

## Gender Equity in NESCAC Varsity Athletics and Title IX Compliance

Yoshinari Fukuzawa<sup>a</sup>, Keun Young Ko<sup>a</sup>, Jay N. Mahato<sup>a</sup>, Ahmet Kerem Sarikaya<sup>a</sup>,  
Abdoul N. Bounia Yahaya<sup>a</sup>, Paul M. Sommers<sup>a</sup>

Title IX of the 1972 Educational Amendments to the 1964 Civil Rights Act now includes a proportionality standard, that is, the percentage of women who participate in sports at a university should approximate the percentage of female undergraduates at the school. The authors examine whether New England Small College Athletic Conference (NESCAC) schools were compliant with the proportionality standard during the 2014-15, 2015-16, and 2016-17 academic years. The results show that practically all NESCAC schools were in compliance with the proportionality standard all three years, but only when 5 percentage points were added to the school's percentage of women who participate in varsity sports.

**Keywords:** Title IX, gender equity, NESCAC, z-tests

According to the National Collegiate Athletic Association (NCAA), Title IX of the Education Amendments Act of 1972 states that “[n]o person in the United States shall on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving federal financial assistance” [1]. This federal law is applied to athletics in all educational institutions. Compliance can be achieved in one of three ways: (i) proportionality, (ii) program expansion for the underrepresented sex, or (iii) accommodation of the interests and abilities of the student body. We focus on proportionality, specifically, the school must “[p]rovide participation opportunities for women and men that are substantially proportionate to their respective rates of enrollment of full-time undergraduate students” [2].

### The Data

The eleven NESCAC schools include Amherst, Bates, Bowdoin, Colby, Connecticut College, Hamilton, Middlebury, Trinity, Tufts, Wesleyan, and Williams. The numbers of male and female undergraduates and varsity athletes in all three academic years between 2014-15 and 2016-17 were obtained from the U.S. Department of Education [3]. The Department of Education reports the number of varsity athletes two different ways: unduplicated (the student-athlete is counted

only once) and duplicated (the student-athlete is counted more than once if s/he played more than one varsity sport).

### Methodology

We compared the proportions of women in varsity sports and in the student body in a z-test. Under the null hypothesis, the two proportions are the same. Under the one-tailed alternative hypothesis, the proportion of female undergraduates at the school is greater than the proportion of women who participate in varsity sports. The Office of Civil Rights at the Department of Education oversees the enforcement of Title IX and uses a  $\pm 5$  percentage point rule in its interpretation of the proportionality test. That is, if a school's enrollment is 55 percent female and 50 percent of the school's varsity athletes are women, the school would be in compliance. For tests involving unduplicated and duplicated counts, we also added 5 percentage points to each school's percentage of women who participate in sports.

For example, if  $p_1$  = proportion of female undergraduates,  $n_1$  = the total number of undergraduates,  $p_2$  = proportion of women who participate in varsity sports, and  $n_2$  = number of students who participate in varsity sports, then using unduplicated counts for Amherst College in the academic year 2014-15, the calculated z-value is:

$$(1) \quad z = \frac{0.5036 - 0.4298}{\sqrt{\frac{0.5036(1-0.5036)}{1795} + \frac{0.4298(1-0.4298)}{563}}} = 3.078$$

where  $p_1 = .5036$ ,  $n_1 = 1795$ ,  $p_2 = .4298$ , and  $n_2 = 563$ . The  $p$ -value in this case is .001. That is, Amherst would not be in compliance with the proportionality standard of Title IX in 2014-15. When, however, 5 percentage points are added to  $p_2$ , Amherst is in compliance ( $p = .1623$ ).

a. Department of Economics, Middlebury College, Middlebury, VT, 05753

**The Results**

**Table 1.** The Proportionality Standard under Title IX among NESCAC Schools, Unduplicated Counts, 2014-15 through 2016-17

Institution	Student Body			Varsity Athletes (Unduplicated <sup>a</sup> )			% Female Students	% Female Athletes	p-value on difference	p-value on difference plus 5% <sup>b</sup>
	Women	Men	Total	Women	Men	Total				
<b>2014-2015</b>										
<b>Amherst College<sup>c,d</sup></b>	904	891	1795	242	321	563	50.36	42.98	0.0010	0.1623
<b>Bates College</b>	908	884	1792	311	371	682	50.67	45.60	0.0119	0.4879
<b>Bowdoin College</b>	891	902	1793	284	360	644	49.69	44.10	0.0072	0.3980
<b>Colby College</b>	970	887	1857	295	369	664	52.23	44.43	0.0003	0.1071
<b>Connecticut College</b>	1158	694	1852	248	209	457	62.53	54.27	0.0007	0.1013
<b>Hamilton College</b>	953	908	1861	256	336	592	51.21	43.24	0.0003	0.1042
<b>Middlebury College</b>	1318	1184	2502	303	376	679	52.68	44.62	<0.0001	0.0790
<b>Trinity College</b>	1013	1124	2137	281	424	705	47.40	39.86	0.0002	0.1196
Tufts University	2601	2595	5196	346	376	722	50.06	47.92	0.1410	0.9257
<i>Wesleyan University</i>	1517	1297	2814	235	369	604	53.91	38.91	<0.0001	<0.0001
<b>Williams College</b>	1055	1015	2070	326	421	747	50.97	43.64	0.0003	0.1379
<b>2015-2016</b>										
<b>Amherst College</b>	925	921	1846	253	334	587	50.11	43.10	0.0014	0.1982
<b>Bates College</b>	899	881	1780	283	394	677	50.51	41.80	<0.0001	0.0502
<b>Bowdoin College</b>	897	901	1798	277	358	635	49.89	43.62	0.0032	0.2915
<b>Colby College</b>	985	894	1879	296	364	660	52.42	44.85	0.0004	0.1276
<b>Connecticut College</b>	1145	673	1818	306	215	521	62.98	58.73	0.0406	0.6234
<b>Hamilton College</b>	960	906	1866	252	327	579	51.45	43.52	0.0004	0.1094
<b>Middlebury College</b>	1292	1204	2496	314	384	698	51.76	44.99	0.0007	0.2032
<i>Trinity College</i>	1028	1104	2132	261	403	664	48.22	39.31	<0.0001	0.0385
<b>Tufts University</b>	2720	2694	5414	326	415	741	50.24	43.99	0.0007	0.2624
<i>Wesleyan University</i>	1572	1340	2912	241	363	604	53.98	39.90	<0.0001	<0.0001
<b>Williams College</b>	992	1052	2044	317	427	744	48.53	42.61	0.0026	0.3327

2016-2017										
<b>Amherst College</b> <sup>c,d</sup>	907	928	1835	264	329	593	49.43	44.52	0.0184	0.5155
<b>Bates College</b>	905	882	1787	276	367	643	50.64	42.92	0.0004	0.1183
<b>Bowdoin College</b>	904	907	1811	290	363	653	49.92	44.41	0.0077	0.4121
<b>Colby College</b>	1000	917	1917	312	352	664	52.16	46.99	0.0106	0.4687
<b>Connecticut College</b>	1110	654	1764	309	225	534	62.93	57.87	0.0185	0.4900
<i>Hamilton College</i>	999	886	1885	259	350	609	53.00	42.53	<0.0001	0.0094
<b>Middlebury College</b>	1293	1218	2511	271	358	629	51.49	43.08	<0.0001	0.0630
<i>Trinity College</i>	1057	1033	2090	251	371	622	50.57	40.35	<0.0001	0.0109
<b>Tufts University</b>	2780	2682	5462	354	454	808	50.90	43.81	<0.0001	0.1342
<i>Wesleyan University</i>	1559	1326	2885	254	369	623	54.04	40.77	<0.0001	<0.0001
Williams College	958	1075	2033	325	412	737	47.12	44.10	0.0786	0.8210

Source: U.S. Department of Education, Equity in Athletics Data Analysis Cutting Tool, <https://ope.ed.gov/athletics/#/>

<sup>a</sup> The same athlete who plays more than one varsity sport is counted only once.

<sup>b</sup> Five percentage points have been added to the percent of the school's athletes who are women.

<sup>c</sup> School names in boldface are not in compliance. That is, the percentage of female undergraduates enrolled at the school is strictly greater than the percentage of women who participate in varsity sports.

<sup>d</sup> Italicized school names in boldface are not in compliance, even after 5 percentage points have been added to the percentage of women who participate in varsity sports.

Table 1 shows the results for the eleven NESCAC schools using unduplicated counts. All NESCAC schools with the exception of Tufts in 2014-15 and Williams in 2016-17 are not in compliance. When 5 percentage points are added to each

school's percentage of women who participate in sports, only Wesleyan in 2014-15, Trinity and Wesleyan in 2015-16, and Hamilton, Trinity, and Wesleyan in 2016-17 are not in compliance.

**Table 2.** The Proportionality Standard under Title IX among NESCAC Schools, Duplicated Counts, 2014-15 through 2016-17

Institution	Student Body			Varsity Athletes (Duplicated <sup>a</sup> )			% Female Students	% Female Athletes	p-value on difference	p-value on difference plus 5% <sup>b</sup>
	Women	Men	Total	Women	Men	Total				
<b>2014-2015</b>										
<b>Amherst College<sup>c,d</sup></b>	904	891	1795	302	387	689	50.36	43.83	0.0017	0.2473
Bates College	908	884	1792	403	428	831	50.67	48.5	0.1500	0.9113
<b>Bowdoin College</b>	891	902	1793	345	443	788	49.69	43.78	0.0027	0.3348
<b>Colby College</b>	970	887	1857	384	469	853	52.23	45.02	0.0002	0.1418
<b>Connecticut College</b>	1158	694	1852	352	282	634	62.53	55.52	0.0010	0.1856
<b>Hamilton College</b>	953	908	1861	309	395	704	51.21	43.89	0.0004	0.1474
<b>Middlebury College</b>	1318	1184	2502	381	458	839	52.68	45.41	0.0001	0.1278
<b>Trinity College</b>	1013	1124	2137	308	454	762	47.4	40.42	0.0004	0.1728
<b>Tufts University</b>	2601	2595	5196	426	482	908	50.06	46.92	0.0401	0.8494
<i>Wesleyan University</i>	1517	1297	2814	283	424	707	53.91	40.03	<0.0001	<0.0001
<b>Williams College</b>	1055	1015	2070	417	534	951	50.97	43.85	0.0001	0.1398
<b>2015-2016</b>										
<b>Amherst College</b>	925	921	1846	320	394	714	50.11	44.82	0.0080	0.4476
<i>Bates College</i>	899	881	1780	339	471	810	50.51	41.85	<0.0001	0.0421
<b>Bowdoin College</b>	897	901	1798	343	433	776	49.89	44.2	0.0039	0.3744
<b>Colby College</b>	985	894	1879	357	454	811	52.42	44.02	0.0003	0.0526
<b>Connecticut College</b>	1145	673	1818	394	288	682	62.98	57.77	0.0090	0.4614
<b>Hamilton College</b>	960	906	1866	317	387	704	51.45	45.03	0.0018	0.2606
<b>Middlebury College</b>	1292	1204	2496	398	474	872	51.76	45.64	0.0009	0.2844
<b>Trinity College</b>	1028	1104	2132	308	437	745	48.22	41.34	0.0005	0.1886
<b>Tufts University</b>	2720	2694	5414	461	536	997	50.24	46.24	0.0100	0.7189
<i>Wesleyan University</i>	1572	1340	2912	299	420	719	53.98	41.59	<0.0001	0.0002
<b>Williams College</b>	992	1052	2044	403	529	932	48.53	43.24	0.0035	0.4412

2016-2017										
Amherst College <sup>c,d</sup>	907	928	1835	335	392	727	49.43	46.08	0.0628	0.7746
<b>Bates College</b>	905	882	1787	347	464	811	50.64	42.79	<0.0001	0.0884
<b>Bowdoin College</b>	904	907	1811	362	442	804	49.92	45.02	0.0103	0.5203
<b>Colby College</b>	1000	917	1917	366	408	774	52.16	47.29	0.0109	0.5229
<b>Connecticut College</b>	1110	654	1764	402	294	696	62.93	57.76	0.0094	0.4693
<i>Hamilton College</i>	999	886	1885	320	403	723	53	44.26	<0.0001	0.0437
<b>Middlebury College</b>	1293	1218	2511	341	443	784	51.49	43.49	<0.0001	0.0713
<b>Trinity College</b>	1057	1033	2090	308	416	724	50.57	42.54	<0.0001	0.0796
<b>Tufts University</b>	2780	2682	5462	468	547	1015	50.9	46.11	0.0025	0.5492
<i>Wesleyan University</i>	1559	1326	2885	302	425	727	54.04	41.54	<0.0001	0.0001
<b>Williams College</b>	958	1075	2033	400	513	913	47.12	43.81	0.0473	0.8019

Source: U.S. Department of Education, Equity in Athletics Data Analysis Cutting Tool, <https://ope.ed.gov/athletics/#/>

<sup>a</sup> The same athlete who plays more than one varsity sport is counted more than once.

<sup>b</sup> See footnote b, Table 1.

<sup>c</sup> See footnote c, Table 1.

<sup>d</sup> See footnote d, Table 1.

Table 2 shows the results using duplicated counts. All NESCAC schools are not in compliance all three years, with the exception of Bates in 2014-15 and Amherst in 2016-17. When 5 percentage points are added to each school's percentage of women in sports, only Wesleyan in 2014-15, Bates and Wesleyan in 2015-16, and Hamilton and Wesleyan in 2016-17 are not in compliance.

Both tables show that however student-athletes are counted – once or multiple times if they competed on more than one varsity team, Wesleyan was not in compliance all three years and Hamilton was not in compliance in 2016-17.

#### Concluding Remarks

The percentage of female undergraduates enrolled at each of the eleven NESCAC schools between 2014-15 and 2016-17

exceeded the percentage of women who participate in varsity sports. When 5 percentage points are added to a school's percent of student-athletes who are women, all NESCAC schools are nonetheless in compliance, with the notable exception of Wesleyan University (all three years) and Hamilton College (in 2016-17). Both of these schools may have either increased opportunities for women or accommodated the "interests and abilities" of women. But, based on the proportionality standard, because it is a numerical measure and thus most easily checked, both Wesleyan and Hamilton appear not to be in compliance with Title IX.

#### References

1. U.S. Department of Justice, Civil Rights Division, *Title IX Legal Manual*, January 11, 2001, <http://www.usdoj.gov/crt/cor/coord/ixlegal.htm>
2. NCAA. "Title IX Frequently Asked Questions." *The Official Site of the NCAA*, National Collegiate Athletic Association, 27 January 2014, [www.ncaa.org/about/resources/inclusion/title-ix-frequently-asked-questions#title](http://www.ncaa.org/about/resources/inclusion/title-ix-frequently-asked-questions#title)
3. "Equity in Athletics Data Analysis," U.S. Department of Education, Office of Postsecondary Education, 2017, <https://ope.ed.gov/athletics/#/>