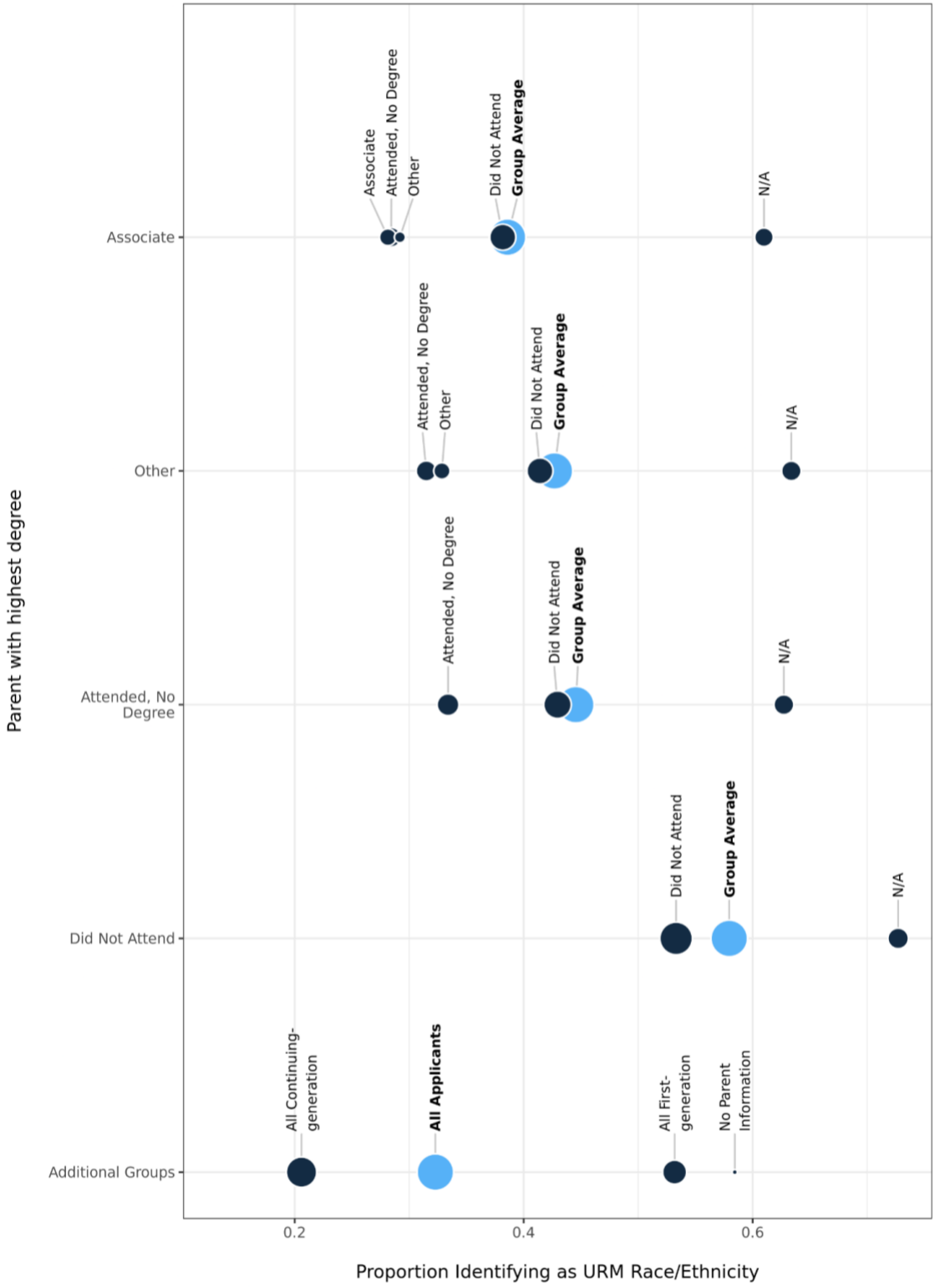
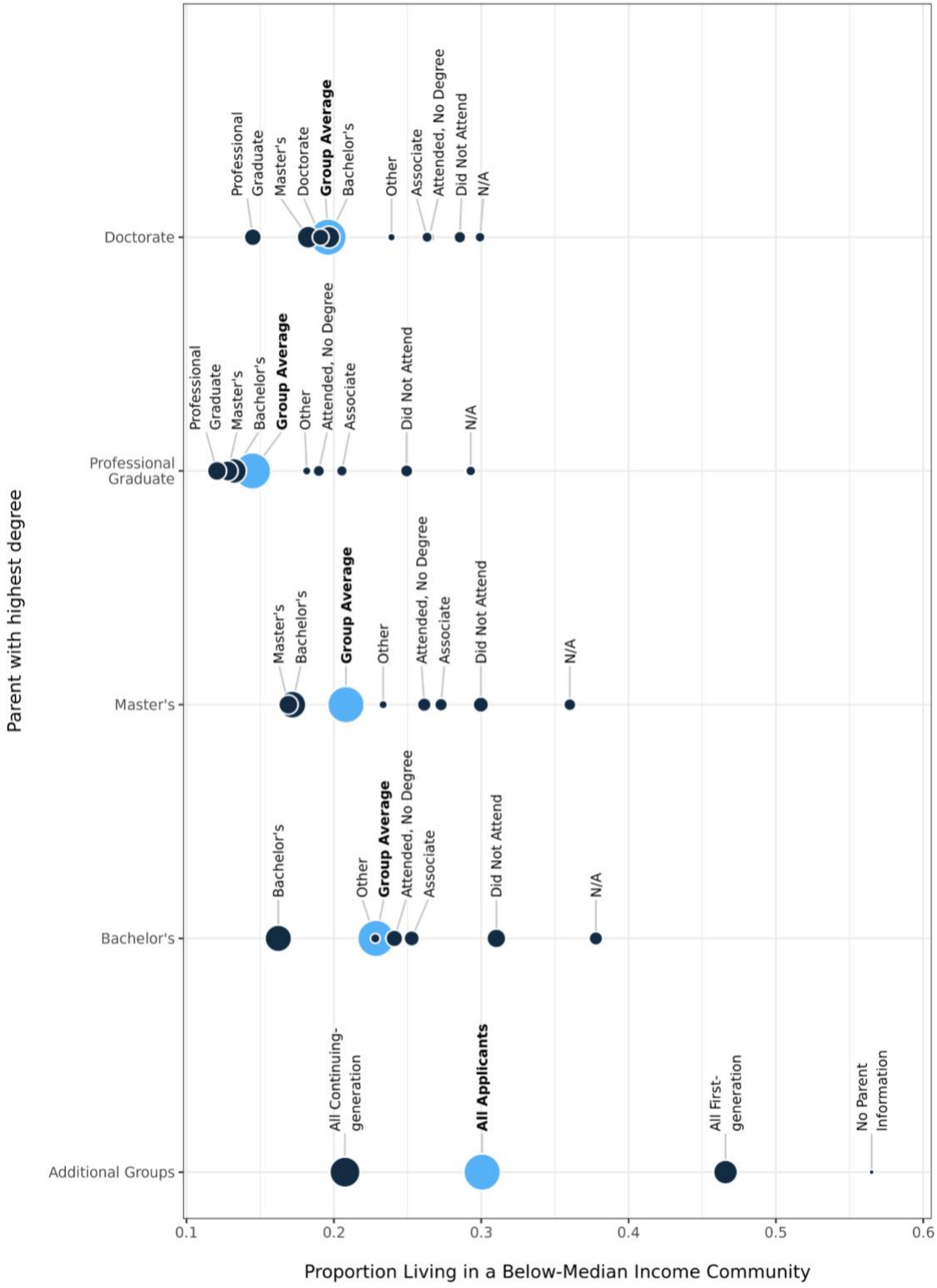
Appendix Figure A1a. Share of applicants identifying as an underrepresented minority (URM) race/ethnicity by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations



Appendix Figure A1b. Share of applicants identifying as an underrepresented minority (URM) race/ethnicity by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations

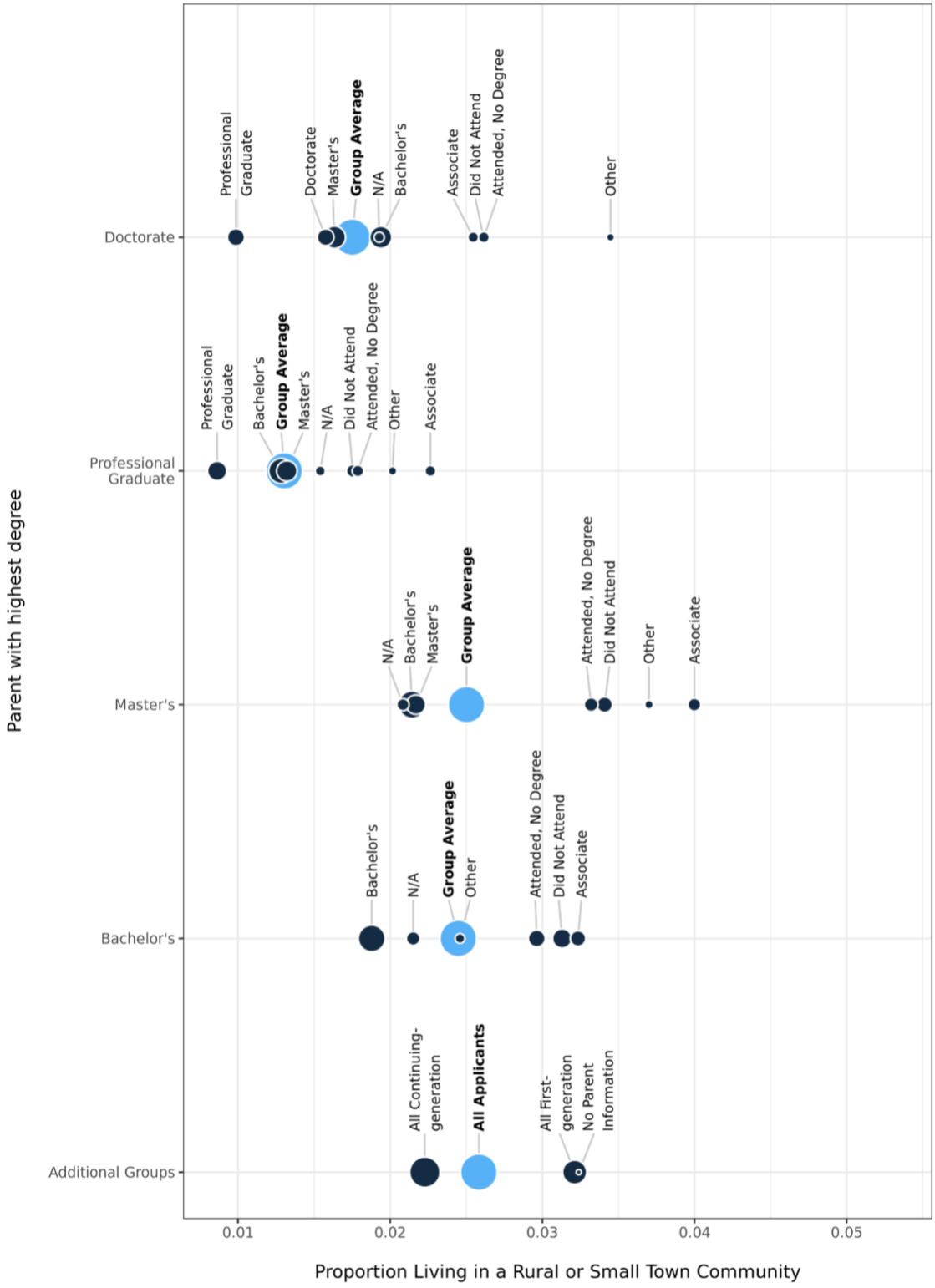


Appendix Figure A2a. Share of applicants living in a ZIP-code with below-median household income by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations



Appendix Figure A2b. Share of applicants living in a ZIP-code with below-median household income by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations

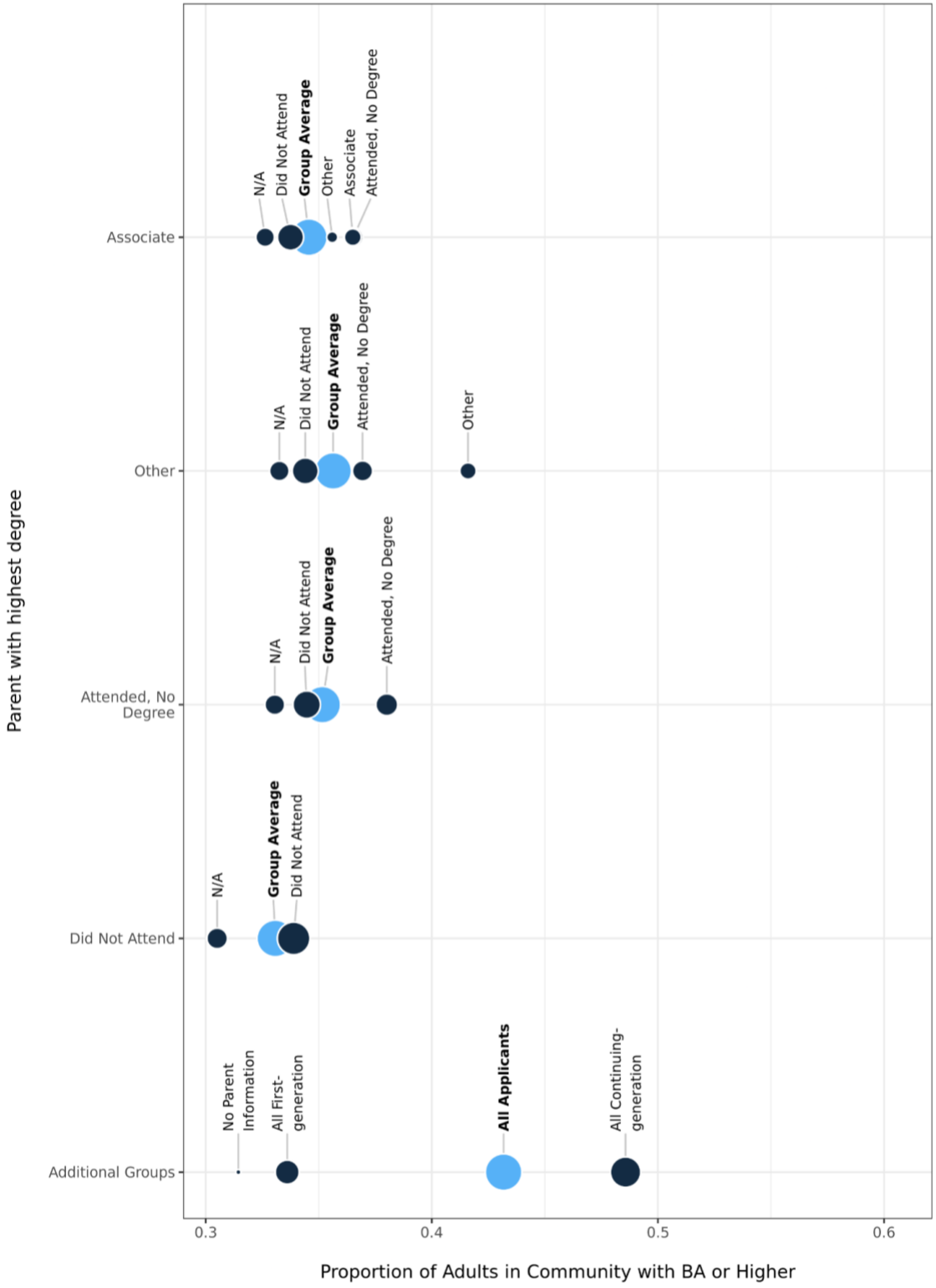
Appendix Figure A3a. Share of applicants living in a rural or small town community by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations



Appendix Figure A3b. Share of applicants living in a rural or small town community by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations

Appendix Figure A4a. Average share of adults in the applicant's ZIP-code with a BA or higher by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations

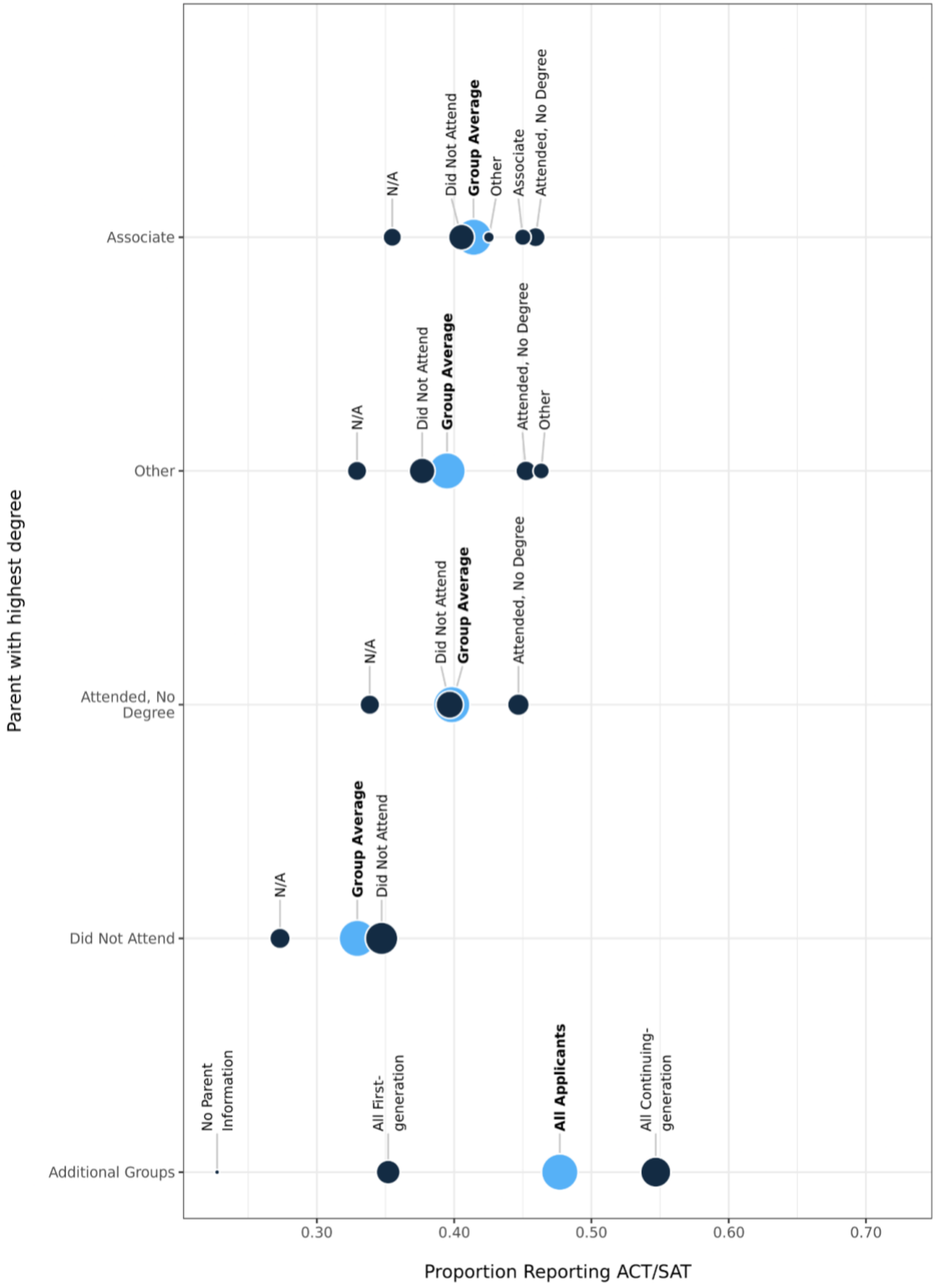
Appendix Figure A4b. Average share of adults in the applicant's ZIP-code with a BA or higher by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations



Appendix Figure A5a. Rates of SAT/ACT score reporting by detailed parental education combinations

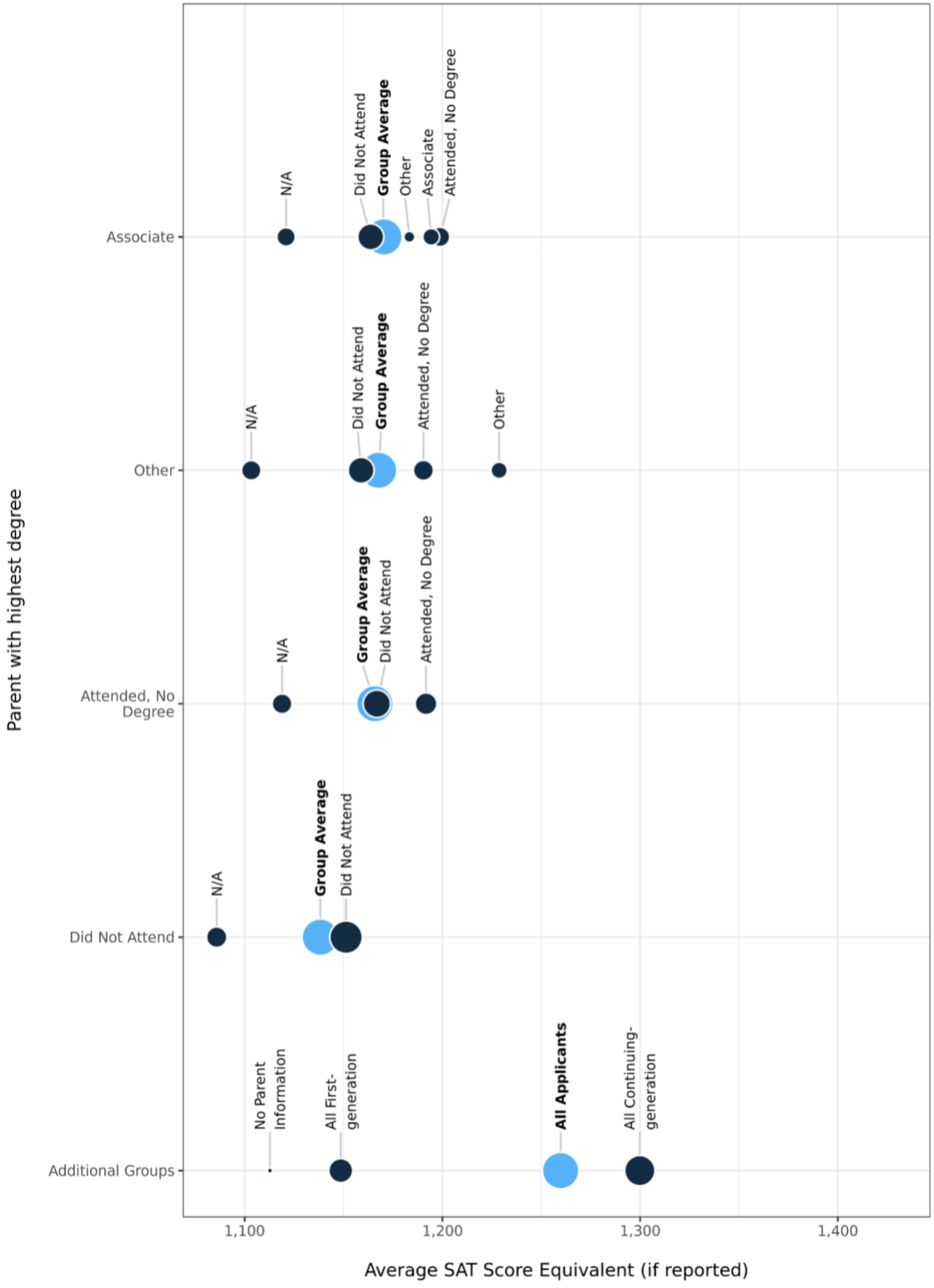
Among domestic first-year applicants in the 2022 season, continuing-generation combinations

Appendix Figure A5b. Rates of SAT/ACT score reporting by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations



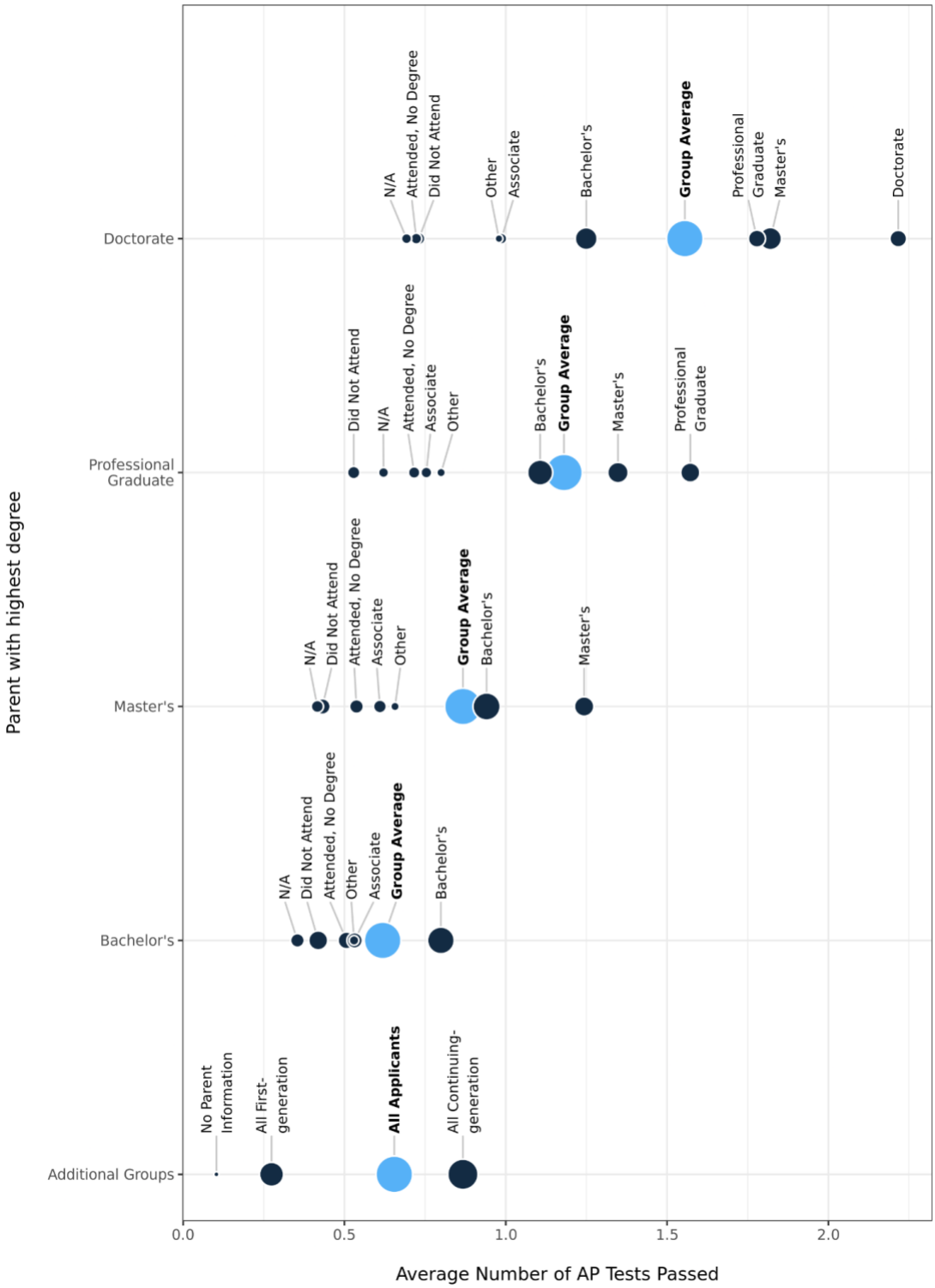
Appendix Figure A6a. Average reported SAT/ACT score when reported by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations

Appendix Figure A6b. Average reported SAT/ACT score when reported by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations



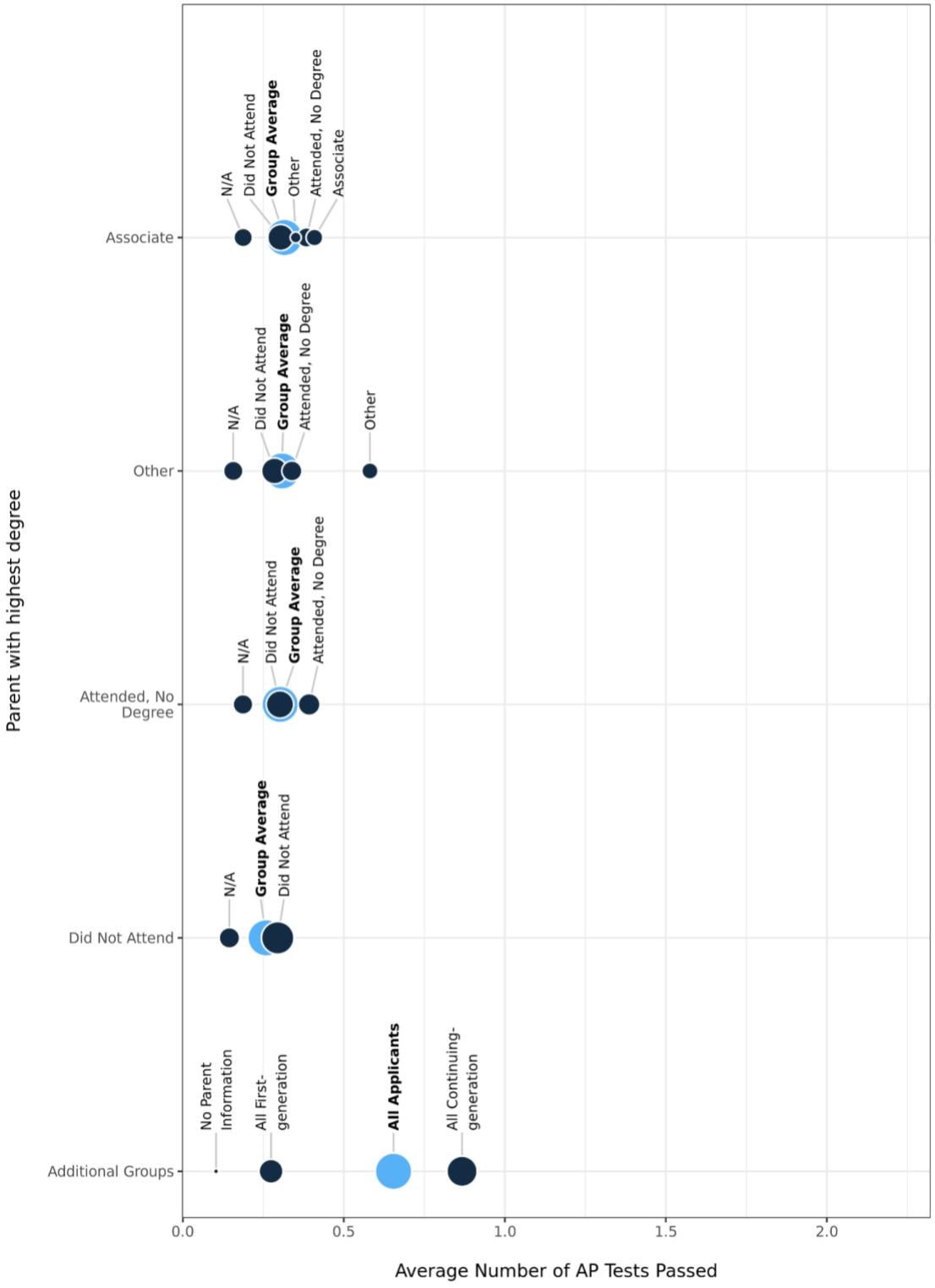
Appendix Figure A7a. Number of passing AP test scores reported by detailed parental education combinations

Among domestic first-year applicants in the 2022 season, continuing-generation combinations



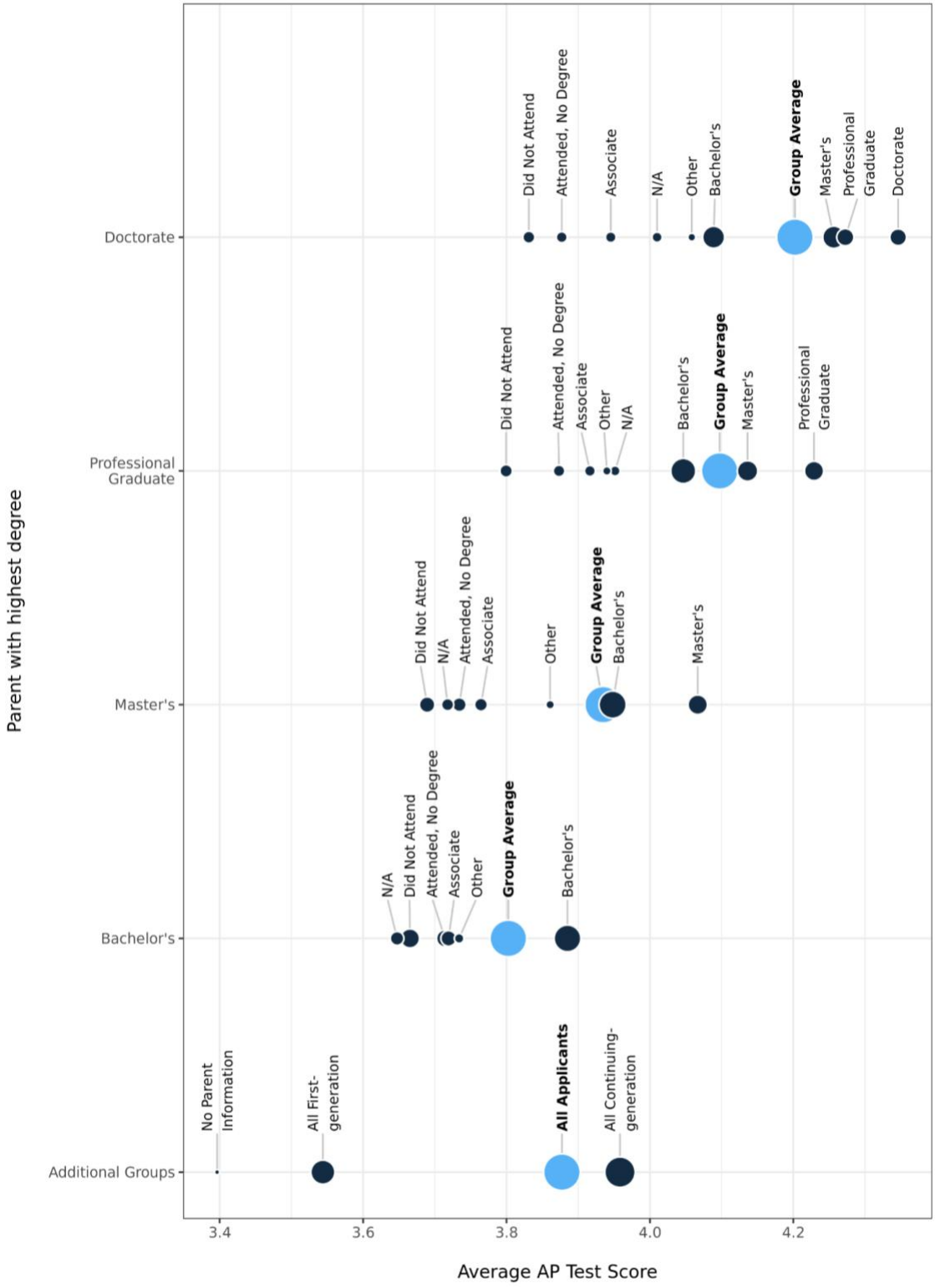
Appendix Figure A7b. Number of passing AP test scores reported by detailed parental education combinations

Among domestic first-year applicants in the 2022 season, first-generation combinations



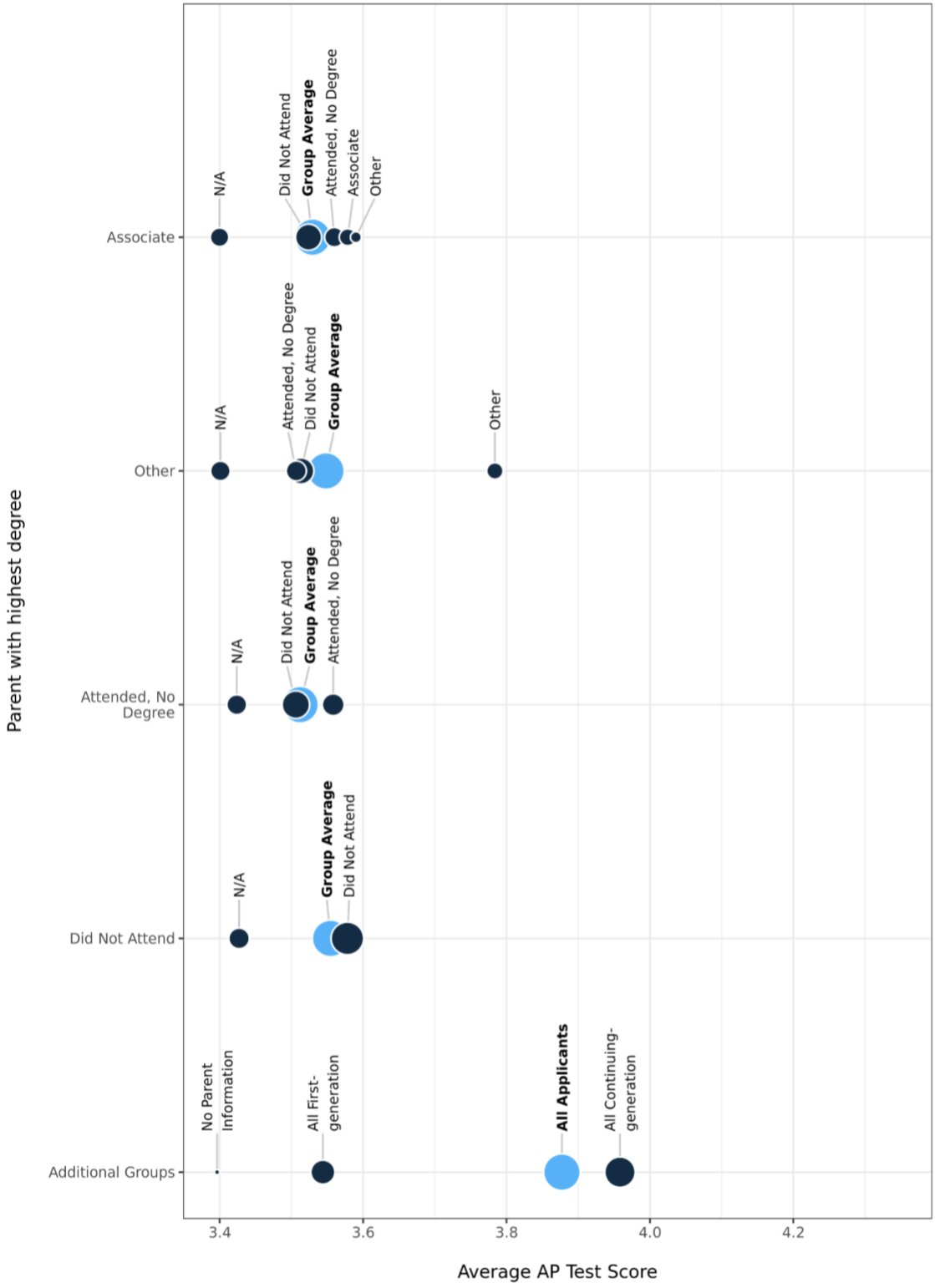
Appendix Figure A8a. Average AP test score reported by detailed parental education combinations

Among domestic first-year applicants in the 2022 season, continuing-generation combinations

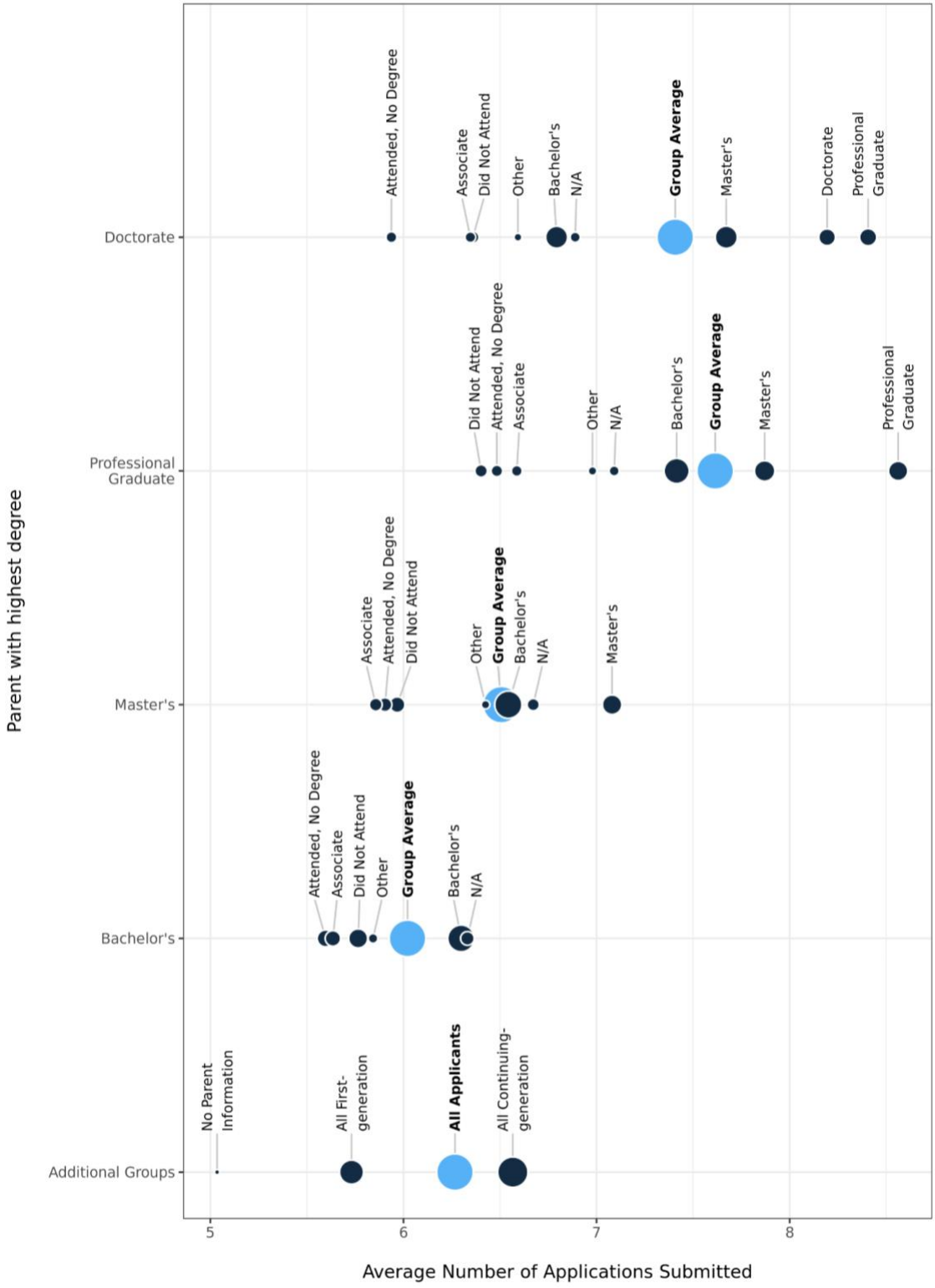


Appendix Figure A8b. Average AP test score reported by detailed parental education combinations

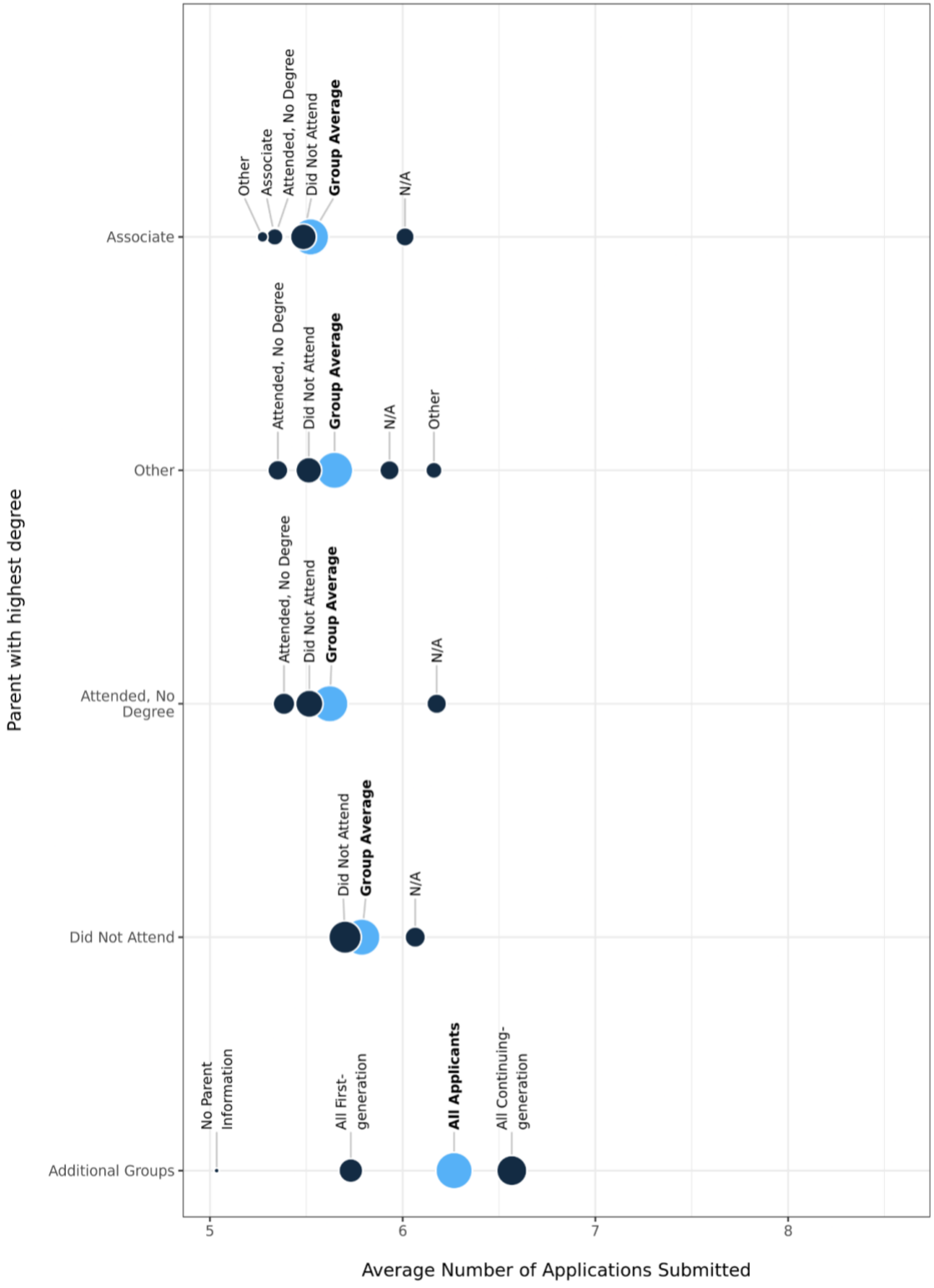
Among domestic first-year applicants in the 2022 season, first-generation combinations



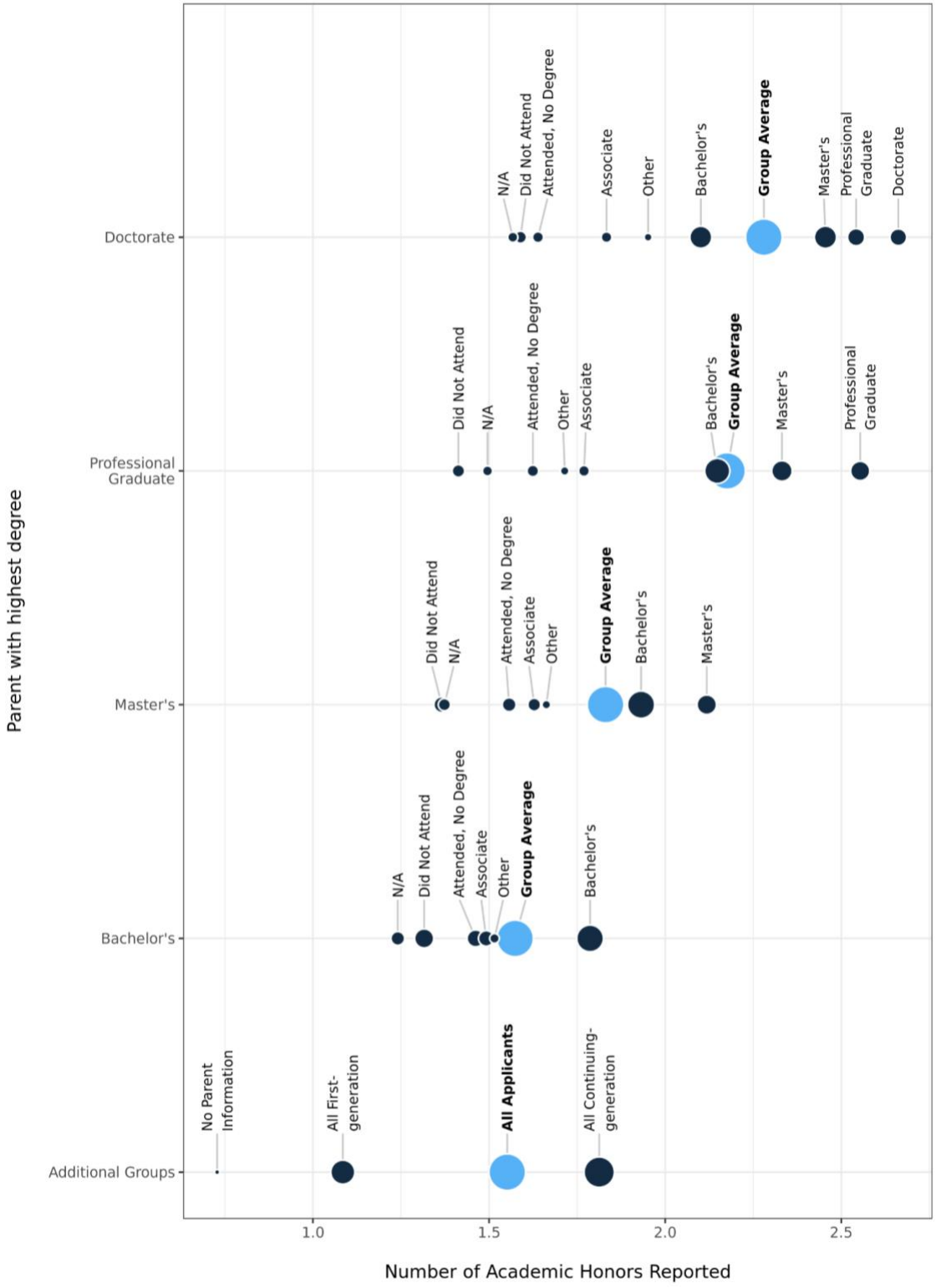
Appendix Figure A9a. Average number of applications submitted by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations



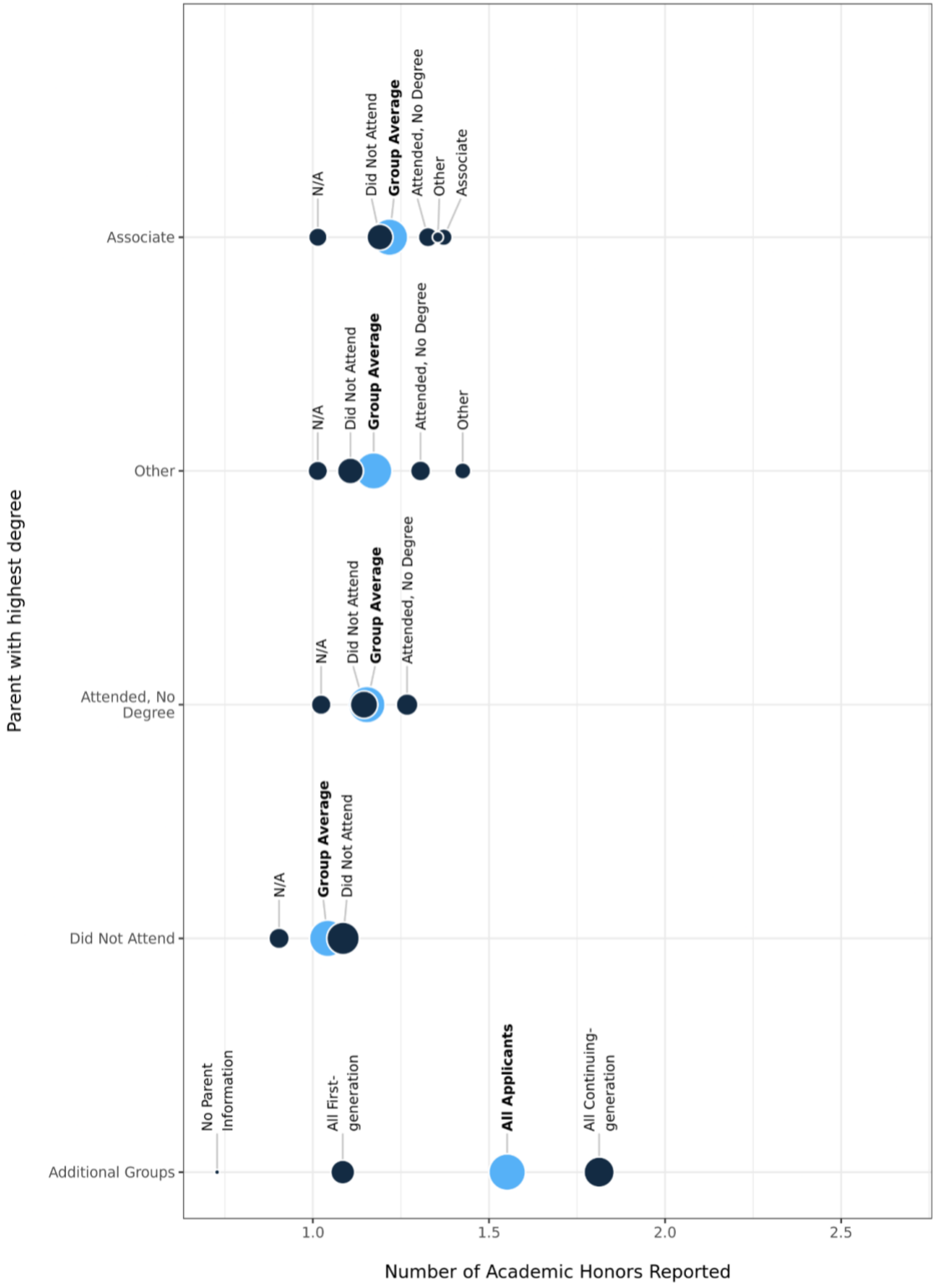
Appendix Figure A9b. Average number of applications submitted by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations



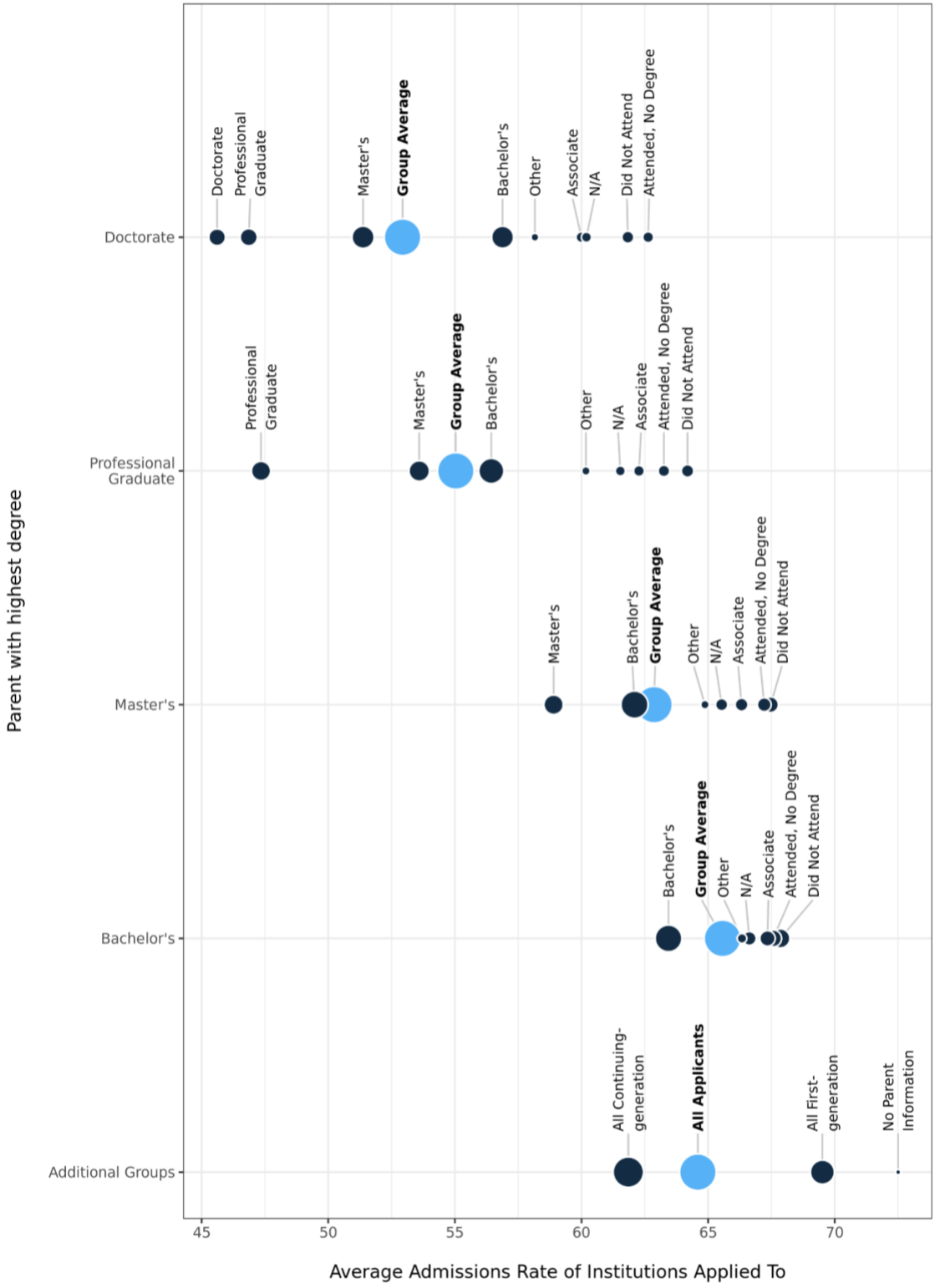
Appendix Figure A10a. Average number of academic honors reported by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations



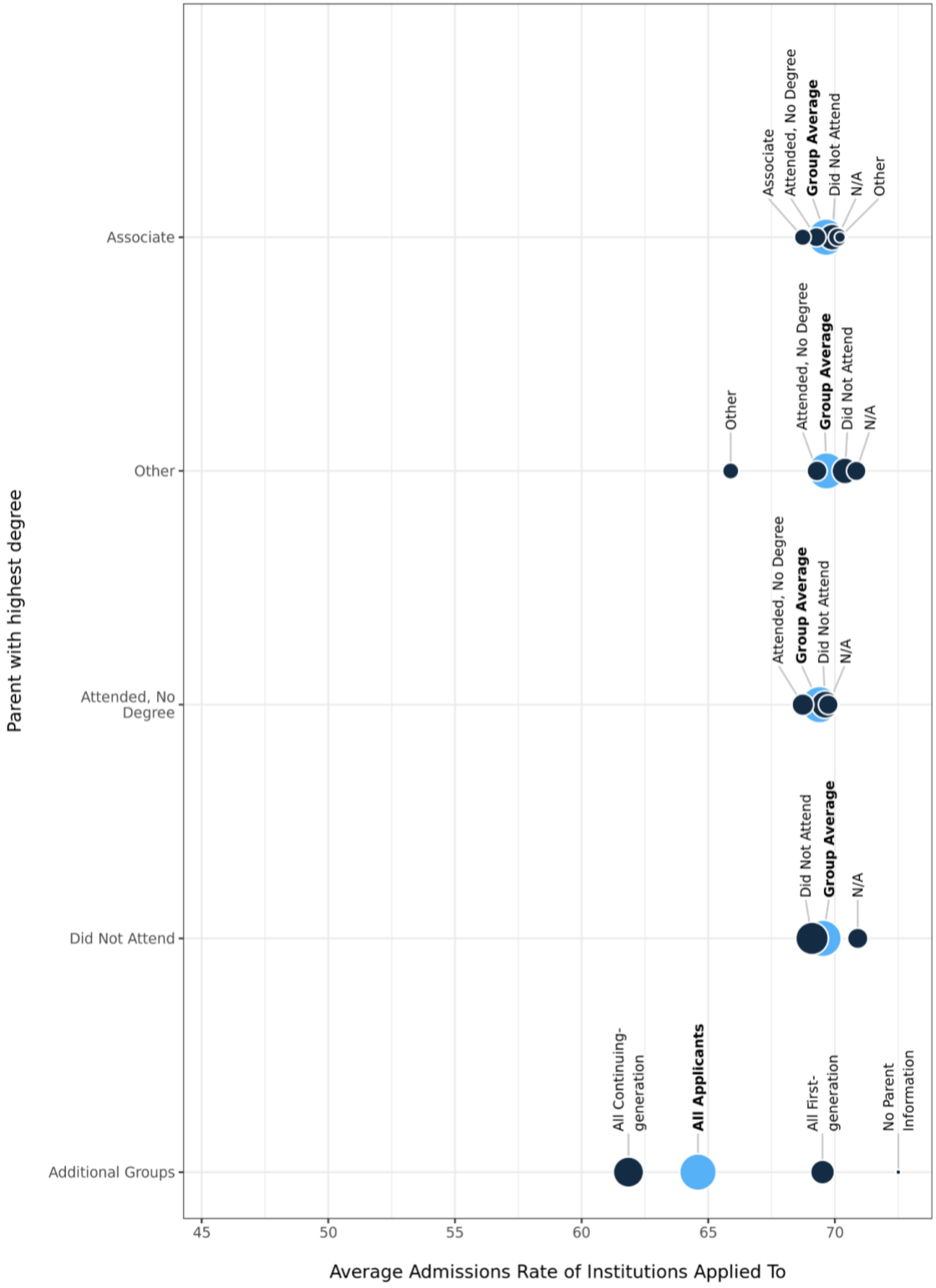
Appendix Figure A10b. Average number of academic honors reported by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations



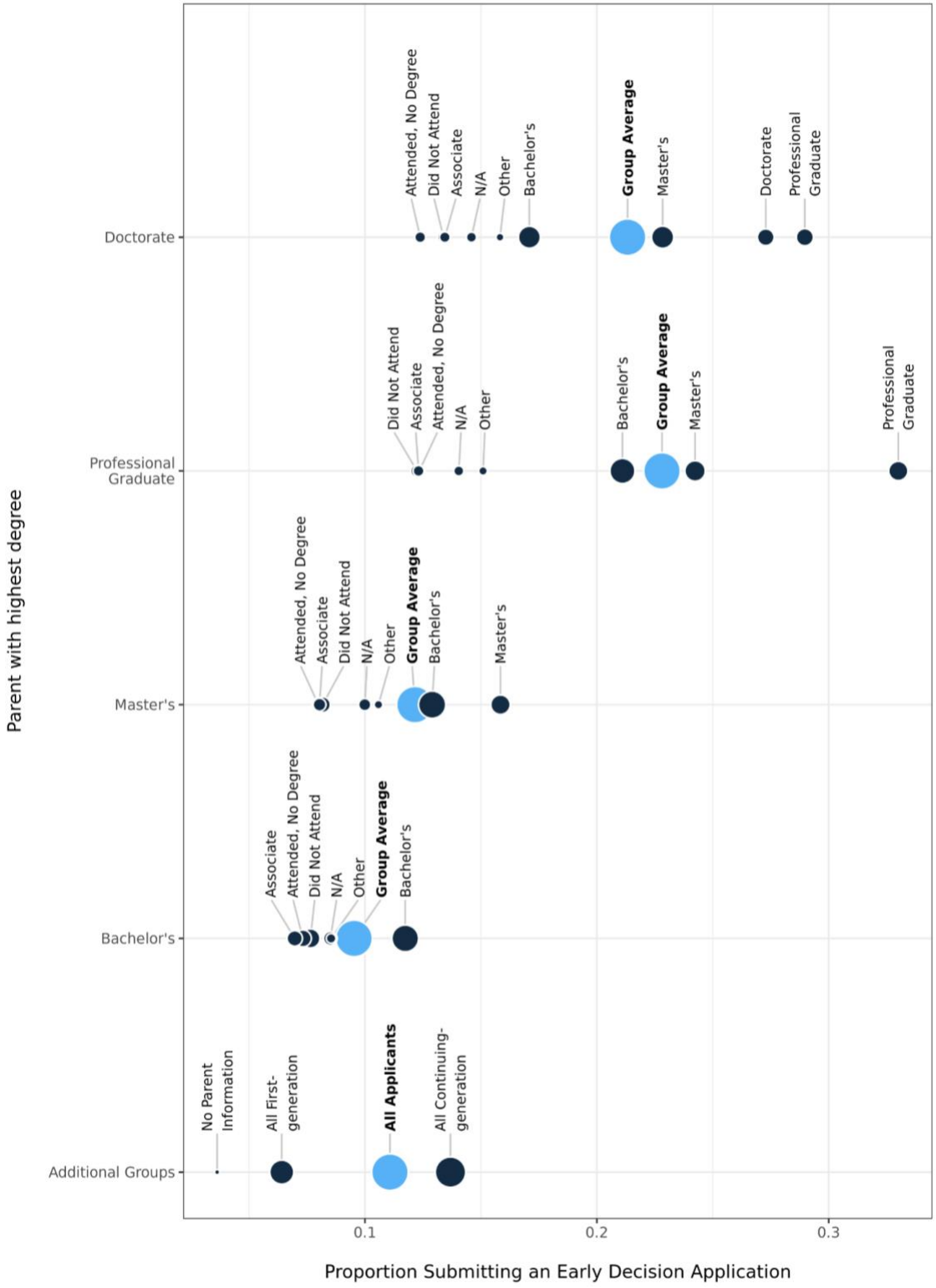
Appendix Figure A11a. Average admissions rate of institutions applied to by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations



Appendix Figure A11b. Average admissions rate of institutions applied to by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations

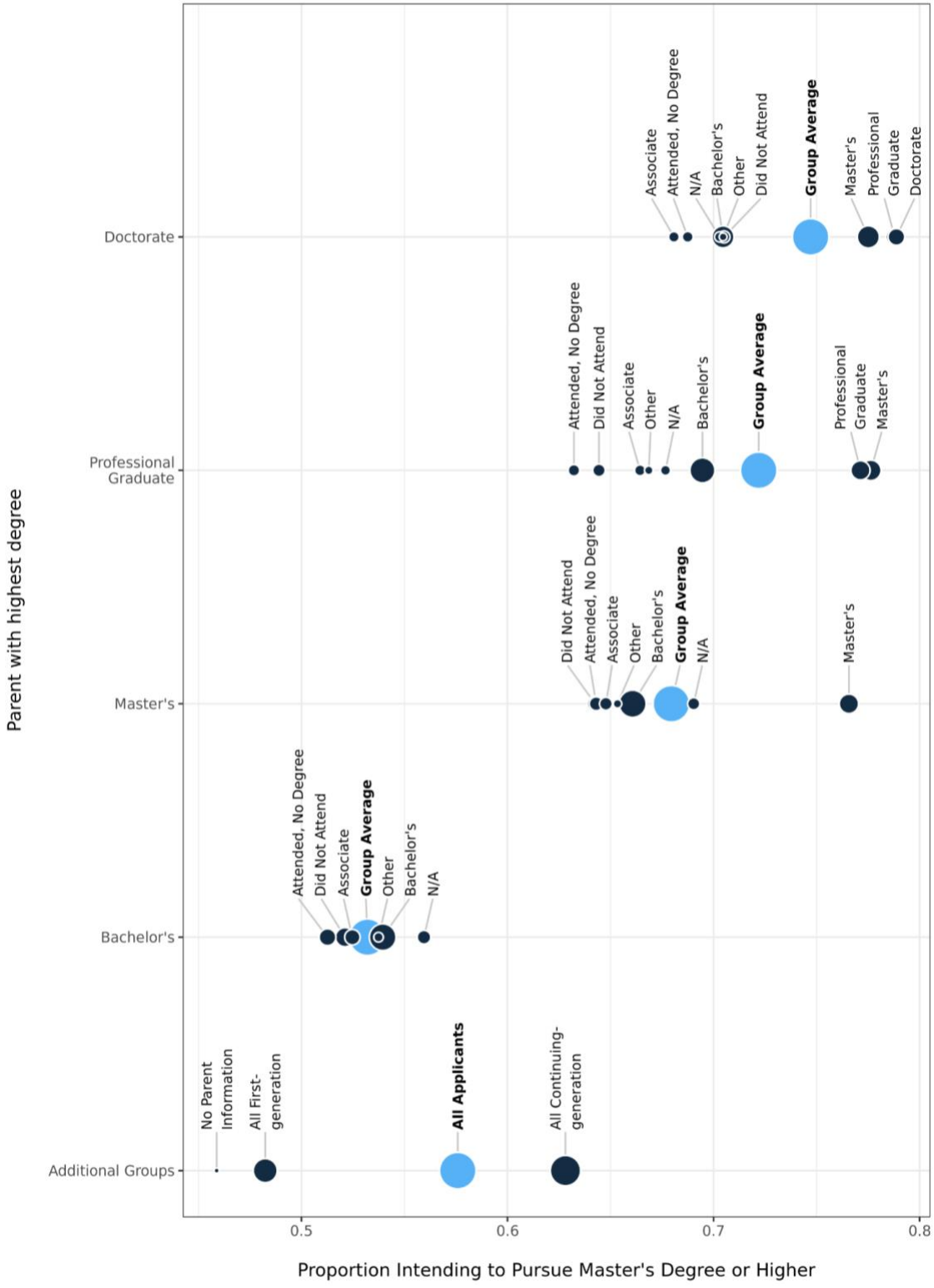


Appendix Figure A12a. Share of applicants submitting a binding Early Decision application by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations



Appendix Figure A12b. Share of applicants submitting a binding Early Decision application by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations

Appendix Figure A13a. Share of applicants intending to pursue a master's degree or higher by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, continuing-generation combinations



Appendix Figure A13b. Share of applicants intending to pursue a master's degree or higher by detailed parental education combinations
Among domestic first-year applicants in the 2022 season, first-generation combinations