

Analysis of Faculty Salaries at Historically Black Colleges and Universities

Sri Sitharaman
Claflin University

AIR 2009

Acknowledgement

This material is based upon work supported by the Association for Institutional Research, the Institute of Education Sciences-National Center for Education Statistics, and the National Science Foundation under Association for Institutional Research Grant Number: DF-08-407.

Agenda

- Background
- Significance
- Research Questions
- Methodology
- Results
- Implications
- Questions?

Background

- Personal experience
- Literature
 - Evans, Evans, and Evans (2002)
 - Vital Signs (2002)
 - NCES (2004)
 - Blinder-Oaxaca (1973)

Significance

1) National Opinion Research Center (2006)

3.6% or 1,659 received a doctorate degree

606 earned doctorate in education

Many work for K-12

2) Betsey (2007)

HBCU faculty are older

If faculty interested in teaching at HBCUs are not produced, or if such faculty are not retained, a shortage of African American faculty was imminent. This could affect the fate of HBCUs and the students interested in attending such institutions.

Research questions

- R1- To what extent do characteristics of faculty at HBCUs differ from characteristics of faculty at non-HBCUs
- R2 - To what extent do the salaries of faculty at HBCUs and non-HBCUs differ with respect to the education, employment, demographics, productivity, and institution variables?
- R3 - To what extent does the Blinder-Oaxaca wage decomposition model explain the salary differential between faculty at HBCUs and non-HBCUs?

Data sources and variables

- National Study Of Postsecondary Faculty (NSOPF: 2004)
- Integrated Postsecondary Education Data System (IPEDS)
- Dependent variable – natural log salary
- Independent variables – education, employment, demographics, productivity, and institution

Education variables

- highest degree earned
- Carnegie classification of the institution where highest degree was earned
- years since receiving highest degree

Employment variables

- years since began first faculty or instructional staff job
- first postsecondary job
- principal activity
- years held current job
- job rank

Employment variables (continued)

- years since rank achieved
- union status
- tenure status
- contract length
- teaching or research field

Demographics variables

- gender
- ethnicity
- citizenship status
- age

Productivity variables

- percent time spent on undergraduate instruction
- percent time spent on graduate/first professional instruction
- percent time spent on research activities
- funded scholarly activity

Productivity variables (continued)

- career articles in refereed journals
- career articles in non refereed journals
- career book reviews/chapter/creative works
- career books/textbooks/reports
- career presentations
- career exhibitions/performances
- career patents/computer software

Productivity variables (continued)

- recent articles in refereed journals
- recent articles in non refereed journals
- recent book reviews/chapter/creative works
- recent books/textbooks/reports
- recent presentations
- recent exhibitions/performances
- recent patents/computer software

Institution variables

- Carnegie classification
- region where located
- institution control
- endowment per student
- percentage of students receiving any financial aid
- percentage of students receiving institutional grant
- average amount of institutional grant
- debt ratio.

Delimitations

- Institution was a four year institution
- Faculty with instructional duties
- Faculty had faculty status
- Faculty were employed full time
- Principal activity was teaching, research, or administration
- Contract length was 9/10 month contract or 11/12 month
- Rank was Professor, Associate Professor, or Assistant Professor
- Highest degree earned was doctorate, first professional, or masters
- Minimum and maximum salary was \$10,000 and \$200,000 to eliminate outliers.

Sample size

- 30 HBCUs (rounded to nearest tenth)
- 12,050 HBCU faculty (weighted)
- 580 non-HBCUs (rounded to nearest tenth)
- 351,250 non-HBCU faculty (weighted)

Regression equation

$$\ln(\hat{W}) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_j X_j$$

where (\hat{W}) is wages, β_0 is the intercept, β_j is the coefficient of the j^{th} variable, and X_j is the mean of the j^{th} variable

Dummy variable coding

Highest degree

- First Professional degree

A dummy variable indicating First Professional degree (1=yes, 0= no)

- Masters degree

A dummy variable indicating Masters degree (1=yes, 0= no)

- Doctorate degree is the reference category

Decomposition with non-HBCU faculty salary structure as standard

$$\begin{aligned} \text{Ln} (\hat{W}^{\text{non-HBCU}}) - \text{Ln} (\hat{W}^{\text{HBCU}}) = & \\ & [(X_{ij}^{\text{non-HBCU}} - X_{ij}^{\text{HBCU}}) \beta_{ij}^{\text{non-HBCU}}] + \\ & [(\beta_0^{\text{non-HBCU}} - \beta_0^{\text{HBCU}}) + \\ & (\beta_{ij}^{\text{non-HBCU}} - \beta_{ij}^{\text{HBCU}}) X_{ij}^{\text{HBCU}}] \end{aligned}$$

X_{ij} – mean of the characteristics

β_{ij} – regression coefficients

Average Salaries

The average salary of faculty at HBCUs was \$62,982 and the average salary of faculty at non-HBCUs was \$73,705, a difference of about 17%.

Table 1: Highest degree earned

Highest degree earned	Percent HBCU	Percent non-HBCU
Doctorate	85.6	84.6
First Professional	2.0	5.5
Masters	12.4	9.9

Table 2: Highest degree earned institution

Highest degree earned institution	Percent HBCU	Percent non-HBCU
Research I institution	51.9	65.1
Research II institution	10.7	10.1
Other institution	29.4	17.7

Table 3: Principal activity

Principal activity	Percent HBCU	Percent non-HBCU
Teaching	82.7	67.9
Research	3.1	21.0
Administration	14.2	11.1

Table 4: Rank status

Rank status	Percent HBCU	Percent non-HBCU
Professor	25.5	39.2
Associate Professor	43.3	29.0
Assistant Professor	31.2	31.8

Table 5: Tenure status

Tenure status	Percent HBCU	Percent non-HBCU
Tenured	56.0	60.8
On tenure track	33.4	27.2
Not on tenure track	7.6	9.5
Not tenured/No tenure system	3.0	2.5

Table 6: Gender

Gender	Percent HBCU	Percent non-HBCU
Male	64.5	68.3
Female	35.5	31.7

Table 7: Race/Ethnicity

Race/Ethnicity	Percent HBCU	Percent non-HBCU
Black/African American	60.0	3.7
White	23.2	82.4
Asian/Pacific Islander	15.3	10.1
American Indian/Alaskan	1.2	0.9
Hispanic	0.3	2.9

Table 8: Percentage of time spent on instruction and research

Activity	Percent HBCU	Percent non-HBCU
Undergraduate instruction	48	38
Graduate/First professional instruction	15	18
Research activities	19	26

Table 9: Scholarly activities -Career

Scholarly activities	HBCU mean	non-HBCU mean
Career articles in refereed journals	11	24
Career book reviews/chapters /creative works	3	6
Career presentations	25	43

Table 10: Scholarly activities - Recent

Scholarly activities	HBCU mean	non-HBCU mean
Recent articles in refereed journals	2	3
Recent book reviews/chapters/creative works	0.6	1
Recent presentations	4	5

Table 11: Carnegie classification

Carnegie classification	Percent HBCU	Percent non-HBCU
Doctoral institution	22.7	61.2
Masters institution	50.8	28.3
Baccalaureate institution	26.5	10.5

Table 12: Finance data

Variable	HBCU	non-HBCU
Debt ratio	0.35	0.34
Endowment/student (\$)	7,174	46,259
Pct. With financial aid (%)	84	77
Avg. amt. of institutional grant (\$)	3,877	6,104

Table 13: Regression coefficients - Highest degree earned and Highest degree earned from institution

<u>Variable</u>	<u>HBCU</u>	<u>non-HBCU</u>
Highest degree - First professional ^a	0.424	0.173
Highest degree institution – Research II ^b	0.115	-0.019

Reference category

a – Doctorate degree

b – Research I institution

Table 14: Regression coefficients –
First postsecondary job, Principal activity

<u>Variable</u>	<u>HBCU</u>	<u>non-HBCU</u>
First postsecondary job ^c	0.109	0.0022
Principal activity – Research ^d	0.111	0.034

Reference category

c - Not first postsecondary job

d - Teaching

Table 15: Regression coefficients – Rank,
Union status, Tenure status

<u>Variable</u>	<u>HBCU</u>	<u>non-HBCU</u>
Professor ^e	0.193	0.148
Union member ^f	-0.058	0.013
On tenure track ^g	0.082	-0.027

Reference category

e- Associate Professor

f – Not a union member

g - Tenured

Table 16: Regression coefficients –
Teaching load, Scholarly activity

<u>Variable</u>	<u>HBCU</u>	<u>non-HBCU</u>
Percent time spent on undergraduate education	-0.0020	-0.0028
Percent time spent on research activities	-0.0060	-0.0008
Funded scholarly activity ^h	0.059	0.041
<u>Reference category</u> Scholarly activity not funded		

Table 17: Regression coefficients –
Career scholarly activities

<u>Variable</u>	<u>HBCU</u>	<u>non-HBCU</u>
Career articles – refereed journals	-0.0013	0.0009
Career book reviews, chapters, creative works	0.0058	0.003
Career presentations	0.0013	8.2 E-05

Table 18: Regression coefficients –
Recent scholarly activities

<u>Variable</u>	<u>HBCU</u>	<u>non-HBCU</u>
Recent articles – refereed journals	0.016	0.0001
Recent book reviews, chapters, creative works	-0.054	-0.009
Recent presentations	2.2 E-05	0.002

Table 19: Regression coefficients – Carnegie classification, Institution control

<u>Variable</u>	<u>HBCU</u>	<u>non-HBCU</u>
Carnegie doctoral ⁱ	-0.139	0.046
Private not-for-profit ^j	-0.122	-0.042

Reference category

i – Carnegie masters

j – Public institution

Table 20: Regression coefficients –
Finance variables

<u>Variable</u>	<u>HBCU</u>	<u>non-HBCU</u>
Endowment/student	2.0 E-06	1.0 E-07
Percent with any financial aid	0.002	-0.0008
Average amount of institutional grant	2.1 E-05	1.0 E-05

Decomposition with non-HBCU faculty salary structure as standard

- Percentage of time spent on undergraduate instruction 22%
- Carnegie classification 21%
- Average amount of institutional grant aid 18%
- Faculty rank 16%

Decomposition with non-HBCU faculty salary structure as standard

Education, employment, productivity, and institution variables explained 8%, 15%, 29%, and 35% of the salary gap. The demographics variables worked to lower the salary gap by 6%.

Decomposition with HBCU faculty salary structure as standard

- Endowment/student 64%
- Faculty rank 21%
- Percentage of time spent on undergraduate instruction 16%
- Principal activity 15%

Decomposition with HBCU faculty salary structure as standard

Education, employment, and institution variables explained 14%, 31%, and 54% of the salary gap. The demographic and productivity variables worked to lower the salary gap by 18% and 7%.

Implications

- Mission creep
- Impact on student learning
- Value added model
- Tenure rate & turnover rate
- With only masters and baccalaureate institutions, the average faculty salary of \$62,187 at HBCUs was about 5% higher than the average faculty salary of \$59,428 at non-HBCUs.

Questions?

sri@claflin.edu