

## OLS Residual Models for First-year students ( $N=610$ ):

**Predicted Level of Academic Challenge**=47.788 + 1.171\*selectivity + 2.697\*sector - .389\*rural - 2.347\*small town - 2.632\*large town - 1.417\*fringe1 - 1.276\*mid-size - .833\*fringe2 - 1.012\*Extensive - .157\*Intensive + 1.956\*Liberal arts + .642\*General + .398\*Other Carnegie + 2.719\*on campus + 2.689\*full-time - .703\*humanities - 2.624\*math - 5.711\*preprofessional - 5.709\*multiple - 1.589\*Alien - .764\*Asian + 2.561\*Black + 2.958\*Latina/o - 1.716\*Native American - .064\*Unknown  
*Adjusted R*<sup>2</sup>=.58

**Predicted Active and Collaborative Learning**=26.384 + 3.279\*sector - 2.891\*Extensive - 1.309\*Intensive + .625\*Liberal arts + .617\*General + 2.462\*Other Carnegie + 3.877\*on campus + 4.366\*full-time + .197\*age + 4.575\*humanities + 4.851\*math - .051\*preprofessional + .370\*multiple + 3.691\*Alien - .505\*Asian + 6.381\*Black + 7.708\*Latina/o + 9.159\*Native American - .943\*Unknown  
*Adjusted R*<sup>2</sup>=.44

**Predicted Student-faculty Interaction**=35.899 + 3.235\*sector - .131\*enrollment + .086\*Extensive + .079\*Intensive + 2.426\*Liberal arts - .218\*General + 3.492\*Other Carnegie + 4.311\*on campus - .3451\*humanities - 2.222\*math - 7.459\*preprofessional - 8.136\*multiple + 5.053\*Alien - 7.186\*Asian + 6.295\*Black + 6.175\*Latina/o + 11.939\*Native American - 4.449\*Unknown  
*Adjusted R*<sup>2</sup>=.46

**Predicted Enriching Educational Experiences**=67.184 + 1.484\*selectivity + 3.607\*sector + .501\*Extensive + .358\*Intensive + 3.207\*Liberal arts - .132\*General - 2.020\*Other Carnegie + 4.987\*on campus - .637\*age - .700\*humanities - 13.676\*math - 17.588\*preprofessional - 12.505\*multiple + 14.185\*Alien + 7.049\*Asian + 9.629\*Black + 10.868\*Latina/o + 39.427\*Native American + 3.389\*Unknown  
*Adjusted R*<sup>2</sup>=.66

**Predicted Supportive Campus Environment**=50.698 + 4.182\*sector - 2.756\*Extensive - 2.036\*Intensive + .983\*Liberal arts + .835\*General + 1.921\*Other Carnegie + 5.702\*on campus + 4.387\*full-time - 2.581\*Alien - 9.273\*Asian - .694\*Black + 11.089\*Latina/o + 6.997\*Native American - 5.109\*Unknown  
*Adjusted R*<sup>2</sup>=.49

Notes: (1) Residual models initially contained all independent variables listed below. Model reduction proceeded one variable at a time; each iteration removed the variable associated with the largest  $p$  value. For all but dummied variables with more than two categories, we removed variables that did not yield significant coefficients ( $p < .05$  with two-tailed tests). For urbanicity, 2000 Carnegie Classification, major field, and race/ethnicity, we tested whether all dummy coefficients for each variable were simultaneously equal to zero. If Wald tests suggested that we could not reject the null hypothesis (chi-square,  $p < .05$ ), we dropped the variable from the model (with its attendant dummy variables), and (2) As the independent variables were not mean-centered in any way, model intercepts have no special interpretation.

**Independent Variables:** selectivity - *Barron's* 2001 admissions selectivity (1 to 6 – recoded so that higher is more selective)  
**(First-year students)** sector (private=1, public=0)  
enrollment (undergraduate, in thousands)  
urbanicity (from IPEDS, large city is the reference category)  
- rural  
- small town  
- large town  
- fringe1 (fringe of mid-size city)  
- mid-size (city)  
- fringe2 (fringe of large city)  
2000 Carnegie Classification (Master's institutions are the reference classification)  
- Extensive (Doctoral/Research Universities)  
- Intensive (Doctoral/Research Universities)  
- Liberal Arts (BA)  
- General (BA)  
- Other Carnegie (Classifications greater than 32)  
on campus (proportion first-year students who report living on campus or in Greek housing)  
female (proportion female first-year students from IPEDS)  
full-time (proportion full-time first-year students from IPEDS)  
age (mean for first-year students)  
major field (proportion of first-year students who self-report each; social sciences is the reference category)  
- humanities  
- math  
- preprofessional  
- multiple (fields)  
race/ethnicity (proportion of first-year students from IPEDS; White is the reference category)  
- Alien  
- Asian  
- Black  
- Latina/o  
- Native American  
- Unknown

## OLS Residual Models for Seniors ( $N=613$ ):

**Predicted Level of Academic Challenge**=48.638 + .602\*selectivity + 2.234\*sector - 1.125\*Extensive - .816\*Intensive + 1.266\*Liberal arts + .300\*General + .460\*Other Carnegie + 1.533\*on campus + 4.245\*female + 6.586\*full-time - 2.153\*humanities - 3.025\*math - 6.684\*preprofessional - 5.772\*multiple - 4.899\*Alien + 4.486\*Asian + 1.062\*Black + 3.131\*Latina/o + 9.621\*Native American + 3.946\*Unknown  
*Adjusted R*<sup>2</sup>=.56

**Predicted Active and Collaborative Learning**=34.963 + 1.839\*sector + 1.184\*rural + 1.132\*small town + .932\*large town + .987\*fringe1 + .598\*mid-size - .452\*fringe2 - .079\*enrollment - 2.392\*Extensive - 1.938\*Intensive + .114\*Liberal arts - .069\*General + .730\*Other Carnegie + 5.904\*female + 9.331\*full-time - .008\*humanities + 4.894\*math + 4.039\*preprofessional + 2.936\*multiple - 3.934\*Alien - 3.470\*Asian + 4.624\*Black + 4.760\*Latina/o + 27.944\*Native American + 5.445\*Unknown  
*Adjusted R*<sup>2</sup>=.44

**Predicted Student-faculty Interaction**=40.864 + 2.178\*sector + 1.849\*rural + 1.802\*small town + 1.766\*large town + 1.042\*fringe1 + .639\*mid-size - .526\*fringe2 - 2.553\*Extensive - 1.378\*Intensive + 3.242\*Liberal arts + .461\*General + .328\*Other Carnegie + 4.896\*on campus + 5.452\*female + 9.382\*full-time - .350\*age - 2.938\*humanities - .135\*math + 4.243\*preprofessional - 3.791\*multiple - 2.745\*Alien - 10.524\*Asian + 6.357\*Black + .938\*Latina/o + 20.284\*Native American - .905\*Unknown  
*Adjusted R*<sup>2</sup>=.66

**Predicted Enriching Educational Experiences**=44.007 + .553\*selectivity + 2.556\*sector - 1.198\*rural - 1.055\*small town + 1.189\*large town - .350\*fringe1 + .129\*mid-size - 1.971\*fringe2 - .336\*Extensive - .107\*Intensive + 3.397\*Liberal arts + .651\*General - 1.793\*Other Carnegie + 5.093\*on campus + 6.799\*female + 10.219\*full-time - .381\*age + .638\*humanities - .5.722\*math - 7.917\*preprofessional - 4.557\*multiple + 9.586\*Alien + 3.349\*Asian + 6.903\*Black + 5.804\*Latina/o + 36.270\*Native American + 8.162\*Unknown  
*Adjusted R*<sup>2</sup>=.66

**Predicted Supportive Campus Environment**=49.198 + 5.086\*sector + 2.598\*rural + 3.017\*small town + 4.188\*large town + 1.796\*fringe1 + 1.666\*mid-size + 1.027\*fringe2 - 3.073\*Extensive - 2.257\*Intensive + .584\*Liberal arts + .564\*General + .418\*Other Carnegie + 2.668\*on campus + 3.449\*female + 4.342\*full-time + .216\*humanities - 4.450\*math - .643\*preprofessional - 4.510\*multiple - 2.159\*Alien + .161\*Asian - 1.208\*Black + 4.857\*Latina/o + 15.056\*Native American - 8.693\*Unknown  
*Adjusted R*<sup>2</sup>=.48

Notes: (1) Residual models initially contained all independent variables listed below. Model reduction proceeded one variable at a time; each iteration removed the variable associated with the largest  $p$  value. For all but dummied variables with more than two categories, we removed variables that did not yield significant coefficients ( $p < .05$  with two-tailed tests). For urbanicity, 2000 Carnegie Classification, major field, and race/ethnicity, we tested whether all dummy coefficients for each variable were simultaneously equal to zero. If Wald tests suggested that we could not reject the null hypothesis (chi-square,  $p < .05$ ), we dropped the variable from the model (with its attendant dummy variables), and (2) As the independent variables were not mean-centered in any way, model intercepts have no special interpretation.

**Independent Variables:** selectivity - *Barron's* 2001 admissions selectivity (1 to 6 – recoded so that higher is more selective)  
**(Seniors)** sector (private=1, public=0)  
enrollment (undergraduate, in thousands)  
urbanicity (from IPEDS, large city is the reference category)  
- rural  
- small town  
- large town  
- fringe1 (fringe of mid-size city)  
- mid-size (city)  
- fringe2 (fringe of large city)  
2000 Carnegie Classification (Master's is the reference category)  
- Extensive (Doctoral/Research Universities)  
- Intensive (Doctoral/Research Universities)  
- Liberal Arts (BA)  
- General (BA)  
- Other Carnegie (Classifications greater than 32)  
on campus (proportion seniors who report living on campus or in Greek housing)  
female (proportion female seniors from IPEDS)  
full-time (proportion full-time seniors from IPEDS)  
age (mean for seniors)  
major field (proportion of seniors who self-report each; social sciences is the reference category)  
- humanities  
- math  
- preprofessional  
- multiple (fields)  
race/ethnicity (proportion of seniors from IPEDS; White is the reference category)  
- Alien  
- Asian  
- Black  
- Latina/o  
- Native American  
- Unknown