Helping bust the myth: Understanding endowment management at public historically

Black colleges and universities

Introduction

Historically, Black colleges have been underfunded in comparison to their predominantly White peer institutions (Gasman & Drezner, 2010). During the years after the *Brown v. Board* (1954) decision, Black colleges faced a hard situation, experiencing widespread deficits, fundraising struggles, low endowments, and gradually more under prepared students (Gasman, 2007). Post-segregation fights over the need for Black colleges led to the "starving" of many institutions financially (Gasman, 2007). Twenty years later, 31 of the private Black colleges were operating with deficits totaling $7.5 million (Trent, Jr., 1971; Holsendolph, 1971; Thompson, 1973). Private Black colleges had meager endowments adding up to a mere $72,250,000. Even more disconcerting in these figures was that 5 of the private Black colleges held 62% of endowment funds (Trent, 1971). To provide context, the average endowment size of an *individual* predominantly White institution (PWI) in 1963 was $63,109,000 (Wingerd, 1993). This figure is only $9 million less than the *combined* total private Black college endowment. The picture is even more grim for public HBCUs. A review of the public HBCU endowments shows even smaller endowments (Wingerd, 1993). Furthermore, according to analysis by Drewry and Doermann (2001) between the *Brown* decision and the mid-1970s, the market values of Black colleges fell. In comparison, with the exception of two years (1962 and 1970), endowments at PWIs increased every year between 1961 and 1975 (Wingerd, 1993).

Today, the world's markets are down significantly and fears of a double-dip recession are adding to institutions' concerns. As personal wealth is disappearing from portfolios, institutional endowments are succumbing to the wreaking of the markets as well. According to the annual

NACUBO-Endowment Study, the average rate of return in the fiscal year ending June 30, 2008 was a loss of 3 percent. Returns fell an additional 23 percent in the first five months of the FY 2009. The conditions of the market have lead to budget cuts, hiring freezes and other substantial reductions in non-mission critical expenditures.

As the markets began to decline in fiscal year 2008, private giving did as well. According to the Voluntary Support of Education (VSE) survey, when removing the top 20 performing institutions, who by far out preformed the rest of U.S. institutions, private giving fell 4.2 percent —before the large market collapsed in the fall and winter of 2008/2009. Black colleges remain underfunded and with smaller endowments than PWIs. Nearly all of the Black college endowments continue to fall in the lowest quartile of endowment market values. According to a recent NACUBO report, this quartile accounts for 17% of all endowments and equals only 0.5% of the total dollars held in university endowments.

Further, since HBCUs installed Black leadership there has been a public concern about their fiscal management that has often been prevalent in the media (Gasman & Anderson-Thompkins, 2003; Gasman, 2007; Gasman & Drezner, 2008; 2009; 2010). These allegations of fiscal mismanagement are still common today (Kelderman, 2010). Our study carries out panel data analysis to understand the endowment funding of HBCUs with reference to comparable public four-year universities.

Research Design

We address the following research questions in this paper:

1. What financial characteristics of public four-year universities influence endowment assets per full time equivalent (FTE) enrollment?

2.   Is there any difference in the endowment assets per FTE enrollment between pubic

four-year HBCUs and comparable public four-year universities?

Our hypothesis is that there is no difference in fiscal management of public-HBCUs, thereby

helping refute the myth that these institutions are fiscally irresponsible.

Data and Variables

This study uses ten years of Integrated Postsecondary Education Data System (IPEDS)

data spanning 1987 to 1996 for 248 institutions in 47 states. The data includes institutional,

enrollment, and financial characteristics. We limited the IPEDS data to institutions which are

not identified as high research, very high research or having a hospital in order to have a study

sample in which the non-HBCU institutions are more similar to the HBCUs. Historically,

HBCUs have often been evaluated and compared to PWIs that are not fair equivalents (Jencks &

Riesman, 1967; Gasman 2006). This step is to mitigate these past mistakes. The full dataset had

336 institutions including 28 public four-year HBCUs and 308 public four-year PWIs. We

further limited our sample to cases which were complete (i.e., conducted listwise deletion)

resulting in a study sample of 248 institutions, including 22 HBCUs and 226 other public PWIs.

We constructed a time-series/cross-sectional (TSCS) dataset with the 992 observations spanning

the ten year period   The descriptive statistics of all these variables are listed in Table-1.

The study's model is informed by the higher education finance literature which shows the

interrelated nature of allocations and expenditures (Barr, 2002; Goldstein, 2005; Massy, 1990;

1996; Paulsen & Smart, 2001) as well as the fact that corporate and foundation donors regularly

ask about these allocations, expenditures, and donations in their grant proposals (Foundation

Center, n.d.). The financial data of endowment, appropriations, tuition and fees, grants, and

expenditures are adjusted for inflation using the 1996 HECA index (Higher Education Cost

Adjustment factor), developed by State Higher Education Executive Officers (SHEEO) for colleges and universities (SHEEO, 2009). The list of variables utilized in this study is found in Table-2.

Analytic Model

We used a panel data modeling approach to explain variation among individual units and within a unit with respect to time (Verbeek, 2000; Baum, 2006). This technique allowed us to account for unobserved changes over time, such as state or national policies, market fluctuations, etc. (Verbeek, 2000; Baum, 2006). The regression equation for panel data modeling was:

$$y_{it} = \beta \mathbf{X}_{it} + \delta \mathbf{Z}_i + u_i + \varepsilon_{it} \tag{1}$$

where y^{it} is endowment assets per FTE, u^i is the time-invariant individual-level effect, and the variables in vector $\mathbf{X}$ are time-varying dependent variables on appropriations, grants, endowment income and expenditures. The variables in vector $\mathbf{Z}$ are time-invariant variables and ε^{it} is the error term. We included the binary HBCU indicator in vector $\mathbf{Z}$.

When conducting regression analysis using panel data, effects may be modeled as either fixed effects (FE) or random effects (RE). The fixed effects model is more appropriate if there is a correlation among the time-invariant individual-level effect (u^i) and the regressors. If not, the random effects model is more suitable. Additionally, the fixed effects model drops time-invariant parameters, while the random effects model estimates time-invariant parameters.

This study investigated the differences in endowment assets per FTE between HBCUs and non-HBCUs public four-year institutions; therefore, the time-invariant parameter HBCU is important. Hence, the study utilizes the random effects model. However, the Wooldridge Test for serial correlation in panel data indicated there is a problem of serial correlation of first-order autocorrelation or AR(1) (Wooldridge, 2002). Therefore, the panel data is analyzed using a RE model which adjusts for the serial autocorrelation of AR(1) type in idiosyncratic error terms using the *xtregar* method in STATA.

Results

The descriptive statistics of all variables are listed in Table-1. The regression results (Table-3) suggest that federal appropriations per FTE, federal grants & contracts per FTE, and income from auxiliary enterprises per FTE do not influence endowment assets. This result is understandable because these factors are not tied to the economic situation as is endowment performance.

Prior endowment assets per FTE affect current assets. While the principal of true-endowments cannot be spent, a portion of endowments assets are typically spent or reinvested. Therefore, endowment assets at the end of a year should depend on previous year's endowment. This concept is modeled by the inclusion of a one-year lagged endowment assets as an independent variable. The coefficient associated with this variable is significant ($p < 0.001$) and positive confirming that endowment assets from the previous year help an institution's endowment to grow (Table-3).

Further, state appropriations per FTE, state grants and contracts per FTE, private gifts, grants and contracts per FTE, and endowment income per FTE are positively related to

endowment assets. Therefore, an increase of dollar amounts in any of these variables will result in an increase in endowment assets.

The total Education and General (E&G) expenditure per FTE is negatively related to state appropriations. Because about 34 percent of endowment assets are quasi- or term-endowments that can be spent (Massy, 1990), the endowment assets may experience a slight decrease with an increase in expenditure if a part of endowment assets are utilized to meet E&G expenditure at public four-year institutions.

The effect of tuition and fees per FTE is positive on endowment assets. The significant positive relationship between tuition and fees per FTE and endowment assets per FTE indicates increases in tuition and fees are associated with increases in endowment assets which may be due to a decreased need to spend endowment assets to cover operating costs (Worth, 2002).

Proving our hypothesis, that HBCUs are as fiscally responsible as their comparable PWIs, the HBCU coefficient ($p = 0.2$) suggests there is no statistically significant difference in the endowment funds per FTE between HBCUs and other comparable public four-year degree institutions. This shows that fiscal management at public-HBCUs is similar to that at other comparable public PWIs.

We see year effects declining in 1992 and becoming statistically significant and negatively associated with endowment assets per FTE which fit with the observed U.S. recession from July 1990 - March 1991.

Limitations

The study has limitations related to the data used – in particular, the dependent variable (endowment assets per FTE) is not available for more than five years for any institution. This is a less than ideal timeframe for a panel data analysis as it may be insufficient to capture trends in

financial data which may be non-stationary. Thus, we recommend additional exploration of these research questions over a longer time span which was not supported by IPEDS.

Second, the model does not include local funding (i.e., gifts, grants, contracts or appropriations). Although collected by IPEDS, the data was incomplete in many years in our sample. Third, the underreporting of endowments, gifts to endowments and private gifts – especially among HBCUs – which is a known fundraising data concern (Gasman & Anderson-Thompkins, 2003, CAE, 2007) would led to underestimates of the associations in our models.

Conclusions

This paper investigates what factors influence endowment funds at public four-year higher education institutions and whether any differences exist in the endowment funds of HBCUs and comparable public four-year institutions. Regression analysis of panel data led to several conclusions. First, the study suggests that private gifts, grants and contracts, endowment income state appropriations, state grants and contracts, and tuition and fees positively influence endowment funds. Second, endowment funds per FTE decrease with the total E&G expenditure per FTE, while federal appropriations, federal grants and contracts, and the revenue generated by auxiliary enterprises per FTE do not influence endowment assets.

Third, the study finds that there is no difference in the fiscal management of HBCUs and other comparable public four-year institutions. This finding is important because HBCUs are often targeted for their fiscal management. Fourth, the study finds that in the times of recession, the endowment funds are affected negatively.

Significance of the study

In today's financial crisis environment, nearly all states are experiencing declines in tax revenues and are grappling with ways to finance the increasing costs of higher education. Universities and colleges face declining support for maintaining enrollment opportunities and

courses offered. In such a climate, the philanthropic contribution to higher education offers a potentially important alternative source of revenue to help redress public funding shortfalls and undertake new academic ventures.

One impediment that HBCUs, both public and private, often contend with while fundraising for endowment and current use funds alike, is the perception that HBCUs are not fiscally responsible (Gasman & Anderson-Thompkins, 2003; Gasman, 2007; Gasman & Drezner, 2008; 2009; 2010). This study shows that public HBCUs are as fiscally secure and sound as their PWI counterparts. Armed with this information fundraisers at public HBCUs will be able to approach potential funders—individuals, corporations, and foundations—to show that this "myth" is not true.

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Appendix-A

Table 1: Descriptive statistics of variables

Variable	Number of Observations	Mean	Standard Deviation
State Appropriations per FTE	3237	5043.0	2257.36
Federal Appropriations per FTE	3250	22.30	213.62
Federal Grants and Contracts per FTE	3239	1010.93	769.65
State Grants and Contracts per FTE	3147	270.09	429.19
Private Gifts, Grants and Contracts per FTE	3122	210.98	469.80
Tuition and Fees per FTE	3248	2543.56	1042.52
Total educational and general expenditure per FTE	3248	9319.32	3148.03
Revenue generated by auxiliary enterprises per FTE	3198	1420.11	952.60
Endowment Income per FTE	2591	32.43	90.67
Endowment Assets per FTE (market value at the end of the fiscal year)	1513	699.42	1610.04

Table 2: Variables

Dependent variable:

    Endowment assets per FTE, market value at the end of fiscal year (EA)

Independent variables:

1. Federal appropriations per FTE (FA)

2. State appropriations per FTE (SA)

3. Federal grants and contracts per FTE (FGC)

4. State grants and contracts per FTE (SGC)

5. Private gifts, grants and contracts per FTE (PGGC)

6. Tuition and Fees per FTE (TF)

7. Total educational and general expenditure per FTE (EXP)

8. Revenue generated by auxiliary enterprises per FTE (AX)

9. Endowment Income per FTE (EI)

10. HBCU (0 = non-HBCU reference category, 1 = HBCU)

Table 3: Result of regression analysis of endowment assets per FTE student

Independent Variables	Dependent Variable – *Endowment Assets per FTE student*	
	Estimated Beta Coefficients	Standard Errors
Constant	-104.14	123.23
One year lagged Endowment assets per FTE	0.807***	0.017
State appropriations per FTE (SA)	0.104**	0.033
Federal appropriations per FTE (FA)	-0.04	0.145
State grants and contracts per FTE (SGC)	0.13*	0.062
Federal grants and contracts per FTE (FGC)	0.029	0.048
Private gifts, grants and contracts per FTE (PGGC)	0.436***	0.088
Tuition and Fees per FTE (TF)	0.119**	0.044
Total educational and general expenditure per FTE (EXP)	-0.07**	0.026
Revenue generated by auxiliary enterprises per FTE (AX)	-0.026	0.026
Endowment Income per FTE (EI)	4.49***	0.336
Non-HBCU (Reference Category)		
HBCU	162.49	112.71
Year Effects		
Year 1987(Reference Category)		
Year 1988, 1989, 1990, 1991 (dropped by STATA)		
Year 1992	-205.16**	59.09
Year 1993	-115.33	60.22
Year 1994	-156.24**	53.29
Year 1995	-86.89	44.51
Number of Observations	992	
R-squared	0.8862	
Wald chi2(16)	4122.1****	

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, ****$p < 0.0001$