

**Analysis of Salary Differences Between Male and Female Faculty
Rutgers vs. Big Ten Peers
Salaries based on 2016-2017 salaries in the AAUP Compensation Survey
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The raw data on salaries (before any gender differences are examined) is as follows:

	Full	Assoc	Asst	Inst
Northwestern	\$200,726	\$130,754	\$117,221	
Rutgers-Newark	\$178,800	\$129,100	\$106,400	\$67,400
Michigan	\$168,183	\$111,409	\$93,085	\$67,525
Rutgers-NB	\$163,500	\$108,000	\$86,300	\$64,300
Maryland	\$160,142	\$110,248	\$95,710	\$72,917
PennState	\$154,266	\$104,756	\$89,628	\$59,002
Rutgers-Camden	\$150,700	\$101,200	\$86,300	\$60,500
MichiganState	\$150,080	\$99,601	\$79,687	
OhioState	\$149,502	\$99,800	\$87,343	\$95,982
Illinois	\$147,679	\$99,514	\$92,198	\$56,924
Purdue	\$145,515	\$100,777	\$89,742	\$63,817
Minnesota	\$141,983	\$99,349	\$87,548	\$52,189
Indiana	\$140,046	\$95,722	\$96,278	
Iowa	\$138,332	\$96,105	\$84,252	\$62,599
Wisconsin	\$132,705	\$100,970	\$87,195	\$63,953
Nebraska	\$126,788	\$87,569	\$84,684	
Peer Average	\$150,457	\$102,813	\$91,121	\$66,101
Rutgers vs. Average in \$:				
NB	\$13,043	\$5,187	(\$4,821)	(\$1,801)
Camden	\$243	(\$1,613)	(\$4,821)	(\$5,601)
Newark	\$28,343	\$26,287	\$15,279	\$1,299
Rutgers vs. Average in %:				
NB	8.7%	5.0%	-5.3%	-2.7%
Camden	0.2%	-1.6%	-5.3%	-8.5%
Newark	18.8%	25.6%	16.8%	2.0%
Rutgers Ranks (out of 14)	Full	Assoc	Asst	Inst
NB	3	4	11	4 of 10
Camden	5	5	11	7 of 10
Newark	2	2	2	4 of 10

- Rutgers New Brunswick full professors are all above peer averages, while associate and assistant professors are somewhat behind
- The instructor data is not robust, as some institutions use different definitions for instructors and lecturers

Before we analyze the data by gender, we will examine the effects of the above by cost of living. Using data from the Bureau of Economic Analysis (BEA), we are able to obtain the average price index for the metropolitan statistical areas for the peer institutions. However, the only institution without data is actually New Brunswick. For New Brunswick, given that New Brunswick is 36 miles from New York City, and 36 miles from Trenton, I used an average of the indexes from those two areas. For Camden, I used the index from Philadelphia-Camden-Wilmington.

	BEA Regional
Rutgers Newark	132.8
Rutgers NB	127.4
Maryland	117.1
Rutgers Camden	115.8
Northwestern	114.0
Minnesota	111.6
Penn State	111.2
Michigan	111.0
Wisconsin	106.6
Iowa	104.8
Indiana	103.0
Illinois	102.3
Purdue	101.9
Michigan State	101.7
Ohio State	101.5
Nebraska	101.1
Peer Average	106.8
Rutgers vs. Peer Average:	
(How much more expensive is it than Rutgers than peers)	
Newark	24.4%
NB	19.3%
Camden	8.5%

It is clear that Rutgers is more expensive than the peer average, and by a significant amount.

To see the effects of cost of living, we can take out the cost of living effect and then examine Rutgers average salaries vs. peers:

	Full	Assoc	Asst
Newark vs. Peer Average	18.8%	25.6%	16.8%
Cost of living effect	24.4%	24.4%	24.4%
Newark Net vs. Peer Average	-5.6%	1.2%	-7.6%
NB vs. Peer Average	8.7%	5.0%	-5.3%
Cost of living effect	19.3%	19.3%	19.3%
NB Net vs. Peer Average	-10.7%	-14.3%	-24.6%
Camden vs. Peer Average	0.2%	-1.6%	-5.3%
Cost of living effect	8.5%	8.5%	8.5%
Camden Net vs. Peer Average	-8.3%	-10.0%	-13.8%

- Prior to cost of living, Rutgers is ahead in 6 of 9 categories
- When cost of living is considered, for all three campuses and the three categories of faculty, Rutgers is below the peer average in 8 of 9 categories

Gender Analysis

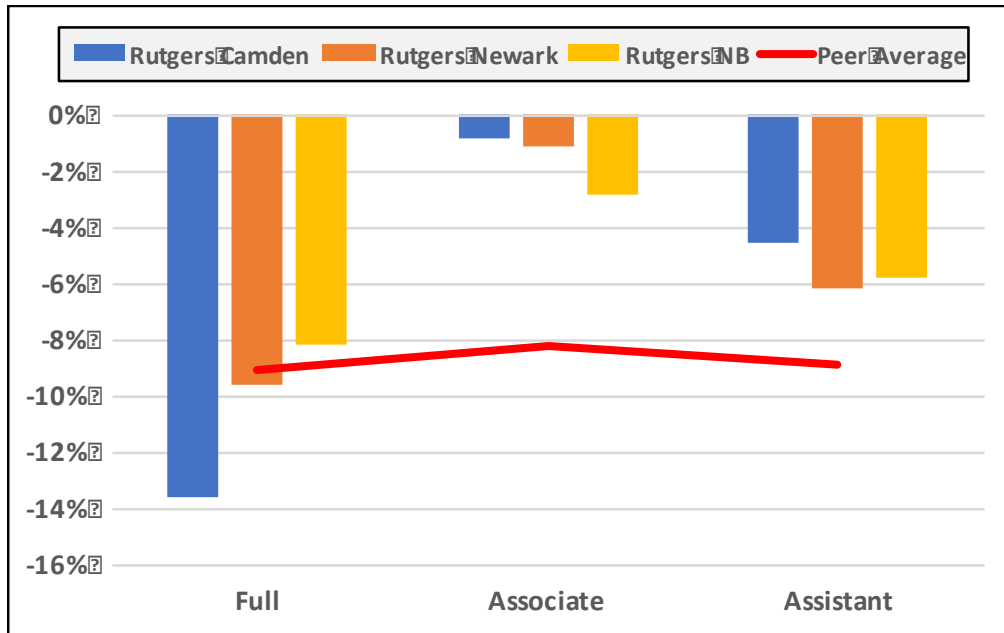
The AAUP compensation survey reports the disparity between male and female faculty for each category of faculty. In 2016-2017, for each peer institution and each category of faculty at each peer, women faculty were behind their male counterparts

Below is a table of how much (in percentage terms) female faculty are below their male counterparts at each institution for the three categories of faculty for which we have full data:

	Full	Associate	Assistant
Rutgers-Camden	-13.6%	-0.8%	-4.6%
Ohio State	-12.2%	-7.0%	-7.3%
Iowa	-11.3%	-12.4%	-12.4%
Northwestern	-10.7%	-9.9%	-14.1%
Indiana	-10.7%	-8.1%	-14.4%
Illinois	-10.6%	-8.6%	-10.2%
Wisconsin	-10.2%	-10.1%	-9.8%
Nebraska	-9.8%	-7.8%	-0.5%
Rutgers-Newark	-9.6%	-1.2%	-6.2%
Maryland	-9.6%	-9.6%	-12.8%
Minnesota	-9.5%	-7.3%	-9.2%
Rutgers-NB	-8.2%	-2.9%	-5.8%
Michigan	-7.4%	-5.7%	-5.0%
Penn State	-7.0%	-7.9%	-9.9%
Purdue	-5.8%	-5.5%	-5.8%
Michigan State	-3.0%	-6.5%	-4.2%
Peer Averages	-9.1%	-8.2%	-8.9%

- For full professors, the female faculty at Camden are 13.6% below the male faculty at Camden; this disparity is the largest full professor disparity of the 14 Big Ten (16 are in the list above since 3 Rutgers campuses are included) institutions
- The peer average of 9.1% is the average of the 13 non-Rutgers institutions; for all three levels, female faculty are approximately 9% below male faculty
- For associate professors and assistant professors, female faculty at Rutgers have a smaller disparity than the peer average

Graph of Rutgers vs. Peers in terms of gender disparity:



- Of the nine categories, the only two for which Rutgers faculty have greater disparities than peers are the full professors at New Brunswick and Camden
- All associate and assistant professors at Rutgers have a lower disparity between male and female salaries
- However, note that there is a disparity between male and female faculty for each category at each campus

Another way to examine this issue is to report the disparity between male and female salaries in dollar rather than percentage terms:

In Dollars:	Full	Associate	Assistant
Peer Averages	(\$13,861)	(\$8,567)	(\$8,134)
Rutgers:			
Rutgers-Camden	(\$21,600)	(\$800)	(\$4,000)
Rutgers-NB	(\$13,700)	(\$3,200)	(\$5,200)
Rutgers-Newark	(\$17,700)	(\$7,800)	(\$6,700)

- It is quite remarkable that male full professors at Camden make an average of \$21,600 more than female full professors at Camden
- The dollar differences being larger for assistant professors is disturbing, as these differences will likely persist and become larger over time

Lastly, trying to combine the gender disparity data with the cost of living data is difficult to interpret and analyze

Let's consider New Brunswick; the cost of living for New Brunswick is 19.3% higher than the cost of living at peer institutions.

In terms of gender disparity, full professors at Rutgers have a larger disparity than peers, at 13.6% below. It costs Rutgers faculty 19.3% more in terms of cost of living at New Brunswick than the average Big 10 peer. Does this mean that Rutgers female faculty are 32.9% below peers? I do not believe, from a statistical viewpoint, that you can just add the two disparities. These two items are different; one is a cost-of-living difference, which exists regardless of gender. The other disparity is gender-based. In my opinion, it is fair to state the two differences, and note that female full professors at New Brunswick have two significant deficits:

1. A large deficit vs. male counterparts at New Brunswick
2. A large deficit vs. all faculty at an average Big 10 institution, since New Brunswick is a higher cost of living area than a typical Big 10 institution