# ONLINE APPENDIX 

for

# Class Origins, High School Graduation, and College Entry in the United States 

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# Chapter 10 in <br> Determined to Succeed? Performance, Choice and Education 

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## ADDITIONAL DETAILS OF THE ANALYSIS

## Analysis Sample and Weights

The baseline number of respondents for the ELS is 15,244 . We restricted the analysis to the 12,591 respondents who participated in all three waves of the survey (F2UNIV1=101). We then applied modified versions of the base-year to second-follow-up panel weight (F2BYWT) developed by NCES as follows.

The NCES-provided panel weight, F2BYWT, is non-zero for 13,390 respondents and includes four groups: 12,591 respondent who participated in all three waves, 751 respondents who participated in the base year and the second follow-up but who were nonrespondents in the first follow-up, 40 respondents who participated in the base year and the second follow-up but who were classified as out of scope for the first follow-up, and 8 respondents who participated in the base year and the second follow-up but who were classified as ineligible for the first followup. We limited all models of educational transitions to the 12,591 cases who represented a fullparticipation subsample because this allowed for more precise measurement of educational transitions. Accordingly, the NCES-provided panel weight, which applies to all 13,390 respondents who participated in the base year and the second follow-up is slightly misaligned.

We therefore calculated three alternative weights, which are F2BYWT divided by the estimated probability of inclusion in the analysis sample on which the applicable model is estimated. This method has the benefit of also allowing for a complete-case weighting strategy for handling missing data on parents' class and on educational transitions. Accordingly, we have three types of models in the main body of the chapter, all of which require slightly different weights to generalize to the relevant target population:

1. For the high school graduation models, the analysis sample includes 12,546 respondents, which are the 12,591 respondents in the full participation sample minus the

45 respondents in that sample who had missing data for class. The weight for these models is F2BYWT divided by the estimated probability of being among these 12,546 respondents (instead of its complement within the 13,390 respondents who had non-zero weights for F2BYWT). The probability was estimated from a logit model that includes basic family background and demographic characteristics, as well educational expectations and significant others' influence. The logit model had a Wald Chi-squared value of 173.8 with 25 df and an N of 13,390. The predicted probability had a mean of .928 , a standard deviation of .034 , a minimum of .630 , and a maximum of .988 .
2. For the college entry models generalized to the full population of high school sophomores (i.e., including those who did graduate high school), the analysis sample is estimated for 11,400 respondents, which are the 12,546 respondents for the high school graduation model minus 1,146 respondents in that sample who (1) had missing data for class ( 45 respondents) or (2) who had missing data for college entry or were known not to have graduated from high school ( 1,101 respondents). The weight for this sample is F2BYWT divided by the estimated probability of being among these 11,400 respondents (instead of its complement within the 13,390 respondents who had non-zero weights for F2BYWT). The probability was estimated from a logit model that includes basic family background and demographic characteristics, as well educational expectations and significant others' influence (in both the base year and second follow-up). The logit model had a Wald Chi-squared value of 959 with 27 df and an N of 13,390. The predicted probability had a mean of .825 , a standard deviation of .127 , a minimum of .212 , and a maximum of .992 .
3. For the college entry models generalized only to those who graduated from high school, the analysis sample is estimated for 11,400 respondents, which are the 12,546 respondents for the high school graduation model minus 1,146 respondents in that sample who (1) had missing data for class (45 respondents) or (2) who had missing data for college entry or were known not to have graduated from high school ( 1,101 respondents). However, the weight for this sample is F2BYWT divided by the estimated probability of being among these 11,400 respondents, where the alternative is being in the complement within the narrower group of 12,148 respondents (who are all respondents in the full 13,390 respondents who had non-zero weights for F2BYWT and who were also known to have graduated from high school). The probability was estimated from a logit model that includes variables for the same basic family background and demographic characteristics, as well educational expectations and significant others' influence (in both the base year and second follow-up). The logit model had a Wald Chi-squared value of 170.8 with 27 df and an N of 12,148 . The predicted probability had a mean of .929 , a standard deviation of .034 , a minimum of .595 , and a maximum of .988 .

## Coding of Class

To code Erikson-Goldthorpe (EG) social classes, we began by necessity with the broad
categorization of fathers' and mothers' occupations provided by the data distributor (or, if the
mother or father was not present, then male or female guardian). The categories of "Professional A" and "Professional B" were assigned to EG class I, which includes higher grade professionals and administrators. " Manager, Administrator" and "School Teacher" were assigned to class EG II, which includes lower grade managerial employees. "Clerical" and "military" were assigned to EG class IIIa, which includes higher-grade routine nonmanual employees class (EG IIIa). The "homemaker," "sales," and "service" positions were assigned to EG class IIIb, composed of routine nonmanual employees. "Proprietor, owner" was assigned to EG class IV, which includes small employers, self-employed, and farmers. "Protective service" and "technical" positions were assigned to EG class V. "Craftsperson" was assigned to EG class VI, which includes skilled manual workers. "Laborer" and "operative" were assigned to EG class VIIa, which includes nonskilled manual workers (other than agriculture). Finally, "farmer" and "farm manager" positions were assigned to EG class VIIb, which includes farm laborers.

As readers familiar with EG classes can discern, these coding decisions are afflicted with some error, especially for EG classes V and VIIb, and to lesser extent for EG classes II and IIIb. Nonetheless, given that the ultimate aim of the class coding is to generate a coarse 3-class schema, we expect that many of these errors at the level of the full EG class schema disappear under aggregation. To create the salariat, intermediate, and working classes for this paper, we assigned EG classes I and II to the salariat. We assigned EG IIIa, IIIb, IVa, IVb, IVc, and V to the intermediate class, and we assigned EG classes VI, VIIa, and VIIb to the working class. We performed most of our analysis for three separate class coding schemes - one based only on father's class, one based only on mother's class, and one that combined both but slightly favored father's class. All results were qualitatively similar. We prefer the third class schema over the first two, both for conceptual reasons (the class positions of both parents matter) and
measurement reasons (we have less missing data, since individuals are more likely to have valid data for either mother's or father's class than for only one of these). In creating this third "family class" measure, we followed four basic hierarchical coding rules:

1. As shown in Table S1, if either parent/guardian was in the salariat class, then the family was coded as salariat, regardless of the class position of the other parent/guardian.
2. Father's class was given higher priority in defining the working and intermediate class. As shown in Table S1, all children (who were not salariat according to rule 1 above) with intermediate or working class fathers were categorized according to their fathers' class, regardless of whether the mother was coded as either intermediate class or working class.
3. Students with missing data for one parent were classified according to the class of the parent whose class was observed.
4. If both parents' class locations were missing, students were assigned to a missing class category. (As described earlier, we then performed a complete case weighting adjustment for missing data.)

Notice that this coding was performed over the full panel dataset of 13,390 respondents, not the full-participation sample that defines our estimated models. See the prior section on the construction of the weights and the analysis sample.

## Coding of Performance Measures

Respondents were administered achievement tests for the base-year and first follow-up waves.
Base-year respondents were administered math and reading achievement tests, but only math tests were administered for the follow-up wave. However, not all follow-up respondents who were in the base-year wave completed the math test in 2004. Achievement tests were administered only to students who were enrolled in the participating base-year schools. Accordingly, test scores were imputed by the data distributors for transfer students and
homeschooled students, but dropouts and early graduates do not have test scores for the followup wave.

Of the 12,591 respondents in our full-participation subsample, all respondents have valid math and reading tests in the base-year (although some of these were imputed by NCES). For the first follow-up in 2004, we imputed twelfth grade math test scores for 1,811 of the 12,591 respondents in the full-participation sample. This was done using best-subset regression with the same predictor variables as in the calculation of the weights - family background, demographics, expectations, and significant others' influence - as well as both tenth grade math and reading tests. These imputations were for the dropouts and early graduates in 2004. The imputations are almost entirely inconsequential for our models. The high school graduation models use only base-year performance measures, and the college entry models do not include many of these dropouts (because most dropouts do not carry on to complete high school and hence do not end up in the 11,400 respondents on which those models were then estimated). These respondents, however, do contribute to the construction of the weights for the predicted probabilities (e.g., for panel [c] of Table 2), but only as a function of their base-year characteristics.

## ADDITIONAL RESULTS

## Models that Use Educational Groups Rather than Classes

For the ELS, variables for years of completed education are available for both parents. Like social class, we created a single three-category family education variable. For our first set of models using parental education, we chose a categorization (suggested by the Editor) that would be comparable to other contributions to the volume. Accordingly, High education refers to families where at least one parent had obtained a four-year college degree. Medium education refers to families where at least one parent had obtained a high school degree (but not a four-year
college degree). Low education refers to families where neither parent obtained a high school degree.

Table S2 cross-tabulates this measure of parental education across the class categories used in the main body of the chapter. The nine cells of the table define nine separate classeducation groups of varying sizes. The two largest categories are salariat with high levels of education ( $29.3 \%$ of the sample) and the working class with medium levels of education ( $22.9 \%$ of the sample). The smallest category is salariat with a low level of education (.8\% of the sample).

Tables S3 and S4 then provide substitute results for Tables 2 and 3 in the main body of the chapter, where the three education groups are substituted for the three classes. These results support the contention offered in the concluding section of the chapter that our coding of parents’ education is a more powerful single predictor of high school graduation and college entry than is class.
(Notice that the Ns for the high school graduation and college entry models are higher by 45 and 36 cases, respectively, in comparison to the models in the main body of the chapter that use only class. These are individuals who had missing data on class but no missing data on parents' education, because parents' education was imputed by the data distributors using student responses. As a result, the missing data adjustment for item-specific missing values for class is slightly misapplied in these models. Given the small numbers of cases concerned, the consequences of the misalignment are trivial.)

## Models that Use An Alternative Categorization of Educational Groups

In comparison to typical categorizations in the sociology of education in the United States, the "medium" category in the results just reported would be considered rather low. Accordingly, we also offer results, in Table S5 through S7, that move students from the medium to the low category if they have at least one parent with a high school degree but no parents with any college education.

Table S4 provides an alternative class-by-education cross tabulation to Table S2, which shifts families out of the medium and into the low category by moving those with at least one parent with a high school degree but no parent with any college education into the low category. This shift reduces the percent of the sample in the medium education category from 55.7 percent to 34.7 percent and increases the percent in the low education category from 6.2 percent to 27.1 percent. The high education category remains the same at 38.1 percent.

Tables S5 and S6 then provide alternative substitute results for Tables 2 and 3 in the main body of the chapter, where the three education groups from this second categorization are substituted for the three classes. As expected, this shift lowers the apparent explanatory power of education, since the low category is no longer as low. Still, in comparison to the results in the main body of the chapter, the education groups are still slightly more predictive than class. This does imply, however, that if class were changed similarly - perhaps restricting the salariat to a smaller percentage of the sample and moving others into the intermediate class - then the associations generated by the class categories would be a stronger.

## Models that Use Educational Groups and Classes

Tables S8 through S10 use the class and education categorizations together, based on the nine cells defined in the cross-tabulation reported in Table S2. Table S8 through S10 then report the
results from estimation of primary and secondary effects across all nine of these class-education groups. Each of these three tables offers predicted probabilities analogous to those of the three panels in Table 3 for class (as well as Tables S4 and S7 for education groups). However, now the estimated probabilities apply to class-education groups, such that each class is disaggregated into high, medium, and low education. Rather than three-by-three tables, we now have nine-bynine tables.

The predicted probabilities in these three tables are drawn from logits that correspond to those in Table 2 in the main body of the chapter, except that they also include main effects for education, interactions between education and performance, between class and education, and the three-way interaction between class, education, and performance. Each of the three models yields results that could be obtained from nine separate logit models, estimated separately for each class-education group with performance as the sole predictor variable in each. Tables S8 through S10 then offer the estimated probabilities for the three models, first for the model of high school graduation and then for the two models of college entry. The resulting estimates are presented in separate 81-cell tables, where the diagonal cells report the estimated transition rates for each of the nine class-education groups. The off-diagonal cells then report the what-if transition rates for class-education groups. As before, they are the transition rates that would be observed for each class-education group if they retained their levels of performance but instead passed through the transition regimes of the alternative eight class-education groups.

In general, the patterns in Tables S8 through S10 are unsurprising. For the high school graduation models in Table S8, all transition rates are conditionally monotonic in the levels of class and education. A higher level for either always leads to a higher transition rate, holding the other fixed. The only wrinkle, which we do not regard as surprising, is again that education
appears in general to be a stronger predictor than class, in the sense that higher levels of education tend to compensate well for lower levels of class. For example, sophomores from working class families with high education are more likely to graduate high school than sophomores from salariat class families with low education, as shown by the values of .880 and .755 on the main diagonal. The pattern holds quite generally throughout Table S 8 for similarly structured comparisons.

The pattern of estimated college entry probabilities is broadly similar to the pattern of estimated high school graduation probabilities, except that the rates of college entry are substantially lower (just as was shown earlier in Table 3). Only one anomaly appears. For both Tables S9 and S10, the class-by-education associations have one small reversal, such that within the salariat class, the rate of college entry is higher among those students from families with low education than among those students from families with intermediate education. Although a sole departure from conditional monotonicity is not surprising in a finite sample, especially when it is well within sampling error, it is nonetheless the case that this wrinkle in the pattern of associations could be genuine. Salariat families with low education may have disproportionately high levels of resources in comparison to salariat families with medium education, and these extra resources may allow them to send their children to college at higher rates. (This is but one conjecture. It could also be, for example, that these salariat families with low education are more likely to be immigrant families, for whom the coding of education was mistaken. In either case, such interpretations are a form of selection. Parents who have low education but nonetheless are in the salariat class are likely to have configurations of omitted variables that more strongly predispose their children to enter college.)

Finally, as with high school graduation, family education more strongly compensates for low class origins than vice versa. For example, for a high school graduate from a salariat class family with low education, the probability of entering college is only .283. In contrast, for a high school graduate from a working class family with high education, the probability of entering college is higher at .414. Generally, the within-class education association with college entry is stronger than the within-education class association with college entry.

Table S1. Family Class Coding Decisions, as Determined by Fathers' and Mothers' Social Class

| Father's Class | Mother's Class |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Salariat | Intermediate | Working | Missing | Total ( N and Row \%) |
| Salariat |  |  |  |  |  |
| N | 2,069 | 1,755 | 219 | 89 | 4,133 |
| \% of total | 15.5\% | 13.1\% | 1.6\% | 0.7\% | 30.9\% |
| Family Class | Salariat | Salariat | Salariat | Salariat |  |
| Intermediate |  |  |  |  |  |
| N | 1,337 | 2,207 | 324 | 84 | 3,953 |
| \% of total | 10.0\% | 16.5\% | 2.4\% | 0.6\% | 29.5\% |
| Family Class | Salariat | Intermediate | Intermediate | Intermediate |  |
| Working |  |  |  |  |  |
| N | 1,264 | 2,671 | 1,042 | 224 | 5,200 |
| \% of total | 9.4\% | 20.0\% | 7.8\% | 1.7\% | 38.8\% |
| Family Class | Salariat | Working | Working | Working |  |
| Missing |  |  |  |  |  |
| N | 13 | 40 | 23 | 28 | 105 |
| \% of total | 0.1\% | 0.3\% | 0.2\% | 0.2\% | 0.8\% |
| Family Class | Salariat | Intermediate | Working | Missing |  |
| Total |  |  |  |  |  |
| N | 4,683 | 6,674 | 1,609 | 424 | 13,390 |
| Column \% | 35.0\% | 49.8\% | 12.0\% | 3.2\% | 100\% |

Source: See Table 1.
Notes: Numbers do not add perfectly across rows and columns because the data are weighted and then cell sizes are rounded.

Table S2. Family Class by Parental Education for All High School Sophomores

| Education |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Class | High | Medium | Low | Total (N and Row \%) |
| Salariat |  |  |  |  |
| N | 3,677 | 2,558 | 98 | 6,333 |
| \% of total | 29.3\% | 20.4\% | . $8 \%$ | 50.5\% |
| Intermediate |  |  |  |  |
| N | 758 | 1,553 | 154 | 2,465 |
| \% of total | 6.0\% | 12.4\% | 1.2\% | 19.7\% |
| Working |  |  |  |  |
| N | 347 | 2,877 | 524 | 3,748 |
| \% of total | 2.8\% | 22.9\% | 4.2\% | 29.9\% |
| Total |  |  |  |  |
| N | 4,782 | 6,988 | 776 | 12,546 |
| Column \% | 38.1\% | 55.7\% | 6.2\% | 100\% |

Source: See Table 1.
Notes: Numbers do not add perfectly across rows and columns because the data are weighted and then cell sizes are rounded.

Table S3 (An Alternative to Table 2). Logit Models for High School Completion and College Entry, Using Parents' Education Instead of Class

|  | High School Graduation |  | College Entry <br> (Among HS Graduates) |  | College Entry (Weighted to the Distribution of all HS Sophomores) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Constant | $\begin{aligned} & 2.84 \\ & (.09) \end{aligned}$ | $\begin{aligned} & 2.91 \\ & (.10) \end{aligned}$ | $\begin{aligned} & .54 \\ & (.05) \end{aligned}$ | $\begin{gathered} .07 \\ (.05) \end{gathered}$ | $\begin{gathered} .46 \\ (.05) \end{gathered}$ | $\begin{gathered} .03 \\ (.05) \end{gathered}$ |
| Parents' Education: |  |  |  |  |  |  |
| Medium | $\begin{gathered} -.84 \\ (.10) \end{gathered}$ | $\begin{aligned} & -.51 \\ & (.11) \end{aligned}$ | $\begin{aligned} & -1.26 \\ & (.05) \end{aligned}$ | $\begin{aligned} & -.82 \\ & (.06) \end{aligned}$ | $\begin{gathered} -1.30 \\ (.05) \end{gathered}$ | $\begin{aligned} & -.84 \\ & (.06) \end{aligned}$ |
| Low | $\begin{aligned} & -1.66 \\ & (.14) \end{aligned}$ | $\begin{gathered} -1.19 \\ (.21) \end{gathered}$ | $\begin{aligned} & -2.00 \\ & (.13) \end{aligned}$ | $\begin{aligned} & -1.01 \\ & (.15) \end{aligned}$ | $\begin{aligned} & -2.07 \\ & (.13) \end{aligned}$ | $\begin{gathered} -1.05 \\ (.15) \end{gathered}$ |
| Performance |  | $\begin{aligned} & 1.05 \\ & (.09) \end{aligned}$ |  | $\begin{aligned} & 1.31 \\ & (.06) \end{aligned}$ |  | $\begin{aligned} & 1.33 \\ & (.06) \end{aligned}$ |
| x Medium |  | $\begin{aligned} & -.18 \\ & (.11) \end{aligned}$ |  | $\begin{aligned} & -.21 \\ & (.07) \end{aligned}$ |  | $\begin{aligned} & -.21 \\ & (.07) \end{aligned}$ |
| x Low |  | $\begin{aligned} & -.40 \\ & (.18) \end{aligned}$ |  | $\begin{aligned} & -.25 \\ & (.15) \end{aligned}$ |  | $\begin{aligned} & -.23 \\ & (.15) \end{aligned}$ |
| Wald Chi-Squared | 152.2 | 440.2 | 646.1 | 1,235.1 | 678.3 | 1,252.4 |
| $N$ | 12,591 | 12,591 | 11,436 | 11,436 | 11,436 | 11,436 |

Source: See Table 1.
Notes: Standard errors in parentheses.

Table S4 (An Alternative to Table 3). High School Graduation and College Entry Rates by Parents' Education

| Observed Parents' <br> Education | (a) High School Graduation Rates |  |  |
| :---: | :---: | :---: | :---: |
|  | What-if Parents' Education |  |  |
|  | High | Medium | Low |
| High | $.945$ | $.919$ | $.862$ |
| Medium | . 913 | . 881 | . 817 |
|  | (.007) | (.005) | (.018) |
| Low | . 872 | . 834 | . 765 |
|  | (.010) | (.007) | (.019) |
|  | (b) College Entry Rates (for High School Graduates Only) |  |  |
|  | What-if Parents' Education |  |  |
|  | High | Medium | Low |
| High | . 632 | . 456 | . 412 |
|  | (.009) | (.010) | (.038) |
| Medium | . 483 | . 327 | . 291 |
|  | (.010) | (.008) | (.026) |
| Low | . 333 | . 214 | . 189 |
|  | (.012) | (.008) | (.018) |
|  | (c) College Entry Rates (Weighted to the Distribution of all High School Sophomores) |  |  |
|  | What-if Parents' Education |  |  |
|  | High | Medium | Low |
| High | . 614 | . 435 | . 391 |
|  | (.0-0) | (.009) | (.037) |
| Medium | . 457 | . 303 | . 267 |
|  | (.010) | (.008) | (.025) |
| Low | . 308 | . 193 | . 167 |
|  | (.011) | (.008) | (.016) |

Source: See Table 1.
Notes: Observed transition rates on the diagonal and what-if transition rates on the off diagonal. Standard errors in parentheses.

Table S5 (An Alternative to Table S2). Family Class by Parents' Education for All High School Sophomores, with the Alternative Coding of Parents’ Education

| Education |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Class | High | Medium | Low | Total (N and Row \%) |
| Salariat |  |  |  |  |
| N | 3,677 | 1,839 | 817 | 6,333 |
| \% of total | 29.3\% | 14.7\% | 6.5\% | 50.5\% |
| Intermediate |  |  |  |  |
| N | 758 | 1,006 | 702 | 2,465 |
| \% of total | 6.0\% | 8.0\% | 5.6\% | 19.7\% |
| Working |  |  |  |  |
| N | 347 | 1,514 | 1,887 | 3,748 |
| \% of total | 2.8\% | 12.1\% | 15.0\% | 29.9\% |
| Total N | 4,782 | 4,358 | 3,406 | 12,546 |
| Column \% | 38.1\% | 34.7\% | 27.1\% | 100\% |

[^0]Notes: Numbers do not add perfectly across rows and columns because the data are weighted and then cell sizes are rounded.

Table S5 (An Alternative to Tables 2 and S3). Logit Models for High School Completion and College Entry, Using Parents' Education Instead of Class, with the Alternative Coding of Parents' Education

|  | High School Graduation |  | College Entry (Among HS Graduates) |  | College Entry (Weighted to the Distribution of all HS Sophomores) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Constant | $\begin{aligned} & 2.84 \\ & (.09) \end{aligned}$ | $\begin{aligned} & 2.91 \\ & (.10) \end{aligned}$ | $\begin{gathered} .54 \\ (.05) \end{gathered}$ | $\begin{gathered} .07 \\ (.05) \end{gathered}$ | $\begin{gathered} .46 \\ (.05) \end{gathered}$ | $\begin{gathered} .03 \\ (.05) \end{gathered}$ |
| Parents' Education: |  |  |  |  |  |  |
| Medium | $\begin{aligned} & -.67 \\ & (.10) \end{aligned}$ | $\begin{gathered} -.41 \\ (.12) \end{gathered}$ | $\begin{gathered} -1.10 \\ (.06) \end{gathered}$ | $\begin{aligned} & -.72 \\ & (.07) \end{aligned}$ | $\begin{gathered} -1.12 \\ (.06) \end{gathered}$ | $\begin{gathered} -.74 \\ (.07) \end{gathered}$ |
| Low | $\begin{gathered} -1.24 \\ (.10) \end{gathered}$ | $\begin{aligned} & -.79 \\ & (.13) \end{aligned}$ | $\begin{gathered} -1.65 \\ (.07) \end{gathered}$ | $\begin{gathered} -1.00 \\ (.08) \end{gathered}$ | $\begin{aligned} & -1.72 \\ & (.07) \end{aligned}$ | $\begin{aligned} & -1.03 \\ & (.08) \end{aligned}$ |
| Performance |  | $\begin{aligned} & 1.05 \\ & (.09) \end{aligned}$ |  | $\begin{aligned} & 1.31 \\ & (.06) \end{aligned}$ |  | $\begin{aligned} & 1.33 \\ & (.06) \end{aligned}$ |
| x Medium |  | $\begin{gathered} -.17 \\ (.11) \end{gathered}$ |  | $\begin{aligned} & -.25 \\ & (.08) \end{aligned}$ |  | $\begin{aligned} & -.26 \\ & (.08) \end{aligned}$ |
| x Low |  | $\begin{aligned} & -.24 \\ & (.12) \end{aligned}$ |  | $\begin{aligned} & -.20 \\ & (.08) \end{aligned}$ |  | $\begin{aligned} & -.19 \\ & (.09) \end{aligned}$ |
| Wald Chi-Squared | 145.6 | 436.3 | 655.2 | 1,281.5 | 692.3 | 1,298.7 |
| $N$ | 12,591 | 12,591 | 11,436 | 11,436 | 11,436 | 11,436 |

Source: See Table 1.
Notes: Standard errors in parentheses.

Table S7 (An Alternative to Tables 3 and S4). High School Graduation and College Entry Rates by Parents' Education, with the Alternative Coding of Parents' Education
(a) High School Graduation Rates

| Observed Parents' <br> Education | What-if Parents' Education |  |  |
| :--- | :--- | :--- | :--- |
|  | High | Medium | Low |
| High | .945 | .926 | .900 |
|  | $(.004)$ | $(.004)$ | $(.007)$ |
| Medium | .920 | .898 | .865 |
|  | $(.006)$ | $(.005)$ | $(.007)$ |
| Low | .895 | .870 | .833 |
|  | $(.008)$ | $(.007)$ | $(.008)$ |

(b) College Entry Rates (for High School Graduates Only)

What-if Parents' Education

|  | High | Medium | Low |
| :--- | :--- | :--- | :--- |
|  |  |  | .471 |
| High | .632 | $(.011)$ | $(.016)$ |
| Medium | $(.009)$ | .364 | .315 |
| Low | .508 | $(.010)$ | $(.012)$ |
|  | $(.010)$ | .292 | .247 |
|  | .415 | $(.010)$ | $(.010)$ |

(c) College Entry Rates (Weighted to the Distribution of all High School Sophomores)

What-if Parents' Education

|  | High | Medium | Low |
| :--- | :--- | :--- | :--- |
|  |  |  |  |
| High | .614 | .451 | .401 |
|  | $(.009)$ | $(.011)$ | $(.016)$ |
| Medium | .486 | $(.342$ | $(.012)$ |
|  | $(.010)$ | .267 | .222 |
| Low | .386 | $(.010)$ | $(.009)$ |

Source: See Table 1.
Notes: Observed transition rates on the diagonal and what-if transition rates on the off diagonal. Standard errors in parentheses.

Table S8. High School Graduation Rates by Class Origins and Parents' Education

| Observed ClassEducation Group | What-if Class-Education Group |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Salariat <br> High Ed | Salariat <br> Med. Ed | Salariat <br> Low Ed | Intermed. High Ed | Intermed. Med. Ed | Intermed. Low Ed | Working High Ed | Working <br> Med. Ed | Working Low Ed |
| Salariat | . 956 | . 936 | . 838 | . 949 | . 927 | . 881 | . 935 | . 920 | . 874 |
| High Education | (.004) | (.006) | (.053) | (.009) | (.009) | (.043) | (.016) | (.006) | (.026) |
| Salariat | . 933 | . 907 | . 803 | . 921 | . 897 | . 832 | . 898 | . 884 | . 838 |
| Medium Education | (.007) | (.008) | (.051) | (.012) | (.010) | (.042) | (.020) | (.007) | (.024) |
| Salariat | . 894 | . 861 | . 755 | . 874 | . 849 | . 755 | . 832 | . 827 | . 786 |
| Low Education | (.014) | (.015) | (.057) | (.021) | (.016) | (.044) | (.032) | (.015) | (.025) |
| Intermediate | . 933 | . 909 | . 809 | . 922 | . 899 | . 837 | . 898 | . 887 | . 843 |
| High Education | (.008) | (.008) | (.050) | (.012) | (.010) | (.038) | (.020) | (.008) | (.023) |
| Intermediate | . 921 | . 893 | . 789 | . 907 | . 883 | . 809 | . 877 | . 867 | . 823 |
| Medium Education | (.008) | (.009) | (.052) | (.015) | (.011) | (.040) | (.023) | (.008) | (.023) |
| Intermediate | . 884 | . 850 | . 744 | . 862 | . 838 | . 737 | . 816 | . 814 | . 774 |
| Low Education | (.014) | (.016) | (.060) | (.023) | (.017) | (.043) | (.035) | (.015) | (.024) |
| Working | . 923 | . 896 | . 793 | . 909 | . 886 | . 814 | . 880 | . 871 | . 827 |
| High Education | (.009) | (.010) | (.051) | (.015) | (.011) | (.040) | (.023) | (.010) | (.023) |
| Working | . 914 | . 885 | . 779 | . 898 | . 874 | . 794 | . 866 | . 857 | . 813 |
| Medium Education | (.009) | (.010) | (.053) | (.016) | (.011) | (.040) | (.025) | (.009) | (.022) |
| Working | . 886 | . 853 | . 746 | . 865 | . 841 | . 741 | . 820 | . 817 | . 777 |
| Low Education | (.013) | (.014) | (.060) | (.022) | (.015) | (.043) | (.032) | (.011) | (.023) |

Source: See Table 1.
Notes: Observed transition rates on the diagonal and what-if transition rates on the off diagonal. Standard errors in parentheses.

Table S9. College Entry by Class Origins and Parents' Education for High School Graduates Only

| Observed Class- <br> Education Group | What-if Class-Education Group |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Salariat <br> High Ed | Salariat <br> Med. Ed | Salariat Low Ed | Intermed. High Ed | Intermed. Med. Ed | Intermed. Low Ed | Working High Ed | Working <br> Med. Ed | Working Low Ed |
| Salariat | . 667 | . 469 | . 522 | . 652 | . 517 | . 279 | . 554 | . 460 | . 451 |
| High Education | (.012) | (.015) | (.125) | (.021) | (.019) | (.090) | (.037) | (.018) | (.042) |
| Salariat | . 540 | . 356 | . 410 | . 512 | . 393 | . 213 | . 423 | . 346 | . 333 |
| Medium Education | (.013) | (.013) | (.096) | (.023) | (.017) | (.058) | (.032) | (.014) | (.032) |
| Salariat | . 374 | . 234 | . 283 | . 334 | . 256 | . 148 | . 273 | . 226 | . 211 |
| Low Education | (.039) | (.030) | (.068) | (.046) | (.034) | (.038) | (.043) | (.029) | (.033) |
| Intermediate | . 573 | . 391 | . 444 | . 551 | . 431 | . 235 | . 462 | . 382 | . 371 |
| High Education | (.017) | (.017) | (.103) | (.025) | (.019) | (.070) | (.034) | (.018) | (.036) |
| Intermediate | . 495 | . 320 | . 374 | . 463 | . 354 | . 194 | . 380 | . 311 | . 297 |
| Medium Education | (.015) | (.013) | (.087) | (.024) | (.016) | (.050) | (.030) | (.014) | (.029) |
| Intermediate | . 361 | . 219 | . 269 | . 318 | . 240 | . 140 | . 257 | . 211 | . 196 |
| Low Education | (.029) | (.021) | (.067) | (.036) | (.024) | (.034) | (.035) | (.020) | (.026) |
| Working | . 525 | . 349 | . 402 | . 498 | . 385 | . 211 | . 414 | . 340 | . 328 |
| High Education | (.021) | (.019) | (.094) | (.029) | (.022) | (.058) | (.034) | (.019) | (.033) |
| Working | . 463 | . 295 | . 348 | . 427 | . 325 | . 180 | . 350 | . 286 | . 272 |
| Medium Education | (.014) | (.012) | (.080) | (.024) | (.015) | (.045) | (.029) | (.012) | (.026) |
| Working | . 345 | . 208 | . 258 | . 301 | . 228 | . 134 | . 243 | . 200 | . 185 |
| Low Education | (.018) | (.014) | (.064) | (.028) | (.017) | (.033) | (.029) | (.012) | (.021) |

Source: See Table 1.
Notes: Observed transition rates on the diagonal and what-if transition rates on the off diagonal. Standard errors in parentheses.

Table S10. College Entry Rates by Class Origins and Parent's Education, Weighted to the Distribution of all High School Sophomores

| Observed Class- <br> Education Group | What-if Class-Education Group |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Salariat <br> High Ed | Salariat <br> Med. Ed | Salariat <br> Low Ed | Intermed. High Ed | Intermed. Med. Ed | Intermed. Low Ed | Working High Ed | Working <br> Med. Ed | Working Low Ed |
| Salariat | . 654 | . 450 | . 511 | . 637 | . 501 | . 270 | . 535 | . 441 | . 427 |
| High Education | (.012) | (.015) | (.123) | (.022) | (.019) | (.087) | (.037) | (.018) | (.043) |
| Salariat | . 520 | . 334 | . 393 | . 489 | . 371 | . 199 | . 396 | . 324 | . 306 |
| Medium Education | (.014) | (.013) | (.095) | (.024) | (.017) | (.054) | (.031) | (.013) | (.031) |
| Salariat | . 349 | . 211 | . 260 | . 308 | . 231 | . 131 | . 242 | . 203 | . 185 |
| Low Education | (.038) | (.028) | (.066) | (.045) | (.032) | (.034) | (.040) | (.027) | (.031) |
| Intermediate | . 552 | . 367 | . 425 | . 526 | . 408 | . 221 | . 435 | . 358 | . 343 |
| High Education | (.018) | (.017) | (.100) | (.025) | (.019) | (.065) | (.034) | (.018) | (.035) |
| Intermediate | . 468 | . 294 | . 351 | . 434 | . 326 | . 177 | . 347 | . 285 | . 267 |
| Medium Education | (.015) | (.013) | (.084) | (.024) | (.016) | (.046) | (.029) | (.013) | (.028) |
| Intermediate | . 333 | . 196 | . 245 | . 288 | . 213 | . 122 | . 223 | . 187 | . 168 |
| Low Education | (.028) | (.020) | (.064) | (.035) | (.023) | (.031) | (.032) | (.019) | (.025) |
| Working | . 497 | . 322 | . 378 | . 467 | . 357 | . 194 | . 380 | . 313 | . 296 |
| High Education | (.022) | (.019) | (.090) | (.029) | (.022) | (.053) | (.033) | (.019) | (.032) |
| Working | . 439 | . 272 | . 328 | . 402 | . 301 | . 164 | . 319 | . 263 | . 244 |
| Medium Education | (.014) | (.012) | (.078) | (.024) | (.015) | (.041) | (.028) | (.012) | (.025) |
| Working | . 324 | . 189 | . 238 | . 279 | . 206 | . 119 | . 215 | . 181 | . 162 |
| Low Education | (.018) | (.014) | (.062) | (.028) | (.016) | (.030) | (.026) | (.012) | (.019) |

Source: See Table 1.
Notes: Observed transition rates on the diagonal and what-if transition rates on the off diagonal. Standard errors in parentheses.


[^0]:    Source: See Table 1.

