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# Benchmark Report

## Ratio of Faculty to Administrators

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### I. Background

A recent article [1] in the Chronicle of Higher Education regarding an 'ideal ratio' of faculty to administrators has been generating a lot of interest in the higher education community. In order to fully understand the methodology used in that report, Western's IR Office communicated with Emeritus Professor Robert E. Martin, the first author of a working paper [2] on which the Chronicle article is based, and were able to closely replicate the 2008-09 data and methodologies employed in their working paper. Please note that the following analysis simply replicates the methodology used in the study referenced in the Chronicle to compare Western to the national picture. An endorsement of these methods and conclusions regarding 'ideal ratios' should not be inferred.

As noted in the Chronicle article, the working paper estimated three cost models with a quadratic cost function using IPEDS panel data for Carnegie I and II public research universities. The article concluded that the optimal staffing ratio is approximately three tenured and tenure-track faculty members for every one full-time administrator. The article further noted that as of 2008-09 the actual number of full-time administrators is almost double the number of tenured and tenure-track faculty.

### II. Data and Methodology

The author of the working paper used IPEDS (Integrated Postsecondary Education Data System) as the primary data source. Using a small sample of data and some instructions received from the author, we retrieved raw IPEDS data, derived a methodology, and recalculated the metrics used in the article.

Although we have determined the basic intent and methodology used in the working paper and referenced in the Chronicle article, our replications are very close, but do not exactly match, the author's reported metrics. For example, the author shows metrics for 134 public research universities, while we find 146. We do not know which 134 institutions the author used. However, even with some

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limitation, we calculate a 2008-09 ratio of faculty-to-administrators for public research universities of .55 compared to the author's .56. The metrics presented in our paper are internally-calculated based on the derived methodology and IPEDS raw data.

Appendix A shows descriptions of IPEDS occupational categories, and Appendix B shows a summarized list of WWU job titles and the primary IPEDS categories that those jobs are assigned to by the WWU Human Resources Department.

Institutions of higher education are required to report headcounts of staff through the IPEDS system via the annual Human Resources survey. This survey requires that staff be classified in these general categories:

1. Staff whose primary responsibility is instruction, research, and/or public service (i.e., faculty).
2. Executive/administrative/managerial.
3. Other professionals (support/service).
4. Non-Professional.
  - a. Technical and paraprofessionals.
  - b. Clerical and secretarial.
  - c. Skilled crafts.
  - d. Service/Maintenance.

The metric of interest in our paper is the ratio of the number of full-time tenured and tenure-track faculty (TN/TT) to the number of full-time administrators. The author of the working paper defines 'administrator' as the sum of full-time 'executive/administrative/managerial' and full-time 'other professional' staff.

In addition to the metric of interest, other variables used in the models for explaining cost variations include:

- a. FTE students.
- b. The number of full-time tenured and tenure-track track faculty per 100 students.
- c. The number of FTE faculty per 100 students.
- d. The number of FTE executive/managerial employees per 100 students.
- e. The number of other FTE professional employees per 100 students.
- f. The number of FTE non-professional employees per 100 students.
- g. The number of FTE executive and professional employees per 100 students.

We noted that Western's 2008-09 Human Resources survey was initially submitted in April of 2009, then corrected in April of 2010. For our report we used the corrected data. It is also important to note that IPEDS does not collect

FTE data. The FTE figures found in IPEDS reports, and used here, are calculated using the reported headcounts of staff. Institutions are asked to provide the number of full-time and number of part-time staff by primary function and occupation. IPEDS then calculates an FTE, counting one FTE per full-time staff, and one-third FTE for each part-time staff. If the average of part-time staff FTE is actually more than one-third, then the IPEDS-calculated FTE underestimates actual FTE. If the average of part-time staff FTE is actually less than one-third, then the IPEDS-calculated FTE overestimates actual FTE. At Western, the part-time faculty average is about .05 FTE, so the IPEDS method of calculating FTE is an underestimate of our actual faculty FTE.

### III. Preliminary Findings

Most importantly, this analysis compares Western’s faculty to administrator ratio to the one presented in the Chronicle article. Also, we report other metrics of interest, including FTE faculty per 100 students and FTE staff per 100 students.

#### 1. Ratio of Faculty to Administrators at WWU and National Benchmarks in 2008-09

**Table 1: Ratio of Faculty to Administrators**

	2008-09
Public Research Universities	.55*
Public Master Universities	1.01
BOT Peers	1.03
WWU	1.21

\*.56 is referenced in the working paper; our replication methods calculate .55

In Table 1, faculty is defined as the number of full-time tenured and tenure-track (TN/TT) faculty, and administrator as the number of full-time executive/administrator/manager and full-time other professionals including librarians. The ratio is full-time TN/TT faculty divided by full-time administrators.

As noted in Table 1, the ratio for public research universities is .55. This indicates that these institutions, on average, have about half as many full-time TN/TT faculty as full time administrators. The ratio for public masters’ universities and our BOT peers is about one. This indicates that these institutions, on average, have about the same number of full-time TN/TT faculty as full-time

administrators. The ratio for Western is 1.21. This indicates that Western has about 21% more full-time TN/TT faculty than full-time administrators<sup>1</sup>.

Comparing Western’s ratio to the national figure referenced in the working paper (.56), we see Western has more than twice as many faculty per administrator as the national figure. Even comparing our ratio to the average of our BOT peers (1.03) and to public master universities (1.01), Western has significantly more faculty per administrators.

## 2. Ratio of Faculty to Administrators at Western and BOT Peers in 2008-09

**Figure 1: Ratio of Faculty to Administrators 2008-09, Detail**

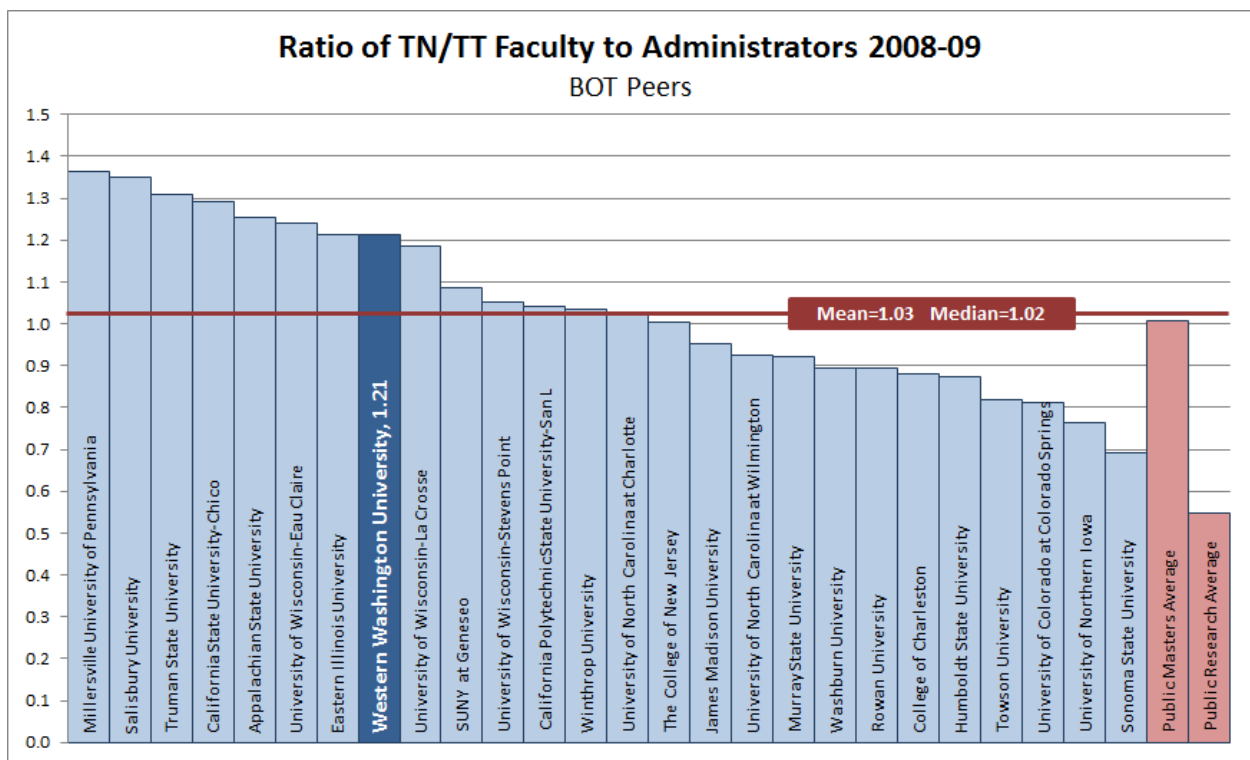


Figure 1 illustrates the ratio of faculty to administrators of our individual BOT peers in 2008-09, and shows Western’s relative position among those peers. A reference line indicates the mean and median of the BOT peers<sup>2</sup>. Bars showing the average of public master institutions and research institutions are shown for reference.

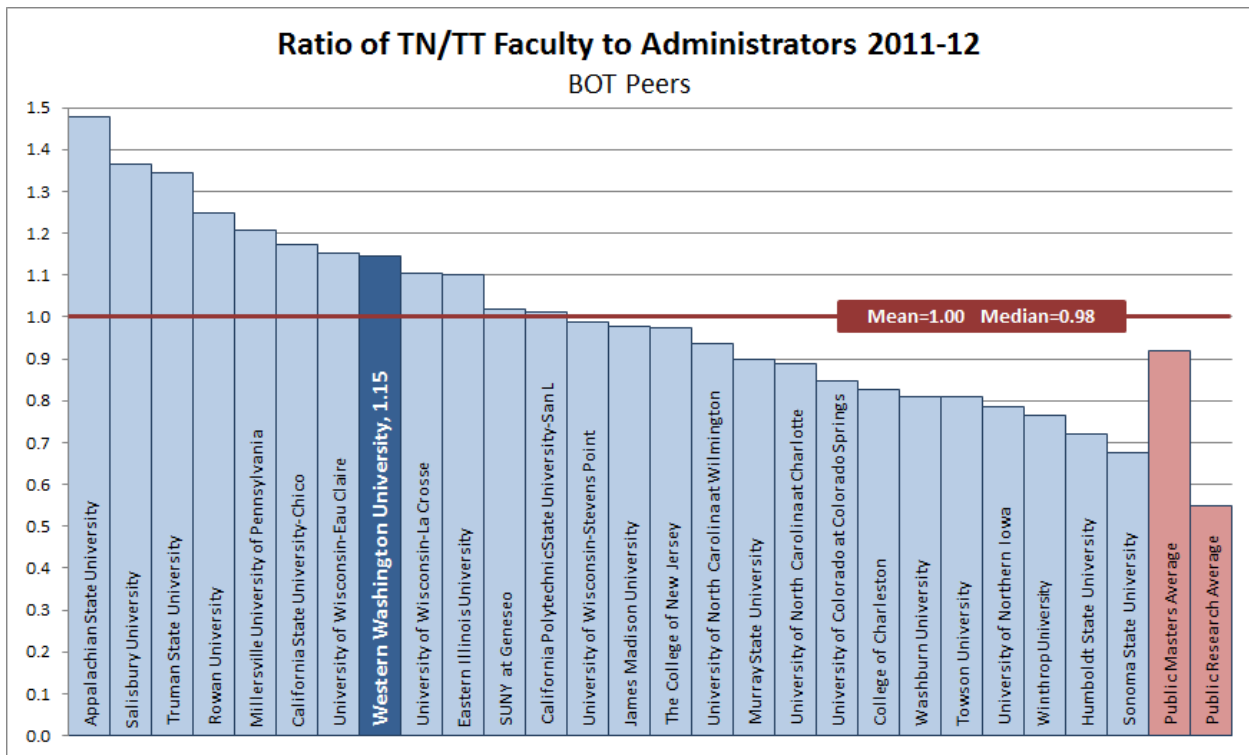
<sup>1</sup> Table 1 indicates that Western’s ratio of faculty to administrators in AY 2008-09 is 1.21. This is calculated using 476 full-time tenured and tenure-track faculty and 392 administrators (67 full-time executive, and 325 full-time other professional staff) reported to IPEDS in the fall 2008 Human Resources survey (476/392=1.21).

<sup>2</sup> The BOT peer mean and median do not include WWU; all institutional data is available upon request.

In the 2008-09 year, Western ranked 8<sup>rd</sup> among our 25 BOT peer institutions in terms of the ratio of faculty to administrators. In other words, we were in the top one-third of the distribution, a finding that is not surprising given Western’s focus on hiring tenure-track faculty.

3. Changes since 2008-09: Ratio of Faculty to Administrators at Western and BOT Peers from 2008-09 to 2011-12

**Figure 2: Ratio of Faculty to Administrators 2011-12, Detail**



In 2011-12, Western remained ranked 8<sup>rd</sup> among our BOT peer institutions in terms of the number of full-time TN/TT faculty to full-time administrators. Western declined from a ratio of 1.21 to 1.15, or a decline of .07. The average decline among the peers was .03. Winthrop University had the greatest decline, going from 1.04 (ranked 13<sup>th</sup>) to .77 (ranked 24<sup>th</sup>) on this metric. Two institutions had very large increases: Rowan University (increased from .89 to 1.25) and Appalachian State (increased from 1.25 to 1.48).

**Figure 3: Ratio of Faculty to Administrators, Trend**

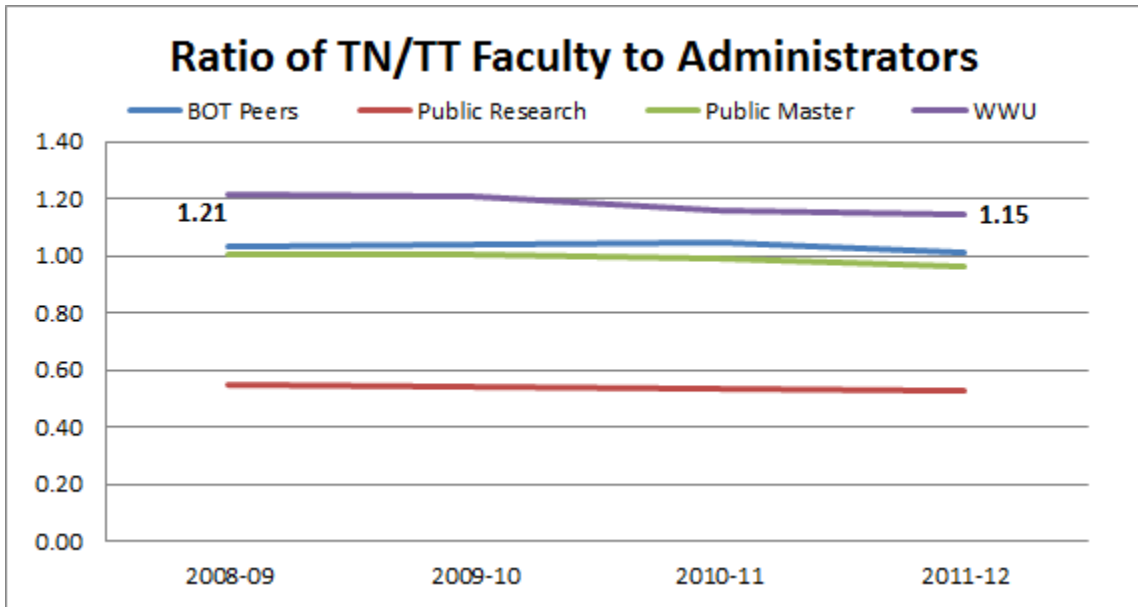
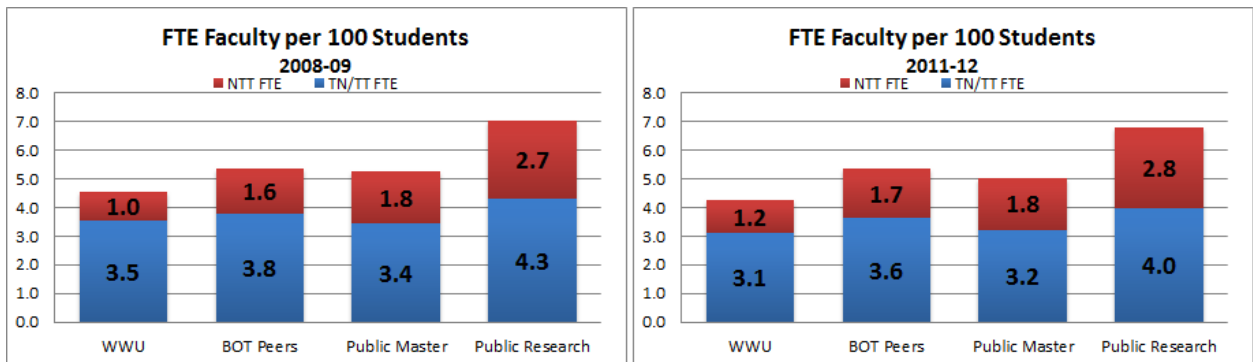


Figure 3 illustrates that Western’s ratio of faculty to administrators has declined since 2008-09; the decline in ratio is .07, or a 5.7% decline. The average of benchmark groups are down as well: the BOT peer group declined by 3.2%, the Public Master group declined by 4.2%, and the Public Research group declined by 4.1%.

4. Substitution of Full-time Faculty with Part-time Faculty

The decline in the ratio that Western and other state universities experienced may be due to a decline in state support during the same time frame. For Western, the decline is the result of fewer tenure-track faculty. As FTE tenure-track faculty decreases, we see that a labor substitution effect occurs: non-tenure-track (NTT) faculty are substituted for tenured and tenure-track faculty (TN/TT) as illustrated in Figures 4 and 5, and shown in detail in Table 2.

**Figures 4 and 5: FTE Faculty per 100 Students, 2008-09 v. 2011-12**



**Table 2: FTE Faculty per 100 Students**

		WWU	BOT Peers	Public Master	Public Research
TN/TT FTE	2008-09	3.53	3.80	3.43	4.29
	2011-12	3.12	3.64	3.22	3.99
	<i>change</i>	<i>-0.42</i>	<i>-0.16</i>	<i>-0.21</i>	<i>-0.30</i>
	<i>% change</i>	<i>-11.9%</i>	<i>-4.1%</i>	<i>-6.1%</i>	<i>-7.0%</i>
NTT FTE	2008-09	1.00	1.58	1.81	2.74
	2011-12	1.16	1.73	1.83	2.79
	<i>change</i>	<i>0.15</i>	<i>0.15</i>	<i>0.01</i>	<i>0.05</i>
	<i>% change</i>	<i>15.4%</i>	<i>9.6%</i>	<i>0.7%</i>	<i>1.8%</i>
Total Faculty FTE	2008-09	4.54	5.38	5.25	7.03
	2011-12	4.27	5.37	5.05	6.78
	<i>change</i>	<i>-0.27</i>	<i>0.00</i>	<i>-0.20</i>	<i>-0.25</i>
	<i>% change</i>	<i>-5.9%</i>	<i>-0.1%</i>	<i>-3.7%</i>	<i>-3.6%</i>

At Western, as with all peer groups shown, there was a decline in tenured and tenure-track (TN/TT) faculty per 100 students between 2008-09 and 2011-12. Table 2 shows that Western's decline in this measure was 11.9% (.42 FTE faculty per 100 students), while the average decline of the BOT peers was 4.1%. Western shows a greater decline than the average of our peer groups, but taking a closer look at the BOT peers, we find that four of the 25 institutions had a 10% or more decline in TN/TT FTE faculty per 100 students during this period.

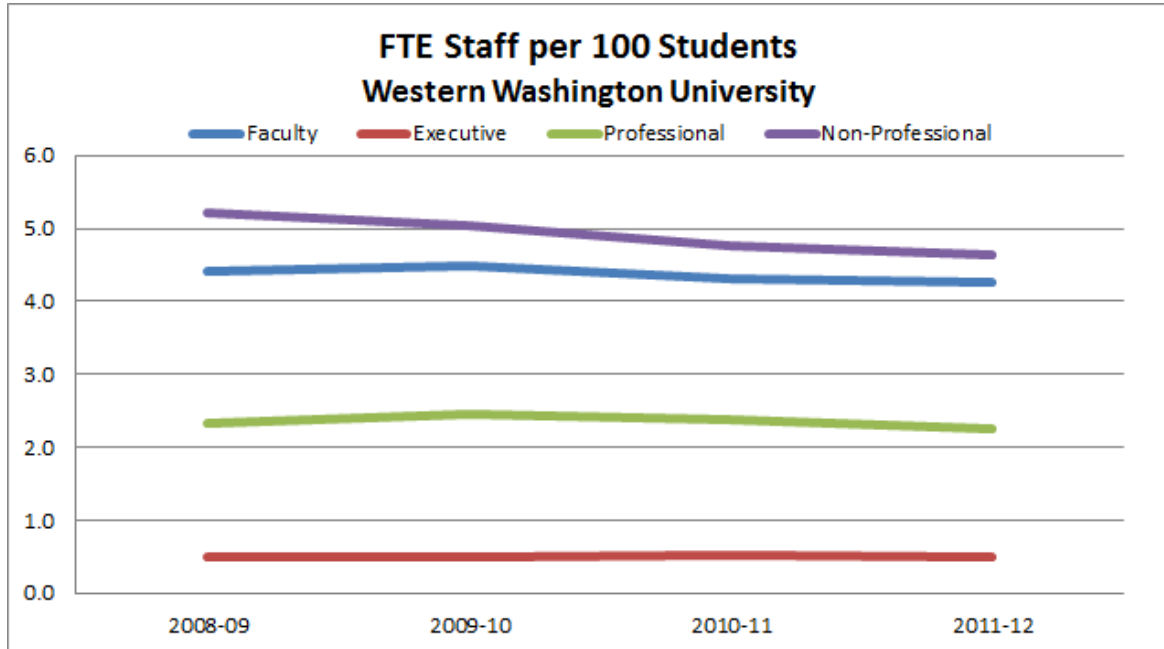
While the FTE TN/TT faculty decreased, the FTE non-tenure-track (NTT) faculty increased across all groups. Western shows a 15.4% increase in NTT faculty FTE, while BOT peers show a 9.6% increase. The other groups show a very small increase. There is considerable variation in this measure among the individual BOT peer institutions. While WWU gained .15 NTT faculty per 100 students, Appalachian State University gained .79, and University of North Carolina at Wilmington gained .71 NTT FTE faculty per 100 students. Fifteen of the BOT peer institutions increased in this measure, and 10 institutions declined in NTT faculty per 100 students.

With the exception of BOT peers, total faculty FTE per 100 students declined for all groups. Western declined 0.27 FTE faculty per 100 students. While the average of our BOT peers showed no change, most of the peer institutions (17 of 25) declined in total faculty FTE during this period. Again, there was wide variation among the peers.

##### 5. Other Key Metrics for Western and Peers

Figure 6 illustrates Western's FTE staff per 100 students for all IPEDS occupational categories (Instructional, Executive, Professional, and non-Professional).

**Figure 6: FTE Staff per 100 Students, Western Washington University**



Western’s non-professional staff declined 0.57 FTE staff per 100 students, or an 11.0% decline. The faculty group declined by 5.6%, the professional group declined by 9.3%, while the very small executive group gained slightly.

**Table 3: FTE Staff per 100 Students, Western Washington University**

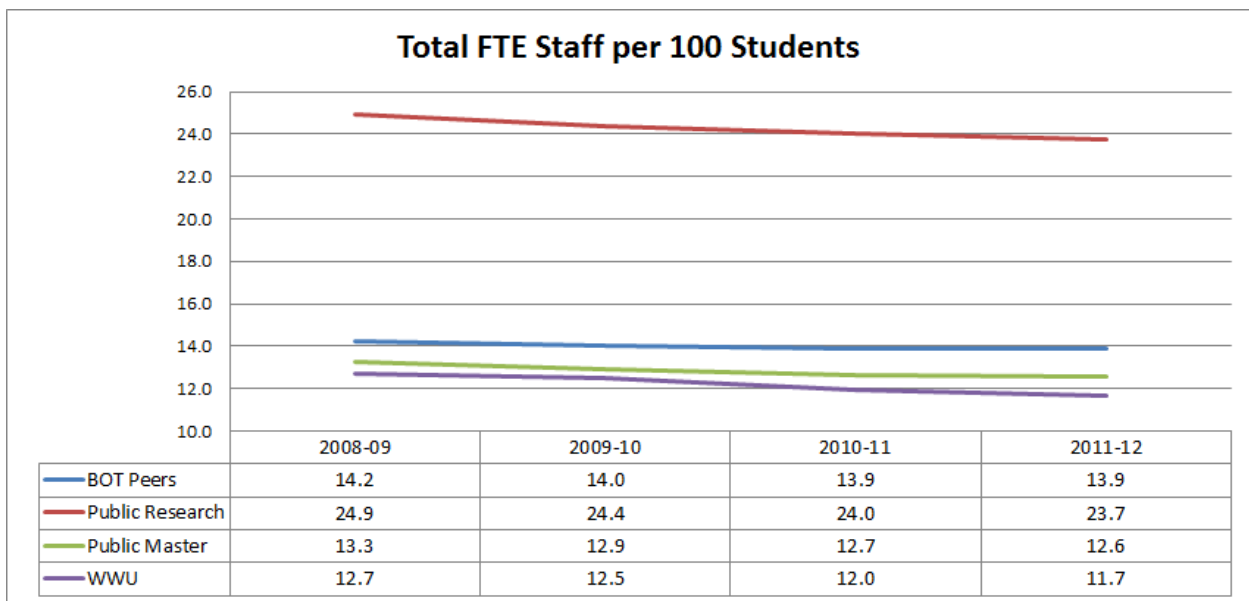
	2008-09	2009-10	2010-11	2011-12	Change 2008-09 to 2011-12	% Change 2008-09 to 2011-12
Faculty	4.54	4.49	4.31	4.27	-0.27	-5.9%
Executive	0.50	0.49	0.51	0.50	0.01	1.2%
Professional	2.49	2.46	2.38	2.26	-0.23	-9.3%
Non-Professional	5.22	5.05	4.77	4.65	-0.57	-11.0%



Table 3 shows the detail and the percent change from 2008-09 to 2011-12. We see that the greatest decline is in the non-professional group. As Western has become leaner in terms of faculty, the decline in non-instructional staff has been greater. Indeed, Western is doing more with less staff as compared to peer groups, as shown in Figure 7. In 2011-12, Western had 11.7 total staff per 100 FTE students compared with 12.6 for public masters' institutions and 13.9 for the BOT peer group.

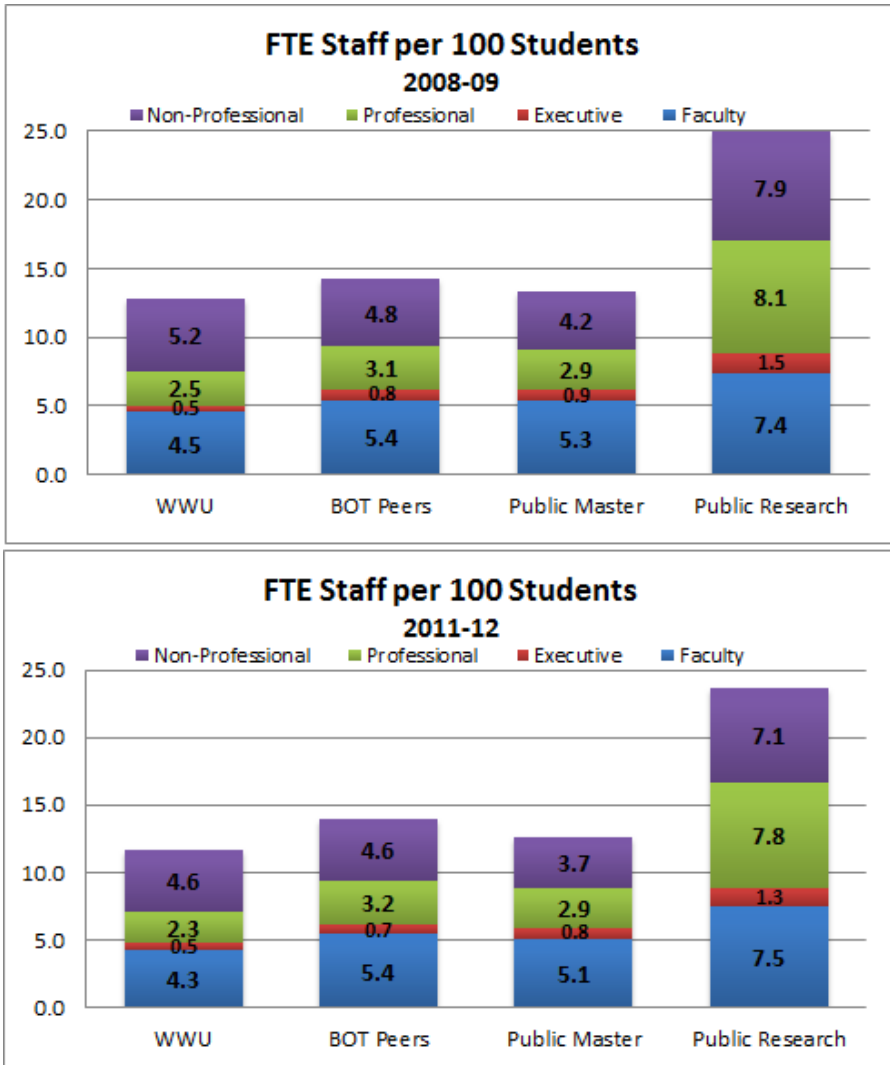
Figure 7 shows a trend of the ratio of total FTE staff per 100 students. We see that Western has fewer total staff per student than the average of our BOT peers. In 2011-12, Western has 11.7 FTE staff per 100 students, compared with a 13.9 FTE for the average of our BOT peers and 12.6 FTE for the average of public masters' institutions. Between the years of 2008-09 and 2011-12, Western lost 1.0 FTE staff per 100 students. The average loss for our BOT peers was .3 FTE staff per 100 students.

**Figure 7: Total FTE Staff per 100 Students (Trend)**



In Figures 8 and 9 (next page), we show the 2008-09 and 2011-12 FTE staff per 100 students for Western and the peer groups, broken out by IPEDS occupational category. We see that Western is on par with BOT peers in terms of non-professional staff (4.6 per 100 students), and has fewer staff per 100 students in other occupational categories.

Figures 8 and 9: FTE Staff per 100 Students by Occupational Category



#### IV. Summary

Our paper seeks to replicate metrics referenced in a recent article published in the Chronicle of Higher Education. We show trends in faculty/administrator ratios for Western and compare Western to peer institutions.

The primary focus of the working paper referenced in the Chronicle article is the ratio of faculty to administrators and its relationship to educational cost in public research universities. We verified in our analysis of the IPEDS data the working paper key finding that in 2008-09, at public research universities, there are nearly twice as many full-time administrators as full-time tenured and tenure-track faculty. Replicating this analysis and extending it to our peers, we find that the average of our BOT peers and of 247 public masters' universities are about one

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full-time tenured and tenure-track (TN/TT) faculty for every full-time administrator. In contrast, the ratio at Western is 1.21, or about 21% more full-time TN/TT faculty as administrators.

With our ratio of 1.21, Western ranked 8<sup>th</sup> on this metric among our 25 BOT peer institutions in 2008-09. Although our ratio fell slightly to 1.15 in 2011-12, as did the ratio of the majority of our peer institutions, reflecting a loss in full-time tenured and tenure-track faculty, our ratio continued to rank 8<sup>th</sup> among our peers in 2011-12.

As the TN/TT faculty per student has fallen, the non-tenure-track (NTT) faculty FTE has grown. However, the FTE increase in NTT faculty did not fully replace the FTE loss in TN/TT faculty. This is true for Western and for all peer groups except the BOT peer group, whose total FTE faculty remains about flat.

Although IPEDS reports show that we have more non-professional staff than peers, when normalized by the size of our student population (student FTE), we find that Western seems to be similar to, or have fewer staff in all occupational categories than the average of our peer groups. In 2011-12 we are on par with our BOT peers in terms of non-professional staff per 100 students, and have fewer staff than our peers in the other occupational categories.

Since we are a stand-alone institution and not part of a university system with centralized staff functions, all of our staff functions are covered on site. To the extent that we compare ourselves with institutions that are part of a larger system, we are more efficient than a direct comparison suggests.

Although Western's faculty to administrators ratio decreased slightly in the last three years, with new hiring of tenure-track faculty in fall of 2012, we will see our ratio of faculty to administrators once again increase.

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## References

1. Jenny Rogers (2012) '3 to 1: That's the Best Ratio of Tenure-Track Faculty to Administrators, a Study Concludes', The Chronicle of Higher Education, November 12, 2012.  
<http://chronicle.com.ezproxy.library.wvu.edu/article/Administrative-Bloat-How-Much/135500/>
2. Robert E. Martin and R, Carter Hill (2012), Measuring Baumol and Bowen Effects in Public Research Universities, a working paper.  
[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2153122](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2153122)

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## **Appendix A: IPEDS Employee by Assigned Position (EAP): Survey Instruction**

*Below are the IPEDS occupational categories used in the article and as reported to IPEDS. As of fall 2012, new occupational categories are required in order to align with the occupational categories in the federal 2010 Standard Occupational Classification (SOC) System.*

### **Staff whose primary responsibility is instruction, research, and/or public service.**

#### **Executive/administrative/managerial.**

Report all persons whose assignments require management of the institution, or a customarily recognized department or subdivision thereof. Assignments require the performance of work directly related to management policies or general business operations of the institution, department or subdivision. Assignments in this category customarily and regularly require the incumbent to exercise discretion and independent judgment.

#### **Other professionals (support/service).**

Report all persons employed for the primary purpose of performing academic support, student service and institutional support, whose assignments would require either a baccalaureate degree or higher or experience of such kind and amount as to provide a comparable background.

#### **Non-Professional: Technical and paraprofessionals.**

Report all persons whose assignments require specialized knowledge or skills which may be acquired through experience, apprenticeship, on-the-job training or academic work in occupationally specific programs that result in a 2-year degree or other certificate or diploma. Include persons who perform some of the duties of a professional in a supportive role, which usually requires less formal training and/or experience than normally required for professional status.

#### **Non-Professional: Clerical and secretarial.**

Report all persons whose assignments typically are associated with clerical activities or are specifically of a secretarial nature. Include personnel who are responsible for internal and external communications, recording and retrieval of data (other than computer programmers) and/or information and other paperwork required in an office.

#### **Non-Professional: Skilled crafts.**

Report all persons whose assignments typically require special manual skills and a thorough and comprehensive knowledge of the processes involved in the work, acquired through on-the-job-training and experience or through apprenticeship or other formal training programs.

#### **Non-Professional: Service/Maintenance.**

Report all persons whose assignments require limited degrees of previously acquired skills and knowledge and in which workers perform duties that result in or contribute to the comfort, convenience and hygiene of personnel and the student body or that contribute to the upkeep of the institutional property.

## Appendix B: Mapping Job Titles at Western to IPEDS Employee Primary Function Classifications

Job Title (Truncated)	IPEDS Occupation most often placed
Dean	Executive
Vice Pres/Prov	Executive
Director	Executive/Other Professional
Procurement & Supply Spec	NonPro:Clerical
Fiscal Speciali	NonPro:Clerical
Program Support	NonPro:Clerical
Adm Asst to VP	NonPro:Clerical
Mail	NonPro:Clerical
Retail Clerk	NonPro:Clerical
Fiscal Analyst	NonPro:Clerical
Administrative Assistant 3	NonPro:Clerical
Secretary	NonPro:Clerical
Fiscal Technici	NonPro:Clerical
Program Assista	NonPro:Clerical
Program Manager	NonPro:Clerical
Admin Services Manager	NonPro:Clerical
Office Assistan	NonPro:Clerical
Program Coordin	NonPro:Clerical
Parking	NonPro:Service/Maint
Utility Worker	NonPro:Service/Maint
Maintenance Spe	NonPro:Service/Maint
Grounds/Nursery	NonPro:Service/Maint
Campus Police	NonPro:Service/Maint
Custodian	NonPro:Service/Maint
Electrician	NonPro:Skilled
Plumber/	NonPro:Skilled
Maintenance Mec	NonPro:Skilled
Engineering Tec	NonPro:Technical
Graphic Designe	NonPro:Technical
Police Comm	NonPro:Technical
Nurse	NonPro:Technical
Control Technic	NonPro:Technical
Speech Path/Aud	NonPro:Technical
Resident Dir	NonPro:Technical
Instruct/Clstrm	NonPro:Technical
Library/Archive	NonPro:Technical
Information Technology Spec	NonPro:Technical
Construction Pr	Other Professional
Admissions	Other Professional
Coach	Other Professional
Research Techno	Other Professional
Asst to Dean	Other Professional
Research Analyst	Other Professional
Assoc Dir	Other Professional
Research Associ	Other Professional
Systems Analyst	Other Professional
Counselor	Other Professional
Coordinator	Other Professional
Asst Dir	Other Professional
Manager	Other Professional

Because Job Title is a free-form entry field, many job titles are unique, resulting in several hundred distinct job titles.

For purposes of illustration, we truncate the job title here in an attempt to show general groups of job titles.

We then show the IPEDS occupational category that the majority of those jobs are placed into by Western's Human Resources department.

Most of the truncated job title groups are primarily assigned to a single IPEDS occupation. The exception is the job title of Director. For jobs with this job title (truncated), about half are coded in the IPEDS Executive group, and half are coded in the Other Professional group.

*Job titles from the fall 2011 IPEDS Human Resources survey are used here.*