

The Effects of the Arkansas Economy on AETN Revenue Resources

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Abstract

The purpose of this research paper is to study the effects, if there are any, of the Arkansas economy on the revenue resources of the Arkansas Educational Television Network (AETN). With the findings of this research paper, AETN may be able to make a prediction of contribution revenues by examining Arkansas's per capita income.

For this paper, data were collected-with the cooperation of Mike McCullars, AETN's Director of Research and Special Projects-that dealt with AETN's revenues and expenses, membership campaigns, on-air usage, network history, and various other historical and financial information. After studying these data, Arkansas's population and per capita income, collected by Mr. Shipley, were compared to AETN's financial statements. Then, specific information from the collected data that seemed the most relevant to the purpose of this paper was entered into a spreadsheet and processed using "SPSS for Windows," a statistical program for computers. Several linear regression equations that measure the effect of explanatory variables on a dependent variable were analyzed to determine the existence of any significant relationships. Any effects were considered significant if the margin of error was no more than 5%. Significant equations are reported.

Statistical analysis of the data collected indicated that state, contribution, and campaign revenues were significantly affected by changes in Arkansas's per capita income. I would suggest that AETN's Development Department closely watch trends in the Arkansas economy to make predictions of future revenues.

Overview of AETN

"The mission of the Arkansas Educational Television Network (AETN) is to offer lifelong learning opportunities to all Arkansans; to supply instructional programs to Arkansas' schools; to provide programming and services to improve and enhance the lives of Arkansas' citizens; and to illuminate the culture and heritage of Arkansas and the world" (www.aetn.org). On December 4, 1966, the first AETN station, KETS of Little Rock, received a license from the Federal Communications Commission (Mission Statement, AETN). This single station would later expand to five channels, each with its own broadcasting transmitter, that would cover the state of Arkansas, as well as flow over the borders of the surrounding states of Mississippi, Missouri, Oklahoma, Tennessee, and Texas. The cumulative number of households that watched AETN at least once a week during 1997 made up a total of 278,838 viewers (Arkansas

households, AETN). This is indicative of the integral role that that AETN plays in the social and educational lives of Arkansas citizens.

One main purpose of AETN is to provide a learning experience to all people in the state of Arkansas. When AETN was first established in 1966, this was accomplished simply by the use of the television station. But a new millennium is approaching, with a society that demands a higher standard of technology. AETN is doing its best to keep up-to-date on these new demands through the use of three programs. The first is Distance Learning, which uses a satellite uplink to provide training for Arkansans through non-broadcast programs that allow for interactive communication. Students in different cities across the state can receive training by experts via satellite and can also communicate with their instructors via phone, fax, or computer modem (Mission Statement, AETN). The second program is *AETN ON-LINE*, which is designed to offer program related computer services to schools and all Arkansans (Mission Statement, AETN). The third program is *Ready to Learn*, which "provides entertaining educational programs for pre-school through elementary age children throughout the year during the morning and late afternoon weekday schedule" (Mission Statement, AETN). The material covered in this program is designated to increase the children's learning skills before and during school.

The main focus of AETN is instructional television. According to Mike McCullars, AETN's Director of Research and Special Projects, traditional educational programs (defined by McCullars as programs that are used to instruct students to attain a degree) are on air from 25 to 30 hours a week out of the total 160 hours per week that AETN is on-air. Most of these programs are shown in block schedules overnight. The block schedule allows instructors to record the programs for use at a more convenient time, and it also allows for more "non-traditional educational" programs to be televised. Even though traditional educational programming utilizes only 15%-20% of on-air time, McCullars states that approximately 90% of programs shown on AETN have some sort of educational purpose or mission (McCullars, personal interview). "More than 93% of schools in the state, grades Kindergarten through 12, are currently utilizing AETN broadcast lesson materials" (Mission Statement, AETN). Not only is AETN used as an educational resource for elementary and secondary schools, but universities and vocational technical schools are beginning to rely on AETN's telecourses which are applicable to adult educational opportunities. "AETN works closely with the Arkansas Department of Education, the Arkansas Department of Higher Education, the Association of Two-Year Colleges, the Arkansas Department of Worker Education, Arkansas Early Childhood Education and other life-long learning providers to bring the benefits of education to all Arkansans" (Mission Statement, AETN).

Expenditure and Revenue Analysis

Since AETN is a non-profit organization, the station must depend on federal, state, and contribution revenues to operate. The purpose of this paper is to study the effects of the Arkansas economy, particularly Arkansas's per capita income, on the revenue resources of AETN. Based on the data collected, correlations were detected between state/contribution revenues and the Arkansas per capita income. These trends could help AETN help predict future revenues.

Since much of this paper deals with statistical analysis, it may be useful to provide some basic background. The statistical model used was mainly that of linear regression. "The regression method of forecasting is especially appropriate when the variable being forecast is logically dependent on some other variable" (Harwood, 85). This allows statisticians to determine relationships with a certain level of certainty. To determine if there is a linear relationship present between two variables, it is useful to graph a scatter diagram (a graph where only the data points are plotted) (Harwood, 87). If a linear progression is present, along with a logical dependency, a regressional linear equation can be determined.

"Instructional and public television programs are obtained from the Public Broadcasting Service (PBS), the National Educational Telecommunications Association (NETA), Satellite Education Resource Consortium (SERC), and American Program Service (APS), a consortium of regional public television stations and networks" (Mission Statement, AETN). AETN has also gone to independent television producers for programs, and the station has even produced some of its own award-winning programs. "Viewers in Arkansas are presented with over 450 hours of programming per month. More than 98% of AETN's programming is uninterrupted" (Mission Statement, AETN). Unfortunately, the programs that AETN provides are not cost free to the network itself. Therefore, the station must rely on financial resources to provide some sort of funding for its growing expenses. AETN receives most of its funding from "state appropriations, federal assistance, and contributions through the AETN foundation" (Mission Statement, AETN). State appropriations, which come from the Arkansas General Assembly, provide the largest portion of the three major funding resources. Second to that is the AETN Foundation, which includes fundraising and membership campaigns. Federal assistance provides the least funding of the three main resources. AETN's 1997 Fiscal Financial Statement provides a picture of the distribution of funds. The amount of state revenue came to a total of \$4,484,549.00 (56.6%), membership contributions amounted to an estimated \$1,516,291.00 (19.1%) and federal funding came to a total of \$770,907.00 (9.7%) (Financial History, AETN).

Since those three revenue resources produce the largest amount of money, it would be beneficial to know if there is any trend in the amounts of funding from them over the years. Using "SPSS for Windows," it is possible to determine if there is a linear regression trend that exists in those revenue resources between the years 1987 and 1997. When federal revenue is compared to the ten-year period, no linear trend can be detected (Table 1). This could be accounted for by the fact that most federal grants are distributed by the choice of each new Congress, so the size of the grant may vary from Congress to Congress. When state revenue is analyzed over the same ten-year period, there is a significant linear trend present. The linear equation for state revenue (state revenue is abbreviated as "EMA" and the count of each year is abbreviated as "Ct") is

$$\text{EMA}=2343535+15407\text{Ct}, \text{ when Ct}=1 \text{ for } 1987$$

(Table 1). Simply stated, this means that for each year, there is a \$15407 increase above the \$2,343,535 base revenue. When contributions are compared to the ten-year period, there is also a trend present. The linear equation for contributions (Cont) is

$$\text{Cont}=1384137+27639\text{Ct}, \text{ when Ct}=1 \text{ for } 1987$$

(Table 1). This equation can be evaluated in the same manner as the state revenue equation.

Given the ten-year trends in state funding and private contributions, it is now necessary to look more closely at the contribution aspect of program funding. In 1976, the Friends of AETN, now the AETN Foundation, was formed (Mission Statement, AETN). In that first year, "viewer contributions from over 1,360 homes accounted for about \$25,000 in additional funds for program services" (Mission Statement, AETN). According to the February 1998 AETN Program Guide Mailing List, the average number of AETN members has risen to 18,581 viewers (Members, AETN). The membership campaigns consist of three pledge drives held each year. The pledge drives occur in March (lasts between 17 and 19 days), August (lasts between 9 and 10 days), and December (lasts between 9 and 10 days) (McCullars, personal interview). According to AETN's On-Air Usage Total Minutes Comparison for the Year 1996, fundraising took up 1.8% of on-air time, which equals approximately 6,600 minutes (On-Air Usage, AETN). By looking at a Pledge Comparison from the Fiscal Years 1985 to 1998, it is possible to make a comparison between the number of on-air minutes devoted to the annual pledge drive and the amount of money pledged for that year. During the fiscal year 1985, 2984 minutes were devoted to the pledge drive, and \$748,044 was raised (Pledge Comparison, AETN). But in FY 1998, 7078 minutes were directed towards the drive with only \$545,946 raised (Pledge Comparison, AETN). This means that between the years 1985 and 1998, there was a 137% increase in the number of minutes directed towards the pledge drive, but a 27% *decrease* in the amount of money pledged.

When asked about these figures, McCullars said that the decrease seems to be a trend in Public Broadcasting Stations across the nation. He attributed this problem to the fact that membership has dropped off over the past decade. This may be due to increased competition from cable channels which provide alternate educational/entertainment programs. According to McCullars, cable helped to boost the number of viewers during the 1980's, but in the 1990's, cable channels similar in nature to AETN started developing, which caused competition and a decrease in viewers. Another aspect affecting this trend is that the typical AETN viewer has changed from older viewers to baby boomers and younger generations. The parents of the baby boomers are more inclined to donate money than their children (McCullars, personal interview).

Even though the focus of this paper is on AETN revenue resources, it is also beneficial to look at any possible trends in expenses. One important expense is Programs/Promotions. When the data is plotted over the ten-year period, a linear trend is observed. The linear equation for Programs/Promotions (ProgProm) is

$$\text{ProgProm} = 1284016 + 72520\text{Ct1}, \text{ when Ct1} = 1987$$

(Table 1). This means that there is a \$72520 increase per year above the base expense. This trend is important to AETN, since it is the highest expense.

When studying the amount of money that is pledged on-air, it is also necessary to look at what percentage of those dollars is actually received. Unfortunately, some people that commit to an installment contribution over the phone do not mail their payments in to the station. According to the Pledge Comparison from the Fiscal Years 1985 to 1998, the percentage of pledge dollars

fulfilled fell as low as 60%, in 1993. The idea that nearly half of the money that AETN expected to receive never came is quite astounding. McCullars attributed this fact to the "Barney year" (McCullars, personal interview). The first year that AETN broadcasted the children's television show "Barney and Friends" was 1993. The program became a huge commercial success and development decided to use Barney paraphernalia as thank-you gifts to contributors. This decision caused the number of dollars pledged on-air to increase by 15% that year (Pledge Comparison, AETN). Many contributors chose the cash installment plan. When AETN sent those contributors payment reminders, their desire to have the Barney item had decreased, so many people did not pay their installments (McCullars, personal interview). According to McCullars, the "Barney year" phenomenon occurred at PBS affiliates across the nation. From this experience, stations are choosing not to rely on red-hot items as thank-you gifts. Also, AETN is trying to get more members to pay for their contributions with a credit card instead of by cash installments. To promote credit card payments this year, AETN has decided to give a thank-you gift to members that contribute at least \$75 and pay with a credit card. But members that choose the cash installment plan receive a gift only when they contribute \$100 (McCullars, personal interview). McCullars seems to think that this tactic is working because during the November 2, 1998, pledge day, approximately 75% of the contributions were paid by credit cards (McCullars, personal interview). If this figure holds true for the entire pledge period, the percentage of pledge dollars actually received could rise to 90% or above (McCullars, personal interview). This is promising considering that in the past, 81% has been the highest rate of fulfillment (Pledge Comparison, AETN).

Keeping that information in mind, the pledged dollar, percent dollar fulfilled, and average dollar pledged figures were individually compared over a ten year period from the years 1987 to 1997 to determine if there is a regression linear trend apparent. When the dollars pledged are looked at over the ten-year period, no trend is evident, which also holds true for a comparison between percent dollars fulfilled during the ten-year period (Table 1). The "Barney Year" could have affected those figures; therefore, a study with a longer year span would be beneficial. On the other hand, when the average dollar pledged is examined during the ten-year period, a trend is evident. The linear equation for average dollars pledged (AvgPled) is

$$\text{AvgPled}=56.536+1.51\text{Ct}, \text{ when Ct}=1 \text{ for } 1987$$

(Table 1). This means that there is a \$1.51 increase per year above the base \$56.536. To put it plainly, there is a steady increase in average dollars pledged during the ten-year period.

Next, Arkansas' per capita income growth for the years between 1987 and 1997 was analyzed and a linear trend is found. The linear trend for Arkansas per capita income (ArPCInc) is

$$\text{ArPCInc}=10935+795\text{Ct}, \text{ when Ct}=1 \text{ for } 1987$$

(Table 1). This means that there is a \$795 increase per year above the base \$10,935.

With that information in hand, the research was taken one step further. Instead of simply comparing revenues and expenses over a period of time, key revenue sources were compared to Arkansas's per capita income. Those revenues tested were state funding (EMA), private

contributions, fundraising expenditures, campaign totals, percent dollars fulfilled, and average dollar pledged. When state revenue was compared to Arkansas’s per capita income there was a linear relationship with a 0.8% margin of error. The linear equation for state revenue is

$$\text{EMA}=33764+207\text{ArPCInc}$$

(Table 1). This means that for every one dollar increase in Arkansas’s per capita income, there is a \$207 increase in state revenue above the base of \$33,764. When private contributions are analyzed, there is a linear relationship with a 0.1% margin of error. The linear equation for contributions is

$$\text{Cont}=808746+48\text{ArPCInc}$$

(Table 1). This equation, and the following ones, can be interpreted in the same manner as the equation for state revenue. When fundraising is compared, there is a linear trend with a 0.1% margin of error. The linear equation for fundraising (Fund) is

$$\text{Fundrsg}=21808+39\text{ArPCInc}$$

(Table 1). When campaign total is compared, there is a linear trend with a 4.20% margin of error. The linear equation for campaign total (CampTotl) is

$$\text{CampTotl}=817721+37\text{ArPCInc}$$

(Table 1). When percent dollar fulfilled and average dollar pledged is compared to Arkansas per capita income, no significant relationship is found (Table 1).

Conclusion

The data collected seem to provide evidence that Arkansas’ economy *does* have a significant effect on some of AETN’s revenue resources. The trends calculated between state revenue, contribution revenue, fundraising, and campaign totals with Arkansas per capita income point out that it is important that AETN closely watch trends and changes that develop in Arkansas’s economy. If a certain trend is predicted for the per capita income, it will also affect AETN’s revenue resources. AETN can use this information as a tool to develop forecasts for future revenue outcomes. This could help AETN prepare and plan ahead for future years and help the network utilize its budget to the best of its ability.

TABLE 1

DpdtVar	IndptVar	Trend	Marg%Err	Linear Equation
CPB	Ct	No	N/A	None
EMA	Ct	Yes	N/A	EMA=2343535+154075Ct; Ct1=1987
Cont	Ct	Yes	N/A	Cont=1384137+27639Ct; Ct1=1987

ProgProm	Ct	Yes	N/A	ProgProm=1284016+72520Ct; Ct1=1987
Bdcst	Ct	No	N/A	None
Learn	Ct	Yes	N/A	Learn=530946+60258Ct; Ct1=1987
Fundrsg	Ct	Yes	N/A	Fundrsg=449790+31453Ct; Ct1=1987
Admin	Ct	Yes	N/A	Admin=683389+33267Ct; Ct1=1987
ArPCInc	Ct	Yes	N/A	ArPCInc=10935+795Ct; Ct1=1987
AvgPled	Ct	Yes	N/A	AvgPled=56.536+1.51Ct; Ct1=1987
Pled#	Ct	No	N/A	None
Fulfil%	Ct	No	N/A	None
Pled\$	Ct	No	N/A	None
CampTotl	Ct	No	N/A	None
EMA	ArPCInc	Yes	0.80%	EMA=33764+207ArPCInc
Cont	ArPCInc	Yes	0.10%	Cont=808746+48ArPCInc
Fundrsg	ArPCInc	Yes	0.10%	Fundrsg=21808+39ArPCInc
CampTotl	ArPCInc	Yes	4.20%	CampTotl=817721+37ArPCInc
Fulfil%	ArPCInc	No	N/A	None
AvgPled	ArPCInc	No	6.20%	

References

"Arkansas Educational Television Network." Mission Statement, Network Description, and History of AETN and Public Television.

"Membership Campaign Revenue – Fiscal Year Grand Totals."

"Pledge Comparisons – Money."

"AETN Fiscal Financial History." Combined State Network and Foundation Operating Financial Records.

"Cumulative number and percentage of Arkansas Households per county that watch AETN at least once a week during 1997."

"Average Number of AETN Members and percentage of viewers that are members during 1997."

"On-Air Usage." Total Comparison Yearly Average during 1996.

"Arkansas Data Sheet." Comparison of Arkansas Population and per capita Income.

"Comparison of FY Financial Statement, Membership Campaigns, and Arkansas Population/per capita Income."

Arkansas Educational Telecommunications Network. 1(800)662-2386. (<http://www.aetn.org>).

Harwood, Gordon. *Programmed Learning Aid for Quantitative Methods with Applications in Accounting and Business*. Illinois: Learning Systems Company, 1979.

McCullars, Mike, AETN's Director of Research and Special Projects. Phone interview. November 3, 1998.

Table 1. "Results of Linear Regression Statistics Derived from 'Comparison of FY Financial Statement' (allowing a 5% error)."

Biographical Sketch

Kassi Richey is a senior business administration-management major from Bridgeport, Texas. During her four years at Henderson State University she has been a member of the Honors College, HSU Band, and president of Tau Beta Sigma and Rotaract. Kassi was awarded the Rotary Ambassadorial Scholarship this past summer and plans to attend graduate school in New Zealand.

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