Appendix

TABLE A1
Robustness: First Stage: Actual and Simulated Endowments

	Ln Actual Endowment (3-Yr Avg)		
	Baseline Endowment	Pre-trend Endowment	Investment Variance
	(1)	(2)	(3)
Ln Simulated Endowment (3-Yr Avg)	0.771***	0.836***	0.885***
	(0.099)	(0.109)	(0.105)
Mean Dep	19.63	19.63	19.63
Observations	3,417	3,456	3,416

Note: This table presents estimates of the effect of changes in simulated endowment levels on changes in actual endowment levels using alternative methods of grouping institutions. Simulated endowments are created using annual investment returns. Under institutional rules, spending from the endowment is based on average levels over the prior three years. Thus, the simulated and actual endowment levels in this analysis are three-year rolling averages. The estimates are presented for three different methods of grouping colleges and universities. Columns 1 through 3 are grouped by: baseline endowment level, pre-trend in endowment growth, and variance in investment returns. Specifications include institution fixed effects and fixed effects for each group-by-year. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A2
Robustness: Expenditure Per Student by Category

	Core Expenses	Instruction	Academic Support	Student Services	Aux Enterprise	Institutional Support	Research
Grouped by US News and Baseline Endowment							
LnEndowment (3-Yr Avg)	25,538***	8,503***	1,461	3,128***	4,889**	5,825***	1,730
	(6,595)	(2,783)	(1,354)	(766)	(2,158)	(1,446)	(1,172)
Mean Dep	57,135	21,705	5,967	6,581	7,980	8,988	5,911
Observations	3,417	3,417	3,417	3,417	3,417	3,417	3,417
Grouped by US News and Return Pretrends							
LnEndowment (3-Yr Avg)	20,640***	6,976***	662	2,421***	3,892**	4,962***	1,725
	(5,048)	(2,211)	(1,138)	(656)	(1,636)	(1,069)	(1,268)
Mean Dep	57,135	21,705	5,967	6,581	7,980	8,988	5,911
Observations	3,456	3,456	3,456	3,456	3,456	3,456	3,456
Grouped by US News and Baseline Outcome							
LnEndowment (3-Yr Avg)	23,351***	7,957***	1,065	2,597***	4,224**	5,565***	1,942*
	(5,953)	(2,491)	(1,236)	(700)	(1,992)	(1,294)	(1,066)
Mean Dep	57,135	21,705	5,967	6,581	7,980	8,988	5,911
Observations	3,472	3,472	3,472	3,472	3,472	3,472	3,472
Grouped by US News and Outcome Pretrends							
LnEndowment (3-Yr Avg)	21,008***	7,596***	916	2,673***	3,823**	5,281***	717.648
	(5,021)	(2,259)	(1,220)	(675)	(1,748)	(1,087)	(805)
Mean Dep	57,135	21,705	5,967	6,581	7,980	8,988	5,911
Observations	3,474	3,474	3,474	3,474	3,474	3,474	3,474
Grouped by US News and Return Variance							
LnEndowment (3-Yr Avg)	23,701***	8,284***	1,080	2,976***	4,273**	5,475***	1,610*
	(5,245)	(2,558)	(1,086)	(691)	(1,765)	(1,339)	(851)
Mean Dep	57,135	21,705	5,967	6,581	7,980	8,988	5,911
Observations	3,416	3,416	3,416	3,416	3,416	3,416	3,416

Note: This table presents estimates of the effect of endowments on expenditures for core operating categories using alternative methods of grouping institutions. Simulated endowments are created using annual investment returns. Under institutional rules, spending from the endowment is based on average levels over the prior three years. Thus, the simulated and actual endowment levels in this analysis are three-year rolling averages. The estimates are presented for five different methods of grouping colleges and universities. Specifically, the panels are grouped by: baseline endowment level, pre-trend in endowment growth, variance in investment returns, baseline expenditures per student, and pre-trends in expenditures per student. Specifications include institution fixed effects and fixed effects for each group-by-year. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A3
Robustness: Expenditure Per Student by Category: Natural Log

	Core Expenses	Instruction	Academic Support	Student Services	Aux Enterprise	Institutional Support	Research
Grouped by US News and Baseline Endowment							
LnEndowment (3-Yr Avg)	0.296***	0.222***	0.233	0.358***	0.235*	0.477***	0.179
	(0.054)	(0.069)	(0.135)	(0.115)	(0.123)	(0.119)	(0.148)
Mean Dep	57,135.24	21,705.80	5,967.29	6,581.09	7,980.35	8,988.84	5,911.87
Observations	3,417	3,417	3,417	3,417	3,417	3,417	3,417
Grouped by US News and Return Pretrends							
LnEndowment (3-Yr Avg)	0.244***	0.192**	0.126	0.280**	0.167	0.435***	0.202
	(0.052)	(0.066)	(0.131)	(0.102)	(0.105)	(0.097)	(0.138)
Mean Dep	57,135.24	21,705.80	5,967.29	6,581.09	7,980.35	8,988.84	5,911.87
Observations	3,456	3,456	3,456	3,456	3,456	3,456	3,456
Grouped by US News and Baseline Outcome							
LnEndowment (3-Yr Avg)	0.254***	0.196***	0.146	0.287**	0.179	0.449***	0.169
	(0.049)	(0.062)	(0.119)	(0.101)	(0.113)	(0.107)	(0.142)
Mean Dep	57,135.24	21,705.80	5,967.29	6,581.09	7,980.35	8,988.84	5,911.87
Observations	3,472	3,472	3,472	3,472	3,472	3,472	3,472
Grouped by US News and Outcome Pretrends							
LnEndowment (3-Yr Avg)	0.270***	0.226***	0.217	0.324***	0.183	0.454***	0.226
	(0.048)	(0.058)	(0.133)	(0.098)	(0.108)	(0.096)	(0.134)
Mean Dep	57,135.24	21,705.80	5,967.29	6,581.09	7,980.35	8,988.84	5,911.87
Observations	3,474	3,474	3,474	3,474	3,474	3,474	3,474
Grouped by US News and Return Variance							
LnEndowment (3-Yr Avg)	0.264***	0.221***	0.187	0.345***	0.165	0.425***	0.170
	(0.049)	(0.063)	(0.120)	(0.091)	(0.115)	(0.110)	(0.153)
Mean Dep	57,135.24	21,705.80	5,967.29	6,581.09	7,980.35	8,988.84	5,911.87
Observations	3,416	3,416	3,416	3,416	3,416	3,416	3,416

Note: This table presents estimates of the effect of endowments on the natural log of expenditures for core operating categories using alternative methods of grouping institutions. Simulated endowments are created using annual investment returns. Under institutional rules, spending from the endowment is based on average levels over the prior three years. Thus, the simulated and actual endowment levels in this analysis are three-year rolling averages. The estimates are presented for five different methods of grouping colleges and universities. Specifically, the panels are grouped by: baseline endowment level, pre-trend in endowment growth, variance in investment returns, baseline expenditures per student, and pre-trends in expenditures per student. Specifications include institution fixed effects and fixed effects for each group-by-year. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A4
Robustness: Enrollment (Full-Time Equivalents)

	Total	Natural Log Undergrad	Freshman
Grouped by US News and Baseline Endowment			
LnEndowment (3-Yr Avg)	-0.095*	-0.082	-0.083
	(0.050)	(0.051)	(0.055)
Mean Dep	4,824.33	3,277.21	791.10
Observations	3,417	3,417	3,417
Grouped by US News and Return Pretrends			
LnEndowment (3-Yr Avg)	-0.073	-0.066	-0.070
	(0.050)	(0.051)	(0.053)
Mean Dep	4,824.33	3,277.21	791.10
Observations	3,456	3,456	3,456
Grouped by US News and Baseline Outcome			
LnEndowment (3-Yr Avg)	-0.043	-0.038	-0.045
	(0.045)	(0.047)	(0.055)
Mean Dep	4,824.33	3,277.21	791.10
Observations	3,474	3,474	3,474
Grouped by US News and Outcome Pretrends			
LnEndowment (3-Yr Avg)	-0.067	-0.052	-0.059
	(0.044)	(0.044)	(0.050)
Mean Dep	4,824.33	3,277.21	791.10
Observations	3,474	3,474	3,474
Grouped by US News and Return Variance			
LnEndowment (3-Yr Avg)	-0.061	-0.053	-0.063
	(0.045)	(0.046)	(0.050)
Mean Dep	4,824.33	3,277.21	791.10
Observations	3,416	3,416	3,416

Note: This table presents estimates of the effect of endowments on student enrollment using alternative methods of grouping institutions. Total, undergraduate, and freshman enrollment are measured in terms of full-time equivalents, with part-time students counting for 0.5 FTEs. Simulated endowments are created using annual investment returns. Under institutional rules, spending from the endowment is based on average levels over the prior three years. Thus, the simulated and actual endowment levels in this analysis are three-year rolling averages. The estimates are presented for five different methods of grouping colleges and universities. Specifically, the panels are grouped by: baseline endowment level, pre-trend in endowment growth, variance in investment returns, baseline enrollment, and pre-trends in enrollment. Specifications include institution fixed effects and fixed effects for each group-by-year. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A5
Robustness: List Price Tuition and Room and Board

	Total List Price	Tuition	Room and Board
Grouped by US News and Baseline Endowment			
LnEndowment (3-Yr Avg)	585.04	-212.77	797.81
	(1,596.66)	(1,262.36)	(545.53)
Mean Dep	51,226.01	39,700.17	11,525.85
Observations	3,375	3,375	3,375
Grouped by US News and Return Pretrends			
LnEndowment (3-Yr Avg)	908.02	100.09	807.93
	(1,570.61)	(1,225.44)	(535.75)
Mean Dep	51,226.01	39,700.17	11,525.85
Observations	3,414	3,414	3,414
Grouped by US News and Baseline Outcome			
LnEndowment (3-Yr Avg)	633.81	-182.47	816.29
	(1,429.36)	(1,129.79)	(470.80)
Mean Dep	51,226.01	39,700.17	11,525.85
Observations	3,411	3,411	3,411
Grouped by US News and Outcome Pretrends			
LnEndowment (3-Yr Avg)	631.28	-259.37	890.66*
	(1,354.96)	(1,056.48)	(494.27)
Mean Dep	51,226.01	39,700.17	11,525.85
Observations	3,432	3,432	3,432
Grouped by US News and Return Variance			
LnEndowment (3-Yr Avg)	1,151.93	366.75	785.17
	(1,446.80)	(1,155.43)	(489.55)
Mean Dep	51,226.01	39,700.17	11,525.85
Observations	3,374	3,374	3,374

Note: This table presents estimates of the effect of endowments on list price tuition and room and board using alternative methods of grouping institutions. Simulated endowments are created using annual investment returns. Under institutional rules, spending from the endowment is based on average levels over the prior three years. Thus, the simulated and actual endowment levels in this analysis are three-year rolling averages. The estimates are presented for five different methods of grouping colleges and universities. Specifically, the panels are grouped by: baseline endowment level, pre-trend in endowment growth, variance in investment returns, baseline tuition and room and board, and pre-trends in tuition and room and board. Specifications include institution fixed effects and fixed effects for each group-by-year. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A6
Robustness: Percent of Freshman Receiving Aid

	Any Aid	Federal Grants	State Grants	College Grants	Loans
Grouped by US News and Baseline Endowment					
LnEndowment (3-Yr Avg)	-2.130	-3.380	1.110	-3.634	-10.591***
	(2.981)	(2.422)	(4.544)	(3.599)	(3.518)
Mean Dep	81.99	20.88	23.77	76.32	53.37
Observations	3,414	3,414	3,414	3,414	3,414
Grouped by US News and Return Pretrends					
LnEndowment (3-Yr Avg)	-2.946	-2.936	-0.288	-5.008	-7.901**
	(2.789)	(2.454)	(4.193)	(3.309)	(3.056)
Mean Dep	81.99	20.88	23.77	76.32	53.37
Observations	3,453	3,453	3,453	3,453	3,453
Grouped by US News and Baseline Outcome					
LnEndowment (3-Yr Avg)	-2.930	-3.051	1.126	-4.378	-9.293***
	(2.768)	(2.249)	(4.000)	(3.447)	(3.157)
Mean Dep	81.99	20.88	23.77	76.32	53.37
Observations	3,435	3,435	3,435	3,435	3,435
Grouped by US News and Outcome Pretrends					
LnEndowment (3-Yr Avg)	-2.135	-2.307	0.595	-3.455	-8.463***
	(2.458)	(2.137)	(3.796)	(3.032)	(2.851)
Mean Dep	81.99	20.88	23.77	76.32	53.37
Observations	3,469	3,469	3,469	3,469	3,469
Grouped by US News and Return Variance					
LnEndowment (3-Yr Avg)	-2.968	-3.212	-0.449	-5.612*	-9.167**
	(2.185)	(2.223)	(4.041)	(3.122)	(3.258)
Mean Dep	81.99	20.88	23.77	76.32	53.37
Observations	3,412	3,412	3,412	3,412	3,412

Note: This table presents estimates of the effect of endowments on the rate of receipt of financial aid using alternative methods of grouping institutions. Simulated endowments are created using annual investment returns. Under institutional rules, spending from the endowment is based on average levels over the prior three years. Thus, the simulated and actual endowment levels in this analysis are three-year rolling averages. The estimates are presented for five different methods of grouping colleges and universities. Specifically, the panels are grouped by: baseline endowment level, pre-trend in endowment growth, variance in investment returns, baseline percent receiving federal aid, and pre-trends in receiving federal aid. Specifications include institution fixed effects and fixed effects for each group-by-year. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A7
Robustness: Average Aid Per Freshman Recipient

	Federal Grants	State Grants	Institutional Grants	Loans	Net Price
Grouped by US News and Baseline Endowment					
LnEndowment (3-Yr Avg)	-552.86	-978.22*	4,022.79**	-413.59	-842.96
	(649.34)	(555.82)	(1,789.18)	(714.69)	(1,565.50)
Mean Dep	5,662.99	4,206.87	23,053.54	6,910.33	32,502.40
Observations	3,414	3,414	3,414	3,414	3,413
Grouped by US News and Return Pretrends					
LnEndowment (3-Yr Avg)	-295.02	-799.24	4,143.04**	-477.17	166.76
	(461.75)	(511.44)	(1,642.83)	(582.16)	(1,395.83)
Mean Dep	5,662.99	4,206.87	23,053.54	6,910.33	32,502.40
Observations	3,453	3,453	3,453	3,453	3,452
Grouped by US News and Baseline Outcome					
LnEndowment (3-Yr Avg)	-474.85	-627.15	4,952.24***	-534.81	-734.75
	(601.71)	(482.10)	(1,660.61)	(589.47)	(1,555.23)
Mean Dep	5,662.99	4,206.87	23,053.54	6,910.33	32,502.40
Observations	3,435	3,435	3,435	3,435	3,434
Grouped by US News and Outcome Pretrends					
LnEndowment (3-Yr Avg)	-778.48	-564.60	4,041.22**	-340.97	-212.26
	(563.33)	(456.91)	(1,515.98)	(552.45)	(1,232.83)
Mean Dep	5,662.99	4,206.87	23,053.54	6,910.33	32,502.40
Observations	3,469	3,469	3,469	3,469	3,468
Grouped by US News and Return Variance					
LnEndowment (3-Yr Avg)	-449.60	-734.46	4,961.13**	32.58	-700.48
	(485.87)	(450.10)	(1,745.59)	(673.83)	(1,285.62)
Mean Dep	5,662.99	4,206.87	23,053.54	6,910.33	32,502.40
Observations	3,412	3,412	3,412	3,412	3,411

Note: This table presents estimates of the effect of endowments on average amounts of financial aid received by incoming freshmen (conditional on receipt) using alternative methods of grouping institutions. Simulated endowments are created using annual investment returns. Under institutional rules, spending from the endowment is based on average levels over the prior three years. Thus, the simulated and actual endowment levels in this analysis are three-year rolling averages. The estimates are presented for five different methods of grouping colleges and universities. Specifically, the panels are grouped by: baseline endowment level, pre-trend in endowment growth, variance in investment returns, baseline receipt of federal aid, and pre-trends in receipt of federal aid. Specifications include institution fixed effects and fixed effects for each group-by-year. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A8
Robustness: Admissions Selectivity

	Natural Log			Median Score	
	Admits	Enroll	Yield	SAT	ACT
	(2)	(3)	(5)	(6)	(7)
Grouped by US News and Baseline Endowment					
LnEndowment (3-Yr Avg)	-0.265*	-0.083	6.767*	13.682	0.694
	(0.135)	(0.055)	(3.456)	(22.046)	(0.678)
Mean Dep	7.64	6.35	30.13	1,249.50	27.33
Observations	3,381	3,417	3,381	2,938	2,681
Grouped by US News and Return Pretrends					
LnEndowment (3-Yr Avg)	-0.208	-0.070	5.301	17.699	0.673
	(0.135)	(0.053)	(3.342)	(20.298)	(0.612)
Mean Dep	7.64	6.35	30.13	1,249.50	27.33
Observations	3,420	3,456	3,420	2,963	2,705
Grouped by US News and Baseline Outcome					
LnEndowment (3-Yr Avg)	-0.206*	-0.056	5.551*	20.142	0.538
	(0.112)	(0.052)	(2.962)	(18.890)	(0.563)
Mean Dep	7.64	6.35	30.13	1,249.50	27.33
Observations	3,402	3,436	3,402	2,941	2,688
Grouped by US News and Outcome Pretrends					
LnEndowment (3-Yr Avg)	-0.238*	-0.052	6.746*	24.216	0.899
	(0.129)	(0.053)	(3.204)	(18.482)	(0.585)
Mean Dep	7.64	6.35	30.13	1,249.50	27.33
Observations	3,439	3,474	3,439	2,982	2,723
Grouped by US News and Return Variance					
LnEndowment (3-Yr Avg)	-0.197*	-0.063	6.053**	22.090	0.781
	(0.102)	(0.050)	(2.624)	(18.958)	(0.552)
Mean Dep	7.64	6.35	30.13	1,249.50	27.33
Observations	3,378	3,416	3,378	2,914	2,631

Note: This table presents estimates of the effect of endowments on admissions, enrollments, yield rates, and admissions exam scores (when reported by institutions) using alternative methods of grouping institutions. Simulated endowments are created using annual investment returns. Under institutional rules, spending from the endowment is based on average levels over the prior three years. Thus, the simulated and actual endowment levels in this analysis are three-year rolling averages. The estimates are presented for five different methods of grouping colleges and universities. Specifically, the panels are grouped by: baseline endowment level, pre-trend in endowment growth, variance in investment returns, baseline admissions rate, and pre-trends in the admissions rate. Specifications include institution fixed effects and fixed effects for each group-by-year. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A9
Robustness: Race of Incoming Freshman: Percent of Cohort

	Asian (1)	White (2)	Hispanic (3)	Black (4)	Other (5)	White, Asian (6)	Black, Am Ind, Hispanic (7)
Grouped by US News and Baseline Endowment							
LnEndowment (3-Yr Avg)	0.844	4.369	-3.550*	-1.452	-0.211	5.213*	-5.379**
	(0.988)	(2.885)	(1.738)	(1.590)	(2.162)	(2.659)	(2.186)
Mean Dep	7.90	70.33	7.76	7.40	6.62	78.22	15.63
Observations	3,417	3,417	3,417	3,417	3,417	3,417	3,417
Grouped by US News and Return Pretrends							
LnEndowment (3-Yr Avg)	0.845	4.219	-3.013*	-2.238	0.186	5.064*	-5.544**
	(0.884)	(2.726)	(1.621)	(1.539)	(2.098)	(2.572)	(1.981)
Mean Dep	7.90	70.33	7.76	7.40	6.62	78.22	15.63
Observations	3,456	3,456	3,456	3,456	3,456	3,456	3,456
Grouped by US News and Baseline Outcome							
LnEndowment (3-Yr Avg)	0.939	3.575	-2.667*	-1.237	-0.610	4.514*	-4.137*
	(0.882)	(2.709)	(1.521)	(1.485)	(1.987)	(2.512)	(1.999)
Mean Dep	7.90	70.33	7.76	7.40	6.62	78.22	15.63
Observations	3,459	3,459	3,459	3,459	3,459	3,459	3,459
Grouped by US News and Outcome Pretrends							
LnEndowment (3-Yr Avg)	0.802	4.061	-3.120*	-1.729	-0.014	4.863*	-5.193**
	(0.890)	(2.666)	(1.610)	(1.422)	(2.072)	(2.473)	(2.085)
Mean Dep	7.90	70.33	7.76	7.40	6.62	78.22	15.63
Observations	3,455	3,455	3,455	3,455	3,455	3,455	3,455
Grouped by US News and Return Variance							
LnEndowment (3-Yr Avg)	0.300	4.434*	-2.237	-2.183	-0.314	4.734*	-4.994**
	(0.793)	(2.471)	(1.432)	(1.286)	(1.728)	(2.271)	(1.908)
Mean Dep	7.90	70.33	7.76	7.40	6.62	78.22	15.63
Observations	3,416	3,416	3,416	3,416	3,416	3,416	3,416

Note: This table presents estimates of the effect of endowments on the racial composition of incoming freshmen using alternative methods of grouping institutions. Simulated endowments are created using annual investment returns. Under institutional rules, spending from the endowment is based on average levels over the prior three years. Thus, the simulated and actual endowment levels in this analysis are three-year rolling averages. The estimates are presented for five different methods of grouping colleges and universities. Specifically, the panels are grouped by: baseline endowment level, pre-trend in endowment growth, variance in investment returns, baseline percent students of color, and pre-trends in percent students of color. Specifications include institution fixed effects and fixed effects for each group-by-year. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A10
Robustness: US News and World Report Ranking

	Overall	Colleges	Universities
Grouped by US News and Baseline Endowment			
Ln Endowment (3-Yr Avg)	-14.523***	-20.542***	0.694
	(3.779)	(4.716)	(6.214)
Mean Dep	58.70	67.40	38.54
Observations	2,911	2,043	868
Grouped by US News and Return Pretrends			
Ln Endowment (3-Yr Avg)	-16.032***	-22.050***	2.897
	(3.764)	(4.185)	(6.238)
Mean Dep	58.70	67.40	38.54
Observations	2,941	2,058	883
Grouped by US News and Return Variance			
Ln Endowment (3-Yr Avg)	-15.676***	-20.627***	-2.493
	(4.013)	(4.897)	(5.493)
Mean Dep	58.70	67.40	38.54
Observations	2,909	2,027	882

Note: This table presents estimates of the effect of endowments on U.S. News and World Report rankings using alternative methods of grouping institutions. Simulated endowments are created using annual investment returns. Under institutional rules, spending from the endowment is based on average levels over the prior three years. Thus, the simulated and actual endowment levels in this analysis are three-year rolling averages. The estimates are presented for five different methods of grouping colleges and universities. Specifically, the panels are grouped by: baseline endowment level, pre-trend in endowment growth, and variance in investment returns. Specifications include institution fixed effects and fixed effects for each group-by-year. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A11
Post-Recession: First Stage and Spending Effects

	Ln Actual Endowment (3-Yr Avg)		
	(1)	(2)	(3)
Ln Simulated Endowment (3-Yr Avg)	0.663***	0.656***	0.640***
	(0.096)	(0.098)	(0.096)
Mean Dep	19.67	19.67	19.67
Observations	2,361	2,361	2,361
Year FEs	X		
US News Grp by Year FEs		X	X
Initial Endow by Year			X
Pre-trend Return by Year			X
	Ln Core Operational Spending		
	(1)	(2)	(3)
Ln Endowment (3-Yr Avg)	0.254***	0.281***	0.276***
	(0.072)	(0.079)	(0.079)
Mean Dep	10.84	10.84	10.84
Observations	2,361	2,361	2,361
Year FEs	X		
US News Grp by Year FEs		X	X
Initial Endow by Year			X
Pre-trend Return by Year			X

Note: The top panel presents estimates of the effect of changes in simulated endowment levels on changes in actual endowment levels. Attention is restricted to the years following the Great Recession. Simulated endowments are created using annual investment returns. Under institutional rules, spending from the endowment is based on average levels over the prior three years. Thus, the simulated and actual endowment levels in this analysis are three-year rolling averages. The bottom panel presents estimates of the effect of endowments on core operational spending. Simulated endowment levels based on annual investment returns are used to instrument for actual endowment levels. Column 1 includes year fixed-effects to account for changes that are common across all institutions. Column 2 includes college and university group-by-year fixed effects, where groups are based on baseline U.S. News and World Report rankings. Column 3 allows for differential trends across institutions by baseline endowment levels and prior investment returns. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A12
Post-Recession: Expenditure Per Student by Category

	Per-Student Expenditures						
	Core Expenses	Instruction	Academic Support	Student Services	Aux Enterprise	Institutional Support	Research
Ln Endowment (3-Yr Avg)	27,815**	5,512	350	2,386**	6,478**	6,272**	6,398
	(11,633)	(3,678)	(1,218)	(1,043)	(2,601)	(2,211)	(3,799)
Mean Dep	59,521	22,651	6,219	6,978	8,164	9,325	6,180
Observations	2,361	2,361	2,361	2,361	2,361	2,361	2,361
	Natural Log of Per-Student Expenditures						
	Core Expenses	Instruction	Academic Support	Student Services	Aux Enterprise	Institutional Support	Research
Ln Endowment (3-Yr Avg)	0.277***	0.168	0.205	0.233	0.359**	0.425**	0.071
	(0.077)	(0.098)	(0.151)	(0.162)	(0.134)	(0.142)	(0.219)
Mean Dep	10.84	9.86	8.43	8.74	8.86	9.04	6.81
Observations	2,361	2,361	2,361	2,361	2,361	2,361	2,361

Note: This table presents estimates of the effect of endowments on expenditures for core operating categories. Attention is restricted to the years following the Great Recession. Simulated endowment levels based on annual investment returns are used to instrument for actual endowment levels. Under institutional rules, spending from the endowment is based on average endowment levels over the prior three years. Each specification includes institution fixed effects as well as year-by-comparison group fixed effects. Institutions are grouped according to their classifications (college or university) and their baseline U.S. News and World Report rankings. The specification controls for the interaction of year with each institution's baseline endowment per student, pre-trend in investment returns, baseline level of the outcome of interest, and the pre-trend in the outcome of interest. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A13
Post-Recession: Student Enrollment (Full-Time Equivalents)

	Total	Natural Log Undergrad	Freshman
Ln Endowment (3-Yr Avg)	-0.077	-0.062	-0.038
	(0.087)	(0.090)	(0.120)
Mean Dep	4,992.11	3,358.35	809.18
Observations	2,361	2,361	2,361

Note: This table presents estimates of the effect of endowments on student enrollment. Attention is restricted to the years following the Great Recession. Total, undergraduate, and freshman enrollment are measured in terms of full-time equivalents, with part-time students counting for 0.5 FTEs. Simulated endowment levels based on annual investment returns are used to instrument for actual endowment levels. Under institutional rules, spending from the endowment is based on average endowment levels over the prior three years. Each specification includes institution fixed effects as well as year-by-comparison group fixed effects. Institutions are grouped according to their classifications (college or university) and their baseline U.S. News and World Report rankings. The specification controls for the interaction of year with each institution's baseline endowment per student, pre-trend in investment returns, baseline level of the outcome of interest, and the pre-trend in the outcome of interest. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A14
Post-Recession: Effect of Endowments on College Price and Financial Aid

	List Price Tuition and Room and Board		
	Total List Price	Tuition	Room and Board
Ln Endowment (3-Yr Avg)	580.52	171.06	326.14
	(2,009.56)	(1,662.11)	(668.47)
Mean Dep	54,681.14	42,546.65	12,134.48
Observations	2,346	2,346	2,346

	Percent Receiving Aid				
	Any Aid	Federal Grants	State Grants	College Grants	Loans
Ln Endowment (3-Yr Avg)	1.392	-2.906	-14.724*	0.527	-2.857
	(5.265)	(4.441)	(7.133)	(4.583)	(5.715)
Mean Dep	83.24	22.24	22.26	78.16	53.37
Observations	2,361	2,361	2,361	2,361	2,361

	Aid Amounts and Net Price				
	Federal Grants	State Grants	Institutional Grants	Loans	Net Price
Ln Endowment (3-Yr Avg)	-778.39	-585.87	3,234.54	1,119.70	-1,904.55
	(552.89)	(921.40)	(2,651.61)	(778.95)	(1,935.09)
Mean Dep	5,853.77	4,122.39	25,554.68	7,445.59	33,718.04
Observations	2,361	2,361	2,361	2,361	2,361

Note: This table presents estimates of the effect of endowments on tuition, the percent of incoming freshman receiving aid, and aid amounts (conditional on receipt). Attention is restricted to the years following the Great Recession. Simulated endowment levels based on annual investment returns are used to instrument for actual endowment levels. Under institutional rules, spending from the endowment is based on average endowment levels over the prior three years. Each specification includes institution fixed effects as well as year-by-comparison group fixed effects. Institutions are grouped according to their classifications (college or university) and their baseline U.S. News and World Report rankings. The specification controls for the interaction of year with each institution's baseline endowment per student, pre-trend in investment returns, baseline level of the outcome of interest, and the pre-trend in the outcome of interest. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A15
Post-Recession: Admissions Selectivity

	Natural Log			Median Score			
	Admits	Enroll	Yield	SAT	ACT		
	(1)	(2)	(3)	(4)	(5)		
Ln Endowment (3-Yr Avg)	-0.185	-0.041	4.655	-10.771	0.106		
	(0.177)	(0.119)	(4.052)	(33.103)	(0.896)		
Mean Dep	7.71	6.37	28.63	1,252.79	27.67		
Observations	2,350	2,361	2,350	1,947	1,920		
	Asian	White	Hispanic	Black	Other	White, Asian	Black, Am Ind, Hispanic
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ln Endowment (3-Yr Avg)	1.989	3.636	-6.689**	-1.669	1.893	6.223	-9.523***
	(1.643)	(3.955)	(2.508)	(1.860)	(3.567)	(3.995)	(2.726)
Mean Dep	8.09	67.60	8.87	7.94	7.51	75.69	17.23
Observations	2,361	2,361	2,361	2,361	2,361	2,361	2,361

Note: This table presents estimates of the effect of endowments on admissions, enrollments, yield rates, admissions exam scores (when reported by institutions), and the racial composition of incoming students. Attention is restricted to the years following the Great Recession. Simulated endowment levels based on annual investment returns are used to instrument for actual endowment levels. Under institutional rules, spending from the endowment is based on average endowment levels over the prior three years. Each specification includes institution fixed effects as well as year-by-comparison group fixed effects. Institutions are grouped according to their classifications (college or university) and their baseline U.S. News and World Report rankings. The specification controls for the interaction of year with each institution's baseline endowment per student, pre-trend in investment returns, baseline level of the outcome of interest, and the pre-trend in the outcome of interest. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A16
Post-Recession: US News and World Report Ranking

		Colleges (by 2003 rank)				Universities (by 2003 rank)		
	Overall	All	#1-25	#26-50	#51-100	All	#1-25	#26-50
Ln Endowment (3-Yr Avg)	-13.326	-13.885*	-11.928***	20.481	-32.631**	-12.701	-13.147	18.863
	(8.680)	(6.805)	(3.557)	(37.358)	(12.128)	(32.647)	(11.802)	(66.096)
Mean Dep	66.23	71.64	12.88	42.00	79.47	53.71	11.72	38.73
Observations	2,361	1,642	288	263	503	719	239	168

Note: This table presents estimates of the effect of endowments on U.S. News and World Report rankings. Attention is restricted to the years following the Great Recession. Attention is also restricted to institutions that are ranked in the baseline year. Simulated endowment levels based on annual investment returns are used to instrument for actual endowment levels. Under institutional rules, spending from the endowment is based on average endowment levels over the prior three years. Each specification includes institution fixed effects as well as year-by-comparison group fixed effects. Institutions are grouped according to their classifications (college or university) and their baseline U.S. News and World Report rankings. The specification controls for the interaction of year with each institution's baseline endowment per student and pre-trend in investment returns. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A17
Rolling: First Stage and Spending Effects

	Endowment Change: Rolling		
	(1)	(2)	(3)
Returns Prior 5 Years	0.780***	0.748***	0.732***
	(0.059)	(0.063)	(0.059)
Mean Dep	19.63	19.63	19.63
Observations	3,164	3,163	3,163
Year FEs	X		
US News Grp by Year FEs		X	X
Initial Endow by Year			X
Pre-trend Return by Year			X
	Core Operational Spending Change: 5 Year		
	(1)	(2)	(3)
Endowment Change: Rolling	0.240***	0.184***	0.173***
	(0.032)	(0.044)	(0.048)
Mean Dep	0.08	0.08	0.08
Observations	3,163	3,162	3,162
Year FEs	X		
US News Grp by Year FEs		X	X
Initial Endow by Year			X
Pre-trend Return by Year			X

Note: The top panel presents estimates of the effect of five year investment returns on changes in endowment levels over the same period. The bottom panel presents estimates of the effect of short-run changes in endowment levels on concurrent changes in core operational spending. Investment returns are used to instrument for changes in endowment levels. Column 1 includes year fixed-effects to account for changes that are common across all institutions. Column 2 includes college and university group-by-year fixed effects, where groups are based on baseline U.S. News and World Report rankings. Column 3 allows for differential trends across institutions by baseline endowment levels and prior investment returns. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A18
Rolling: Expenditure Per Student by Category

	Per-Student Expenditures						
	Core Expenses	Instruction	Academic Support	Student Services	Aux Enterprise	Institutional Support	Research
Endowment Change: Rolling	14,379***	4,816**	-123	1,888**	1,796	3,412***	2,589
	(4,308)	(1,748)	(718)	(648)	(1,239)	(898)	(1,662)
Mean Dep	4,400	1,709	549	819	314	629	378
Observations	3,163	3,163	3,163	3,163	3,163	3,163	3,163
	Natural Log of Per-Student Expenditures						
	Core Expenses	Instruction	Academic Support	Student Services	Aux Enterprise	Institutional Support	Research
Endowment Change: Rolling	0.184***	0.154***	0.039	0.330**	0.204**	0.301***	-0.248
	(0.044)	(0.050)	(0.131)	(0.125)	(0.085)	(0.083)	(0.520)
Mean Dep	0.08	0.08	0.12	0.18	0.06	0.10	0.29
Observations	3,162	3,162	3,114	3,145	3,112	3,161	2,381

Note: This table presents estimates of the effect of changes in endowment levels on changes in expenditures for core operating categories. Investment returns are used to instrument for changes in endowment levels. Each specification includes institution fixed effects as well as year-by-comparison group fixed effects. Institutions are grouped according to their classifications (college or university) and their baseline U.S. News and World Report rankings. The specification controls for the interaction of year with each institution's baseline endowment per student, pre-trend in investment returns, baseline level of the outcome of interest, and the pre-trend in the outcome of interest. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A19
Rolling: Student Enrollment (Full-Time Equivalents)

	Natural Log		
	Total	Undergrad	Freshman
Endowment Change: Rolling	-0.065*	-0.042	-0.036
	(0.033)	(0.035)	(0.043)
Mean Dep	0.04	0.04	0.05
Observations	3,163	3,163	3,136

Note: This table presents estimates of the effect of changes in endowment levels on changes in student enrollment. Total, undergraduate, and freshman enrollment are measured in terms of full-time equivalents, with part-time students counting for 0.5 FTEs. Investment returns are used to instrument for changes in endowment levels. Each specification includes institution fixed effects as well as year-by-comparison group fixed effects. Institutions are grouped according to their classifications (college or university) and their baseline U.S. News and World Report rankings. The specification controls for the interaction of year with each institution's baseline endowment per student, pre-trend in investment returns, baseline level of the outcome of interest, and the pre-trend in the outcome of interest. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A20
Rolling: Effect of Endowments on College Price and Financial Aid

	List Price Tuition and Room and Board				
	Total List Price	Tuition	Room and Board		
Endowment Change: Rolling	-22.74	-90.36	67.62		
	(751.86)	(627.55)	(261.50)		
Mean Dep	6,124.57	5,028.04	1,096.53		
Observations	2,705	2,705	2,705		
	Percent Receiving Aid				
	Any Aid	Federal Grants	State Grants	College Grants	Loans
Endowment Change: Rolling	-2.467	-1.096	1.306	-2.877	-0.800
	(2.45)	(1.78)	(3.29)	(2.49)	(3.04)
Mean Dep	1.99	1.90	-2.72	3.00	-0.45
Observations	2,775	2,775	2,775	2,775	2,775
	Aid Amounts and Net Price				
	Federal Grants	State Grants	Institutional Grants	Loans	Net Price
Endowment Change: Rolling	-379.55	-676.92	2,296.09**	-143.77	-355.30
	(409.55)	(495.92)	(1,058.78)	(392.37)	(1,034.62)
Mean Dep	162.17	-136.01	4,367.74	725.94	2,297.68
Observations	2,775	2,775	2,775	2,775	2,749

Note: This table presents estimates of the effect of changes in endowment levels on changes in tuition, the percent of incoming freshman receiving aid, and aid amounts (conditional on receipt). Investment returns are used to instrument for changes in endowment levels. Each specification includes institution fixed effects as well as year-by-comparison group fixed effects. Institutions are grouped according to their classifications (college or university) and their baseline U.S. News and World Report rankings. The specification controls for the interaction of year with each institution's baseline endowment per student, pre-trend in investment returns, baseline level of the outcome of interest, and the pre-trend in the outcome of interest. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A21
Rolling: Admissions Selectivity

	Natural Log			Median Score			
	Admits	Enroll	Yield	SAT	ACT		
	(1)	(2)	(3)	(4)	(5)		
Endowment Change: Rolling	-0.173	-0.036	1.124	27.315*	0.688		
	(0.119)	(0.043)	(2.295)	(13.412)	(0.395)		
Mean Dep	0.19	0.05	-2.53	6.57	0.52		
Observations	2,547	3,136	2,547	2,046	1,790		
	Asian	White	Hispanic	Black	Other	White, Asian	Black, Am Ind, Hispanic
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Endowment Change: Rolling	0.065	0.995	-1.127	-0.697	0.764	1.060	-2.093*
	(0.996)	(1.293)	(0.811)	(0.595)	(1.084)	(1.224)	(1.132)
Mean Dep	0.44	-4.34	1.83	0.83	1.24	-3.90	2.61
Observations	3,163	3,163	3,163	3,163	3,163	3,163	3,163

Note: This table presents estimates of the effect of changes in endowment levels on changes in admissions, enrollments, yield rates, admissions exam scores (when reported by institutions), and the racial composition of incoming students. Investment returns are used to instrument for changes in endowment levels. Each specification includes institution fixed effects as well as year-by-comparison group fixed effects. Institutions are grouped according to their classifications (college or university) and their baseline U.S. News and World Report rankings. The specification controls for the interaction of year with each institution's baseline endowment per student, pre-trend in investment returns, baseline level of the outcome of interest, and the pre-trend in the outcome of interest. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.

TABLE A22
Rolling: US News and World Report Ranking

		Colleges (by 2003 rank)				Universities (by 2003 rank)		
	Overall	All	#1-25	#26-50	#51-100	All	#1-25	#26-50
Endowment Change: Rolling	-8.068**	-10.560**	-4.716**	-13.136**	-17.163**	-1.937	-2.862	-15.603
	(2.955)	(3.686)	(1.911)	(4.967)	(6.232)	(3.856)	(2.813)	(12.064)
Mean Dep	1.89	2.60	0.56	2.18	3.96	-0.03	-0.09	0.05
Observations	1,285	937	250	239	448	348	199	149

Note: This table presents estimates of the effect of changes in endowment levels on changes in U.S. News and World Report rankings. Attention is also restricted to institutions that are ranked in the baseline year. Investment returns are used to instrument for changes in endowment levels. Each specification includes institution fixed effects as well as year-by-comparison group fixed effects. Institutions are grouped according to their classifications (college or university) and their baseline U.S. News and World Report rankings. The specification controls for the interaction of year with each institution's baseline endowment per student and pre-trend in investment returns. Standard errors are clustered at the institution and year levels. The symbols *, **, and *** represent statistical significance at 10, 5, and 1 percent, respectively.