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**Cutting College Teams: Budget Cuts or Cost Reallocation?**

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## Introduction

In December 2013, Temple University announced that they would be eliminating seven varsity sports from their athletic department. Athletic Director Kevin Clark cited “tightening budgets, the need to get Title IX complaint, and the state of the university's facilities” as the main reasons that Temple had to discontinue the programs.<sup>1</sup> Temple is not alone, as over time, many collegiate athletic departments have discontinued specific sports for various reasons. Oftentimes a department claims a need to ‘comply with Title IX regulation’, a federal legislation prohibiting discrimination on the basis of gender, as the primary reason for discontinuing an athletic program. In other cases, schools have cited a need to reduce athletic department spending. Regardless of the reason, discontinued programs generate a windfall of previously allocated funds to athletic departments. In the current study, I examine how expenses get reallocated within an athletic department following the discontinuation of an athletic team. In particular, I investigate whether funds are reallocated to the remaining sports or simply saved for other purposes. Furthermore, if the funds are reallocated, I investigate the manner in which these saved expenses get distributed to the remaining sports.

This study attempts to answer these questions by examining what happens to the expenses of a team once an athletic department decides to discontinue an athletic program. Drawing from the consumer products industry, where companies often eliminate, sell off, or divest low-performing operating segments or product lines for strategic purposes, it is possible that universities decide to similarly terminate specific teams from their athletic

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<sup>1</sup> Menta, N. (2013, December 6). Temple to cut 7 athletic programs. *Comcast SportsNet Philadelphia*. Retrieved April 30, 2014, from <http://www.csnphilly.com/ncaa/temple-cut-7-athletic-programs>

department in order to reallocate expenses to better performing units. When a company eliminates a particular segment of their organization, they are often motivated by profit maximization objectives. If one were to consider athletic departments in the same category as these companies, (both making decisions with profits in mind) it would be completely reasonable to expect their strategies to be consistent with each other. If an athletic department were to consider profit motives, it may be prudent to divest in low-profit areas. Smaller sports, such as tennis or wrestling, although not as expensive as football, still cost a substantial amount of money to fund each year. Unlike football though, these sports often do not generate significant revenue for the department, or university at large. Ticket sales and sport-specific merchandise for low-revenue producing sporting events often do not cover the associated costs of supporting these athletic programs. Thus, it would be practical for an athletic department to make the decision to cut one or more of these 'low-revenue-producing' teams, and reallocate the saved expenses to teams that are more successful at bringing in revenue.

Therefore, this study looks at the average growth rates of schools that have eliminated sport teams from their athletic department over the last several years. When looking at these growth rates, I was interested in whether or not there was any abnormal activity around the time of the sport team cut. Whether there was a sharp increase in expenses, or a noticeable decrease, this study attempts to determine how saved expenses are allocated post elimination. Were schools actually making cuts for their openly expressed rationale?

The results of the research show that the treatment schools, which discontinued a sports team from their athletic department, are disproportionately reallocating their cost-

savings to football. Furthermore, 1-year averages indicate that there was no discernable effect on the expenses of athletic departments one year after a cut was made. However, when evaluating the 3-year average results, it appears that schools are in fact redistributing their expenses unevenly towards football. The 3-year average growths for the football expenses of treatment schools were higher than the control groups in each test. Additionally, the 3-year football expense growths were higher than those of the lower-revenue sports when compared to 2 of the 3 control groups, showing that football is in fact receiving more of the cost reallocation.

### **Related Literature**

In the consumer products industry, there has been a recent trend to sell off, or ‘divest’, one’s non-core brands. The thought process is that these companies want to focus their resources on core segments or higher margin products. By ‘shedding’ smaller, underperforming brands, companies can then focus their attention and allocate more resources to their core segments.<sup>2</sup> Recently, the company ValueClick displayed this strategy by selling its ‘O&O’ segments. The company specified a need to focus more on its “core” and “high-margin” segments. By dropping its low-performing segments in order to invest more resources into its higher performing areas, ValueClick intends to spur “future growth.”<sup>3</sup>

My theory is that this same thought process could be applied to collegiate athletic departments. Similar to firms divesting, or eliminating low performing segments, I expect

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<sup>2</sup> *Divest and deliver*. (2013). Retrieved from [https://www.deloitte.com/assets/Dcom-UnitedStates/LocalAssets/Documents/MA/us\\_ma\\_Consumer Products selling-off brands POV\\_02262013.pdf](https://www.deloitte.com/assets/Dcom-UnitedStates/LocalAssets/Documents/MA/us_ma_Consumer Products selling-off brands POV_02262013.pdf)

<sup>3</sup> *Valueclick to divest o&o segment*. (2013, december 16). Retrieved from <http://finance.yahoo.com/news/valueclick-divest-o-o-segment-212505917.html>

that athletic departments are using their saved expenses to further fund the department's core or higher-revenue generating sports. In many ways, a collegiate athletic department is similar to a business operating for profit. Just as a business is pressured to earn profits by its shareholders, collegiate athletic departments are pressured to generate income for the university. Seen by some as "corporate businesses that pay no taxes," these sport departments also strive to bring in as much money as possible<sup>4</sup>. Successful athletic departments generate volumes of publicity for their institutions, similar to how successful companies add to their brand. When a company provides a quality product or service, the reputation of that brand increases. This same logic can be applied to college athletic departments, as when a team succeeds on the field, the university gains acknowledgement. Moreover, there is always incentive for a department to succeed because when a department is winning, there is an increase in school spirit, which is often followed by an increase in donations from alumni and prominent school supporters<sup>5</sup>.

### **Hypothesis**

As some athletic departments see specific sports 'underperforming', they drop those teams in order to use the saved expenses elsewhere. Following a reduction in the number of athletic teams actively competing for the institution, I expect athletic departments to reallocate a disproportionate percentage of cost savings to high-revenue producing sports. As such, I test the following hypothesis, stated in alternative form:

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<sup>4</sup> Woods, R. (2011). *Social issues in sports*. (2nd ed.). Retrieved from <http://www.humankinetics.com/excerpts/excerpts/intercollegiate-athletic-programs-effect-on-university-enrollment-fundraising>

<sup>5</sup> Woods, R.

*H: The percentage of total expenses allocated to the highest (lowest) revenue-generating sports will increase (decrease) following other sports being cut from the department.*

This was the case at Northeastern University, where the school came out and openly cited their reason for cutting specific teams as a need to “invest in signature strengths” such as hockey and basketball.<sup>6</sup> Instead of explaining a need to comply with Title IX, or make budget cuts, Northeastern took a different approach and directly justified their discontinuations as a strategic move to prioritize their top revenue generating sports.

It is also possible that we see the opposite effect on expenses. Perhaps when a department cuts a sport, the expenses of the other lower revenue-generating teams see a disproportionate increase in their expenses. It is also conceivable that no effect on expenses is detected at all. A department could discontinue a program, and just keep the saved expenses, causing there to be no measurable change.

## **Research Design**

In order to detect any abnormal growth rates in expenses per sport, this study has three group-sets of departments: one group consisting of all of the departments that have experienced a cut, one group consisting of departments that match in conference and size, and one group consisting of every college/university in the United States. Growth was calculated in expenses per year, per sport. Growth was computed in two ways, the first using a 3-year moving average, and the second using a simple one-year average.

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<sup>6</sup> *Too costly, football done at northeastern.* (2009, November 23). Retrieved from <http://sports.espn.go.com/boston/ncf/news/story?id=4681701>

To calculate a multi-year moving average, the following equation was used:

*Growth Rate* =  $[(f/s)^{(1/y)}] - 1$ , where:

- *f* = final value or expense
- *s* = starting value or expense
- *y* = number of years

First, the final value was divided by the starting value. In this study, the three-year moving average is computed by taking the third year being observed, and dividing it by the first.

For example, if there were 3 consecutive years of expenses of \$400,000, \$500,000, and \$600,000, one would divide \$600,000 by \$400,000. Then, one would raise the quotient to the power of 1/*y*, which in this case is 1/3. One was subtracted from this answer to get the growth number. For the purpose of this study, the equation was:

$$\text{Growth Rate} = ((\text{Year } n+2 \text{ expense} / \text{Year } n \text{ expense})^{(1/3)-1})$$

The second growth rate used was a simple 1-year average growth. The equation for this growth was as follows:

$$\text{Growth Rate} = (\text{Year } n+1 \text{ expense} - \text{year } n \text{ expense}) / \text{year } n \text{ expense}$$

When compiling a team's expenses over the years, I looked for any abnormal spikes in growth. When looking at the data, I expected to see a larger growth percentage a year or two after the sport cut took place. Nonetheless, it could be that the changes in expenses are just part of a normal growth pattern. In order to get a baseline on normal growth per sport, I compared each school that has experienced a cut, to a school of similar size in their conference. By doing so, I was able to better pinpoint whether or not that 'spike' could actually be attributed to the cut.

In selecting the control group, I decided to use schools of the same conference, similar enrollment size, and comparable athletic department revenues. Conference was a



good measure of a similar athletic department because schools in the same conference are often located in relatively the same geographic location, and are of generally similar competition levels. Competition level is important because schools of different conferences often spend different amounts on their sports. For example, a football team in the SEC (South Eastern Conference) is most likely going to spend more on their football team expenses than a team from the CAA (Colonial Athletic Association). Also, the size of the schools and athletic department revenue were used because schools of different sizes often have different levels of resources that they could use to pay for sports' expenses. To find the control group, I went to the US Department of Education's website. Here, schools were sortable by conference. After selecting the conference of the university that I was finding a match for, I then located the school that was closest in both enrollment size and athletic department revenue.

The research consisted of three parts. First, all of the expenses per sport for each school in the group sets were collected. As described in the data section below, this was done by going to the US Department of Education's website. Once the expenses were collected, the growth rates per sport were calculated, using the two different equations above. This left two numbers per sport, per school: the 3-year moving average growth rate, and the 1-year growth rate. Once the growth rates were compiled, the treatment group and three sets of controls for both the 3-year and 1-year rates were created. The treatment group was each school that experienced a cut in this sample period. For each year in the study (2001-2013), only the schools that had eliminated a sport in that year were selected, and their growth rates were averaged together. For example, in 2003, Drexel University, Canisius College, Fairfield University and St. Johns University all had a cut. So the growth

rate for each sport in 2003 was an average of these four schools' rates. The first control group was the same as the treatment group, but with the matched schools instead of the schools whom made a cut. The second control group was compiled using the matched schools, as well as the treatment schools who did not have a cut that year. For example, in 2003, the growth rates would be an average of the matched schools' rates in addition to the all of the treatment schools' rates not including the four schools above. Finally, the third control group consisted of the average rates of all the universities in the US.

The third step in the process was to calculate the difference in growth rates between the treatment group, and each of the control groups. . It was feasible that during some years, large portions of the schools all saw an increase or decrease due to industry factors outside of our study. Hence, a year-by-year approach was taken, comparing each school to each other as well as the control population. This method offset any patterns of either growth or decline that existed across all of college sports. Taking the difference by year ultimately accounts for any macroeconomic shocks.

From here, the growth rate differences were averaged for each year to get one number per sport. Then the rates per sport were compiled into two groups: high revenue generating sports, and low revenue generating sports. A positive number in either group would indicate that the treatment schools are experiencing higher growth than the controls. A higher growth rate would suggest that schools that cut a sport are seeing their expenses rise at a faster pace, and hence, reallocating more money to the remaining teams. Also, a higher number for the high revenue generating sports in comparison to the low revenue sports would show that sports such as football and basketball are receiving a greater

proportion of the cost savings in comparison to smaller sports such as swimming, baseball, etc.

## Data

The schools selected for this study were all Division 1 universities that had experienced some type of cut in their athletic department from the 2000-2013. Schools were selected using various Google searches. I did find a few articles that included several schools each, but [to my knowledge](#), no all-inclusive list of schools that have made cuts existed.

Expenses for these schools were obtained through the U.S. Department of Education's website, using their "Equity in Athletics Data Analysis Cutting Tool." The data dates back to the 2000-2001 school year, as limited by the U.S. Department of Education's website. Schools are responsible for reporting their numbers directly to the agency. However, there is no reason to suspect that the schools in treatment would bias their numbers differently from non-treated schools. Therefore, it was assumed that the expenses and revenues provided to the website are accurate.<sup>7</sup>

## Results

The results for the 3-year and 1-year average growth rates were somewhat varied. When looking at the 1-year growth rates, the treatment group generally had lower growth

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<sup>7</sup> It must be noted that each growth rate calculated that exceeded 1, or 100%, was changed to 0. There were rates that reached 500%+. Because it cannot be determined whether or not these rates were the result of human submission error, I changed any rate above 100%. Also, it can be noted that the same tests were conducted with each exceeded growth rate changed to 1 instead of 0. The results were of the same quantitative value, confirming the outcome.

rates for both the high and low-revenue generating sports in comparison to the control groups.

Differences in 1-Year Growth Rates

	Treatment vs. Matched Control Group	Treatment vs. Matched + Remaining Treatment	Treatment vs. Universe Control Group
High Revenue (Football and Basketball)	-0.184%	-0.283%	-0.114%
Low Revenue (all others)	0.096%	-0.155%	-1.183%
High Revenue (Football)	0.541%	0.243%	0.670%
Low Revenue (all others)	0.033%	-0.195%	-1.170%

As seen above, I created two groups of high revenue sports. In one, I included the top two revenue-generating sports for colleges in the US. However, because football is substantially more profitable than basketball, I decided to make a second group with just football. When looking at the 'just football' numbers, there is a small increase in growth rates in comparison to all three control groups.

Moreover, the 3-year growth rates have slightly different results. The fact that every situation yielded a positive percentage demonstrates that treatment group had a higher percentage growth than the control. Hence, treatment schools were reallocating more money towards their remaining sports. When the high revenue group consisted of both basketball and football, it grew at a lower rate than the low revenue group in all three

control situations. Still, when isolated alone, football grew at a higher rate than the low revenue groups in two out of the three control situations.<sup>8</sup>

Differences in 3-Year Growth Rates

	Treatment vs. Matched Control Group	Treatment vs. Matched + Remaining Treatment	Treatment vs. Universe Control Group
High Revenue (Football and Basketball)	0.156%	5.375%	0.014%
Low Revenue (all others)	0.567%	5.573%	0.309%
High Revenue (Football)	1.060%	5.231%	0.770%
Low Revenue (all others)	0.480%	5.569%	0.250%

### Robustness

One of the factors to be considered when designing the study was how to determine the average growth rate. I chose to use both a 3-year moving average growth and a 1-year simple average growth. With a multi-year average, I was able to see any true spikes in growth and it allowed for smoothing out any changes. With a 3-year average growth, I could see if schools delayed the allocation of their cost savings. It is practical that a school could cut a sport, and wait a year or two to redistribute the savings to the remaining sports. A school may be able to immediately redistribute variable costs that were saved from a cut, but some fixed expenses may take longer to become available. With a 3-year average, any delays in reallocation could be accounted for.

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<sup>8</sup> Because our treatment sample size was only 30, our results are not irrefutable. Future research should be done with a larger sample size to help validate the conclusions this study came to.

**Limitations**

Due to the low number of observations in this study, several factors were not considered in the research. For example, the study did not parse the sample by the reason given for each department's discontinuation. There was a wide array of explanations that schools gave as to why they decided to make their cuts. Between Title IX compliance, budget constraints, facility restrictions and conference elements, schools described their rationale in different ways. If the sample size of this study were larger, the research could have been broken down into categories, separated by reason for the cut. Additionally, given the restraints of both the sample size and data availability, this study was not able to examine the role of gender in relation to these discontinuations. Future research can be done relating to the gender of the sport team cut, and its effect on cost-savings reallocation.

**Discussion**

It appears that schools are in fact reallocating their saved expenses, but taking a few years to do so. I do not detect positive differences in growth between the treatment and controls after only one year. However, I do see a positive difference in all situations when looking at the 3-year averages. Perhaps institutions are taking a year or two after a cut to reallocate those saved expenses. As discussed in the 'Robustness' section of this paper, it is completely feasible that a school may not redistribute the cost savings from elimination for at least a year after the elimination was made. Some of the fixed costs associated with the sport cut may take some time to come off the books. It is likewise possible that schools are either holding onto the savings for some time before reallocating, or spreading out the

savings over a few years. In either case, these reallocations of the saved expenses would show up in a 3-year growth average, rather than the 1-year average, which is measuring just the one-year growth after the cut.

In examining the high/low revenue generating sport breakdown of results, I can see that clearly football is receiving a greater percentage of the cost savings. For the 1-year growth rates, football is growing at a greater percentage than all of the other sports. But because most of the rates are less than the control groups, we cannot attribute the greater percentage to a disproportionate reallocation. The fact that the control rates are higher than the treatment rates in general would mean that there likely isn't a reallocation at all. In this case, schools are probably just spending more money on football than they are on other sports.

However, when isolating the 3-year average growths, this greater percentage becomes more significant. Because all of the differences are positive, it can be said that schools that make a cut are taking the saved expenses and then reallocating them to the remaining sports, causing these schools to have a higher growth percentage. Of the sports receiving these saved expenses, it would appear that the highest revenue generating sport, football, is receiving a disproportionate percentage.

When comparing football to the rest of the sports, it grew at a higher rate in two of the three control situations. Football's expense growth rate difference from the matched control group was 1.06%, while the lower revenue generating sports had a difference of 0.48%. Subsequently, when compared to the entire collegiate population, football's growth rates were 0.77% higher, while the lower percentage sports were only 0.25% higher.

These percentages may not seem significant at 1.06% and .77%, but when we are dealing with millions of dollars, these percentages equate to substantial amounts.<sup>9</sup>

**Comment [JS1]:** Perhaps you can quantify these amounts, rather than just saying 'substantial'.

## Conclusion

The results indicate that football teams are receiving a disproportionate amount of the cost-savings that result when a sport is terminated from a department. Consider how the collegiate football team's average revenue in 2013 was just less than three times that of basketball (\$3,061,739.85 vs. \$1,115,030.96).<sup>10</sup> When seeing the discrepancy between football's revenue generating power, and that of the next highest grossing sport, basketball, it is very understandable as to why schools might be allocating their savings this way. If a company had both a profitable segment similar to football, and segments that lost money such as fencing and tennis, it would be completely practical for that company to divest in the poorly performing segments. Essentially, this is what some college athletic departments are doing. In order to maximize profit, these schools are discontinuing poorly performing segments, and reinvesting the cost-savings in their highest grossing areas. Although certain departments may be cutting sports to truly comply with Title IX regulation, or to meet a particular budget limit, it is clear that others are simply practicing a profit maximization strategy.

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<sup>9</sup> 1.06% of the average football expense in the treatment group for 2013 would equate to \$102,767

<sup>10</sup> Equity in Athletics Data Analysis Cutting Tool Website. (n.d.). *Equity in Athletics Data Analysis Cutting Tool Website*. Retrieved April 29, 2014, from <http://ope.ed.gov/athletics/>



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## Appendix 1

### Cincinnati Example

#### 3-Year Growth Rates Per Sport

Sport	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007	2006-2008	2007-2009	2008-2010	2009-2011	2010-2012	2011-2013
Football	9.22%	3.97%	-0.77%	6.32%	3.17%	5.39%	10.63%	8.11%	1.94%	2.78%	13.87%
Baseball	3.33%	14.53%	5.47%	11.41%	3.96%	-3.55%	0.59%	7.57%	4.09%	4.79%	9.09%
Soccer	5.73%	10.19%	3.58%	6.11%	9.20%	9.72%	4.42%	2.65%	0.12%	4.12%	7.79%
Swimming	5.56%	4.99%	-4.98%	4.80%	9.49%	1.10%	-2.44%	4.21%	-2.14%	-4.39%	0.67%

Cut was made

Sport	Average of four periods before cut	Cut	Average of four periods after cut
Football	3.53%	10.63%	6.67%
Baseball	4.32%	0.59%	6.39%
Soccer	7.15%	4.42%	3.67%
Swimming	2.60%	-2.44%	-0.41%

Above are two tables consisting of 3-year growth rates for different sports at the University of Cincinnati. The first table is a simple year-by-year breakdown of the growth percentages by sport. In the second table, the growth rates are broken down into three columns. The first is the average of the growth rates four periods before the sport was eliminated from the program. The second column is the growth rate average from the year of the cut, and the third column is the average of the growth rates four periods after.

The University of Cincinnati is an example of a school that seemed to disproportionately reallocate their cost savings towards their highest revenue generating sport, football. Cincinnati made the decision to eliminate the women's rowing team from their athletic program at the end of the 2006-2007 school year. Citing a strain on the budget program, the move removed rowing expenses, which were last reported at \$623,366. Looking at the table above, it would appear that a disproportionate amount of the saved expenses were reallocated to the football team. During the four periods leading up to the cut, the football team had an average 3-year growth of 3.53%. After the cut was made, that growth percentage increased substantially to 10.63%, and then declined down to 6.67% after the cut. When looking at low-revenue generating sports such as baseball, soccer and swimming, we see a different effect. Growth rates for these sports actually decreased after the elimination of the rowing team.

**Table 1: University Comparisons**

<b>Conference</b>	<b>School</b>	<b>Enrollment</b>	<b>Total</b>	<b>School's Match</b>	<b>Enrollment</b>	<b>Total</b>
CAA	Delaware	16,639	29,207,394	Old Dominion	14,883	36,929,483
Big East	Rutgers	29,928	71,851,419	UConn	16,587	63,374,981
Pac-12	Washington	26,193	85,072,886	UCLA	27,365	83,926,720
MAC	Ball State	15,594	22,644,535	Western Michigan	16,228	25,458,301
MAC	Ohio U	16,855	27,265,061	Western Michigan	16,228	25,458,301
ACC	Clemson	15,570	68,163,948	Georgia Tech	13,190	63,630,964
Big East	Cincinnati	19,615	45,065,244	Pittsburgh	17,223	57,606,235
Pac-12	Stanford	16,999	90,490,234	USC	17,497	97,802,24
Missouri Valley	Indiana State	8,669	11,685,797	Western Illinois	9,161	11,894,172
Atlantic-10	UMass	20,177	28,659,514	VCU	19,511	25,749,624
America East	Maine	7,477	16,930,269	Maryland-BC	9,357	13,243,292
Horizon League	Cleveland State	8,472	11,290,814	Loyola-Chicago	8,793	12,508,656
Horizon League	Detroit Mercy	2,239	15,320,679	Valparaiso	2,830	13,665,267
CAA	Drexel	13,061	21,014,774	Northeastern	13,107	24,678,519
Atlantic 10	Duquesne	5,640	16,498,821	Xavier	4,065	17,631,245
Missouri Valley	Northern Iowa	9,635	14,623,381	Youngstown State	9,795	13,632,988
Summit League	South Dakota	4,597	10,291,561	Missouri-KC	6,792	12,505,432
America East	Vermont	9,803	16,889,595	Maryland-BC	9,357	13,243,292
MAAC	Canisius	2,930	10,968,595	Niagara	2,799	9,467,780
Atlantic Sun	ETSU	10,175	10,331,210	North Florida	10,200	9,379,425
MAAC	Fairfield	3,456	16,559,155	Loyola Maryland	3,871	17,116,223
CAA	Hofstra	6,359	19,490,463	William and Mary	6,091	20,494,594
MAAC	Iona	2,924	10,563,647	Siena	3,035	12,448,673
Atlantic 10	La Salle	3,553	13,011,972	St. Joes	4,424	17,732,229
CAA	Northeastern	13,107	24,678,519	URI	11,841	23,167,551
Big East	St. Johns	10,844	27,182,921	DePaul	13,627	25,343,254
WCC	St. Mary's	2,776	14,166,984	Portland	3,320	12,917,933
MAAC	Saint Peter's	1,895	6,865,794	Manhattan	3,141	9,873,118
MAAC	Siena	3,035	12,448,673	Marist	4,760	12,206,989
CAA	James Madison	17,302	36,072,842	Old Dominion	14,883	36,929,483

(Enrollment and Revenue Source: <http://ope.ed.gov/athletics/>)

**Table 2: University Reason for Sport Elimination**

School	Year of Cut	Publicly Stated Reason	Link
Delaware	2011	Title IX	<a href="http://www.nytimes.com/2011/05/02/sports/02gender.html">http://www.nytimes.com/2011/05/02/sports/02gender.html</a>
Rutgers	2007	Budget 'shortfall'	<a href="http://sports.espn.go.com/ncaa/news/story?id=2519938">http://sports.espn.go.com/ncaa/news/story?id=2519938</a>
Washington	2009	Budget 'cuts'	<a href="http://seattletimes.com/html/sports/2009157966_budgetcuts02.html">http://seattletimes.com/html/sports/2009157966_budgetcuts02.html</a>
Ball State	2004	Reduce expenses	<a href="http://www.nwitimes.com/sports/college/ball-state-to-eliminate-men-s-cross-country-track-teams/article_d47d42a4-67ff-581d-a028-7ff0397e112e.html">http://www.nwitimes.com/sports/college/ball-state-to-eliminate-men-s-cross-country-track-teams/article_d47d42a4-67ff-581d-a028-7ff0397e112e.html</a>
Ohio U	2007	Title IX, expenses	<a href="http://title-ix.blogspot.com/2007/01/ohio-university-drops-four-sports.html">http://title-ix.blogspot.com/2007/01/ohio-university-drops-four-sports.html</a>
Clemson	Phase out 2010-2012	Facility Restrictions	<a href="http://sports.espn.go.com/ncaa/news/story?id=5152852">http://sports.espn.go.com/ncaa/news/story?id=5152852</a>
Cincinnati	2007	Budget 'cuts'	<a href="http://title-ix.blogspot.com/2008/01/end-of-road-for-cincinnati-rowing.html">http://title-ix.blogspot.com/2008/01/end-of-road-for-cincinnati-rowing.html</a>
Stanford	2009	Budget 'cuts'	<a href="http://sports.espn.go.com/ncaa/columns/story?id=4314195">http://sports.espn.go.com/ncaa/columns/story?id=4314195</a>
Indiana State	2010	Budget 'cuts'	<a href="http://www.tribstar.com/local/x1155810323/ISU-cuts-women-s-men-s-tennis/print">http://www.tribstar.com/local/x1155810323/ISU-cuts-women-s-men-s-tennis/print</a>
UMass	2002	Title IX, Save expenses	<a href="http://www.umassathletics.com/sports/m-itrac/spec-rel/031102aaa.html">http://www.umassathletics.com/sports/m-itrac/spec-rel/031102aaa.html</a>
Maine	2009	Budget 'challenges'	<a href="http://mainecampus.com/2009/04/13/volleyball-and-mens-soccer-part-of-budget-cuts-for-2009/">http://mainecampus.com/2009/04/13/volleyball-and-mens-soccer-part-of-budget-cuts-for-2009/</a>
Cleveland State	2011	Facility reasons	<a href="http://www.cleveland.com/sports/csu/index.ssf/2011/05/cleveland_state_university_dro.html">http://www.cleveland.com/sports/csu/index.ssf/2011/05/cleveland_state_university_dro.html</a>
Detroit Mercy	2004	Budget 'cuts'	<a href="http://archives.commonswdmercy.edu/2013/04/05/take-me-out-to-the-ball-game-university-of-detroit-baseball-team-1895-2004/">http://archives.commonswdmercy.edu/2013/04/05/take-me-out-to-the-ball-game-university-of-detroit-baseball-team-1895-2004/</a>
Drexel	2003	'strategic move to remain in alignment with conference'	<a href="http://articles.philly.com/2003-05-17/sports/25460008_1_drexel-athletic-director-drexel-university-eric-zillmer">http://articles.philly.com/2003-05-17/sports/25460008_1_drexel-athletic-director-drexel-university-eric-zillmer</a>
Duquesne	2010	Budget 'cuts'	<a href="http://sports.espn.go.com/ncaa/news/story?id=4858124">http://sports.espn.go.com/ncaa/news/story?id=4858124</a>
Northern Iowa	2009	Budget 'cuts'	<a href="http://sports.espn.go.com/ncaa/news/story?id=3928837">http://sports.espn.go.com/ncaa/news/story?id=3928837</a>
South Dakota	2004	Focus on women's sports	<a href="http://www.keloland.com/newsdetail.cfm/usd-cuts-baseball-new-focus-on-womens-athletics/?id=31140">http://www.keloland.com/newsdetail.cfm/usd-cuts-baseball-new-focus-on-womens-athletics/?id=31140</a>
Vermont	2009	Financial gap	<a href="http://www.vermontcynic.com/2.12544/uvm-to-cut-baseball-softball-teams-1.1742208#.Uwd79PRdV9U">http://www.vermontcynic.com/2.12544/uvm-to-cut-baseball-softball-teams-1.1742208#.Uwd79PRdV9U</a>
Canisius	2003	Budget 'cuts'	<a href="http://news.google.com/newspapers?nid=1298&amp;dat=20021115&amp;id=7C0zAAAAIBAJ&amp;sjid=RggGAAAAIBAJ&amp;pg=5041,3898812">http://news.google.com/newspapers?nid=1298&amp;dat=20021115&amp;id=7C0zAAAAIBAJ&amp;sjid=RggGAAAAIBAJ&amp;pg=5041,3898812</a>
ETSU	2003	Financial constraints	<a href="http://www.tricitytimes.com/news/article_ce89e002-f00d-511c-b925-51c72e667577.html?mode=jqm">http://www.tricitytimes.com/news/article_ce89e002-f00d-511c-b925-51c72e667577.html?mode=jqm</a>
Fairfield	2003	More money for financial aid	<a href="http://www.beaumontenterprise.com/news/article/Fairfield-Cuts-Football-Hockey-Teams-755456.php">http://www.beaumontenterprise.com/news/article/Fairfield-Cuts-Football-Hockey-Teams-755456.php</a>
Hofstra	2010	Cost and waning interest	<a href="http://www.nytimes.com/2009/12/04/sports/ncaafootball/04hofstra.html">http://www.nytimes.com/2009/12/04/sports/ncaafootball/04hofstra.html</a>
Iona	2009	Dissolution of	<a href="http://www.icgaels.com/ViewArticle.dbml?SPSID=64397&amp;">http://www.icgaels.com/ViewArticle.dbml?SPSID=64397&amp;</a>

		conference, lack of opponents	<a href="#">SPID=7109&amp;DB_OEM_ID=14900&amp;ATCLID=3619985</a>
La Salle	2008	Lack of opponents	<a href="http://articles.philly.com/2007-11-20/sports/25223996_1_football-program-college-football-scholarship-program">http://articles.philly.com/2007-11-20/sports/25223996_1_football-program-college-football-scholarship-program</a>
Northeastern	2010	Invest in signature strengths	<a href="http://sports.espn.go.com/boston/ncf/news/story?id=4681701">http://sports.espn.go.com/boston/ncf/news/story?id=4681701</a>
St. Johns	2003	Title IX, fairness	<a href="http://www.nytimes.com/2002/12/14/sports/colleges-st-john-s-cites-fairness-in-cutting-5-men-s-teams.html">http://www.nytimes.com/2002/12/14/sports/colleges-st-john-s-cites-fairness-in-cutting-5-men-s-teams.html</a>
St. Marys	2007	Strengthen other sports	<a href="http://www.stmarys-ca.edu/saint-marys-college-discontinues-intercollegiate-football-will-strengthen-overall-athletic-program">http://www.stmarys-ca.edu/saint-marys-college-discontinues-intercollegiate-football-will-strengthen-overall-athletic-program</a>
Saint Peter's	2007	Conference changes, facilities	<a href="http://www.championshipsubdivisionnews.com/log/index.php/2008/10/16/football-programs-a-dying-breed-at-small?blog=2">http://www.championshipsubdivisionnews.com/log/index.php/2008/10/16/football-programs-a-dying-breed-at-small?blog=2</a>
Siena	2004	Conference changes	<a href="http://www.championshipsubdivisionnews.com/log/index.php/2008/10/16/football-programs-a-dying-breed-at-small?blog=2">http://www.championshipsubdivisionnews.com/log/index.php/2008/10/16/football-programs-a-dying-breed-at-small?blog=2</a>
James Madison	2007	Title IX	<a href="http://usatoday30.usatoday.com/sports/college/other/2007-04-19-title-ix-jmu-cover_N.htm">http://usatoday30.usatoday.com/sports/college/other/2007-04-19-title-ix-jmu-cover_N.htm</a>

Table 3: Full Results

1-Year Average Growth

		Year to Year Average Growth													
Differences	(Treatment vs. Controls Only)														
	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	Average		
Baseball		0.04134772	0.04972436	-0.0057262			-0.0316467	0.04892976	0.11189048	-0.03661662	0.004376003		0.022784852	High (FB+BB)	
Football		-0.0390467		-0.0179183			0.02150311		-0.04898558	-0.00489696	0.121782382		0.005406318	-0.00184064	
BBall		0.00692586	-0.069483	-0.0007449			0.0485736	-0.125625	0.043399229	0.01922256	0.005030867		-0.0090876	Low	
Field Hockey		-0.0247058	0.03948784	0.02465572			0.14546601	0.09031853	-0.09235456	-0.1154924	-0.2530452		-0.02320873	0.000957987	
Golf			0.12430947	0.07565999			0.15448034	-0.3814563	0.072768348	-0.11295864	-0.08607914		-0.02189656		
Gymnastics				-0.0915498			0.379995		0.005629707				0.098024954		
Hockey		-0.0312346	0.18157013						0.076006866	0.043388579			0.067432735	High (Just FB)	
Lacrosse		-0.239448	0.21355229	0.24713225			0.02928126	-0.2783916	0.022277856	-0.08622016	-0.1146265		-0.02580534	0.005406318	
Rowing		-0.1525813	0.09550792				-0.151659	-0.0058917	-0.0452612	0.101874123	0.047786082		-0.01574643	Low	
Soccer		0.13091292	0.07106792	0.00151763			0.02292998	-0.0213316	-0.12543196	0.059677164	0.091404368		0.0288433	0.000330138	
Softball		0.0411972	0.1038497	-0.0770452			-0.0704289	-0.0907685	0.161998784	0.001785421	0.024127778		0.011839546		
Swimming		-0.342984	0.13694168	-0.1302411			-0.0043345	0.0696887	-0.00382784	-0.08992046	0.014891785		-0.04372321		
Tennis		-0.1084045	0.21380285	-0.056042			-0.1610691	-0.1329705	-0.03533651	-0.03392666	0.068739232		-0.0306509		
T&F		-0.1202971	-0.3880558	-0.0910726			-0.0770676	-0.0961749	0.029800746	0.048173326	0.025509747		-0.08364803		
Volleyball			0.06713173	0.0313891			0.08178063	0.0034716	-0.03240657	-0.02840896	0.065023866		0.026854485		
Water Polo				0.13753215					-0.15302841				-0.00774813		
Wrestling			0.10496172				-0.0732266		0.091312997	-0.16500446	0.097042703		0.011017264		

		Year to Year Average Growth													
Differences (Treatment vs. Controls + Other Treatment)															
	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	Average		
Baseball		0.00423288	0.02516488	0.00930761			0.00319016	0.01333523	0.083418338	0.029383892	-0.00460114		0.020428981	High (FB + BB)	
Football		-0.0220562		-0.0187999			-0.0023257		-0.01357191	0.019862061	0.051499827		0.002434704	-0.00282567	
BBall		0.00615467	-0.0663211	-0.002998			0.06331472	-0.1279191	0.031440903	0.03016026	0.001479265		-0.00808605	Low	
Fencing			0.1489135	0.17357556					-0.32951989		0.424372117			-0.00154472	
Field Hockey		-0.0061283	0.01227926	0.01769933			0.11155992	0.08602405	-0.14560594	-0.15156231	-0.17050791		-0.03078023		
Golf			0.1398073	0.08716315			0.11622401	-0.3305018	0.033255175	-0.09660757	-0.11149969		-0.02316563	High (Just FB)	
Gymnastics				-0.1437848			0.36227451		0.016547078				0.078345582	0.002434704	
Hockey		-0.0362768	0.057965						0.029874361	0.053601745			0.026291079	Low	
Lacrosse		-0.2299275	0.10842998	0.18948259			-0.0230713	-0.2565631	-0.01276884	-0.08388305	-0.10763672		-0.05199225	-0.00195355	
Rowing		-0.0758235	0.05158106				-0.2414581	0.06921187	-0.00613341	0.067346326	0.070776902		-0.00921413		
Soccer		0.11889198	0.03761271	-0.0071647			0.01173996	-0.020749	-0.11443562	0.042973536	0.099989839		0.021107332		
Softball		0.04598882	0.03427699	-0.0982683			-0.0388835	-0.0836821	0.136399742	0.018258874	0.002784036		0.002109318		
Swimming		-0.2790482	0.08497861	-0.1324282			-0.015257	0.04559353	-0.02414286	-0.08204557	0.008345801		-0.04925049		
Tennis		-0.1003449	0.22916357	-0.0663964			-0.1519662	-0.1601419	-0.0307304	-0.062734446	0.056594881		-0.03581947		
T&F		-0.1398897	-0.424621	-0.0870258			-0.076702	-0.0729354	0.00106469	0.031011388	0.016104206		-0.09412421		
Volleyball			0.01004599	0.04867958			0.08544561	-0.0054148	-0.03582522	-0.03231224	0.081603867		0.021746108		
Water Polo				0.206089					-0.15004821				0.028020396		
Wrestling		0.26320788					-0.0575812		0.070374045	-0.02935997	0.118993591		0.073126861		

Differences (Treatment vs. Control-Universe)	Year to Year Average Growth												Average	
	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013		
Baseball		-0.0603482	0.01510736	0.02409476			-0.0064371	0.00269222	0.088257069	0.045328483	0.005991085		0.014335716	High (FB+BB)
Football		-0.0571969		-0.0507137			0.05743163		0.00588345	0.024498653	0.060419398		0.006720416	-0.00113929
BBall		-0.0488205	-0.0138484	-0.0186557			0.05023931	-0.1167467	0.036585711	0.023498867	0.015755406		-0.00899899	Low
Fencing			-0.0440073	0.12671504					-0.21469359		0.432521167		0.075133825	-0.01183353
Field Hockey		-0.0115418	0.00768234	-0.0660164			0.09250534	0.07965481	-0.10679757	-0.10499101	-0.18913178		-0.03732951	
Golf			0.16343067	0.06489445			0.09141622	-0.3364616	0.034426059	-0.07861623	-0.07177657		-0.01895528	High (Just FB)
Gymnastics				-0.1657905			0.39408988		0.066453505				0.098250943	0.006720416
Hockey		-0.0378075	0.00034777						0.024371247	0.052415026			0.009831624	Low
Lacrosse		-0.2587782	0.09395911	0.11978815			-0.0566442	-0.2592502	-0.02590392	-0.1152974	-0.13424435		-0.07954637	-0.01167605
Rowing		-0.1262559	0.11936992				-0.1706456	0.00316416	-0.01569942	0.160006065	0.060646255		0.004369358	
Skiing		-0.1097826							-0.1050394				-0.10741098	
Soccer		0.01782875	0.05432346	-0.0021916			-0.0215809	-0.0163417	-0.09057414	0.037769146	0.091616605		0.008856208	
Softball		-0.085664	0.03996199	-0.1115157			-0.0459157	-0.1022879	0.159032267	0.015763907	-0.00530087		-0.01699076	
Swimming		-0.349769	0.09458141	-0.1405007			-0.0157413	0.06162502	-0.0112405	-0.06773183	-0.01084216		-0.05495238	
Tennis		-0.1931721	0.28474766	-0.0714003			-0.146023	-0.1784035	-0.00492982	-0.04332936	0.068954381		-0.03544445	
T&F		-0.2245235	-0.4550806	-0.0946615			-0.1129546	-0.0436282	-0.00530804	0.032331692	0.025164277		-0.10983256	
Volleyball			-0.0141518	0.05487963			0.07899206	-0.0081922	-0.01619753	-0.03367351	0.077625544		0.019897448	
Water Polo				0.04963102					-0.12204628				-0.03620763	
Wrestling			0.1875184				-0.0263231		0.104490914	-0.05919929	0.117637596		0.064824903	

### 3-Year Moving Average Growth

	3 Year Average											
Difference (Treatment vs. Controls Only)	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007	2006-2008	2007-2009	2008-2010	2009-20011	2010-2012	2011-2013	Average
Baseball		-0.0221673	0.03169199	-0.0048794			0.03258101	0.03463056	-0.00516204	0.015044832	-0.03983981	0.005237486
Football		0.03881854		-0.0300539			0.01526557		-0.04704251	0.076357881	0.010290674	0.010606038 High (FB+BB)
BBall		-0.0130015	-0.0212154	-0.0289377			0.02530628	-0.0306065	0.014054451	0.022672998	-0.028234	-0.00749517 0.001555432
Field Hockey		0.0056744	-0.0198505	0.0136131			0.02638839	-0.0216744	-0.08842688	-0.10027959	-0.12616916	-0.03884115 Low
Golf			0.08615611	0.04119702			0.07494237	-0.158593	-0.00998293	0.015076813	0.133592601	0.026055565 0.005672612
Gymnastics				-0.055135			0.11523872		-0.02787936			0.010741456
Hockey		0.07814919	0.10236592					0.01084761	-0.0326865			0.039669054
Lacrosse		0.00287558	0.05552868	0.01099972			0.02782844	-0.0716335	-0.02683036	-0.0696635	-0.05325608	-0.01551887 High (Just FB)
Rowing		-0.0739161	0.01577289				-0.0970545	-0.0620406	0.31238282	0.037431609	-0.1070421	0.00364773 0.010606038
Soccer		-0.020028	0.02169673	-0.0224926			0.02391233	-0.0356844	-0.05206977	0.010108667	0.011396027	-0.00789513 Low
Softball		0.0096166	0.03177404	-0.0779302			-0.012818	0.05387636	0.031561299	0.007984648	-0.01398172	0.003760384 0.004849625
Swimming		-0.0495931	0.01882347	-0.1597104			0.04401994	0.04218069	-0.01758184	-0.05944663	-0.00025498	-0.02269536
Tennis		-0.0837821	0.01341928	0.13858344			0.06765111	-0.1344161	-0.02582447	-0.04310512	-0.01896925	-0.0108054
T&F		-0.0406318	-0.1679442	-0.106767			-0.022169	-0.0489116	0.008843628	0.032669942	0.019903977	-0.04062576
Volleyball			0.00275552	-0.0490732			0.05355968	0.02741736	-0.00248774	-0.02325962	-0.02432531	-0.00220191
Water Polo				0.32605835					-0.04445649			0.140800931
Wrestling			0.01940666				0.0701653		-0.04217337	-0.0658113	-0.01278657	-0.00623986

	3 Year Average											
Difference (Treatment vs. Control+Other Treatment)	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007	2006-2008	2007-2009	2008-2010	2009-20011	2010-2012	2011-2013	Average
Baseball		0.03876407	0.06926633	0.09734016			0.04768011	0.01803134	0.048769784	0.066368427	0.037942961	0.053020398
Football		0.05454691		0.06046642			0.07748398		0.056669933	0.040095686	0.024566146	0.052304845 High (FB+BB)
BBall		0.06662184	0.07473702	0.07507476			0.05917855	0.03388972	0.029598027	0.051785297	0.050810396	0.055211952 0.053758398
Field Hockey		0.07552383	0.06865697	0.06344351			0.06907111	0.08317772	0.102589687	0.123021952	0.093729539	0.08490179 Low
Golf			0.07247223	0.06687417			0.05083037	0.06086542	0.052843575	0.063153649	0.058630918	0.060810046 0.055726516
Gymnastics				0.04684328			0.02649341		0.049055998			0.040797561
Hockey		0.00689151	0.05337587						0.010177395	0.065683837		0.034032152
Lacrosse		0.01468748	0.06166386	0.13459533			0.05790139	0.0528164	0.084189677	0.088322097	0.047731111	0.067738419 High (Just FB)
Rowing		0.0804137	0.0764924				0.04082831	0.04467331	0.056774766	0.067665656	0.05308311	0.059990179 0.052304845
Soccer		0.03701304	0.06183815	0.0934739			0.0543058	0.04707115	0.057253257	0.055276859	0.038238815	0.055558872 Low
Softball		0.02020898	0.06702512	0.10084357			0.07008112	0.03409403	0.036670956	0.040079961	0.026710652	0.049464299 0.055694356
Swimming		0.03761452	0.06959517	0.12389499			0.0506845	0.03021171	0.033858909	0.044314081	0.037102014	0.053409487
Tennis		0.05499922	0.08493497	0.09478922			0.03486073	0.02115327	0.039815608	0.037382465	0.072276151	0.055026453
T&F		0.01209128	0.04981505	0.10142981			0.0622509	0.04140222	0.024143806	0.045849549	0.024364548	0.045168396
Volleyball			0.05251822	0.10497154			0.05462363	0.03673414	0.035407141	0.045173056	0.045168066	0.053513687
Water Polo				0.05550019					0.034127867			0.044814027
Wrestling			0.11804008				0.0561206		0.070285755	0.087187217	0.056626244	0.077651978

	3 Year Average											
Difference (Treatment vs. Control-Universe)	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007	2006-2008	2007-2009	2008-2010	2009-20011	2010-2012	2011-2013	Average
Baseball		-0.0725493	0.03810715	-0.0065345			0.01754041	0.00938761	0.009976788	0.039104617	-0.04438362	-0.00116886 High (FB+BB)
Football		0.02677414		-0.0399729			0.03690794		-0.02372346	0.0631951	-0.01708515	0.007682606 0.000139101
BBall		-0.0186877	-0.0072343	-0.0415198			0.02715373	-0.032821	0.009536728	0.025450413	-0.02111332	-0.0074044 Low
Fencing			0.05487197	0.16930223					-0.06188554		0.083767551	0.061514051 0.003089745
Field Hockey		0.03020497	-0.0156258	-0.0095877			0.03933541	0.03251872	-0.00908983	-0.02031564	-0.08099683	-0.00419458
Golf			0.08991076	0.00131066			0.06321282	-0.143769	-0.002977	0.024189317	0.142024427	0.024843137 High (Just FB)
Gymnastics				-0.0698552			0.10733568		-0.01125492			0.008741851 0.007682606
Hockey		0.01136309	0.08038212						-0.00638653	-0.01451211		0.017711643 Low
Lacrosse		-0.0610957	0.02889035	0.03797266			-0.0001261	-0.0840676	-0.01004047	-0.06242422	-0.09066971	-0.0301951 0.002506736
Rowing		-0.0678548	0.01491982				-0.1005577	-0.0466264	0.335420984	0.057161571	-0.10613568	0.012332543
Skiing		-0.2106069							0.051263104			-0.07967192
Soccer		-0.0682417	0.02112957	-0.0257311			0.00995875	-0.0260653	-0.03399726	0.012211379	0.00145434	-0.01366016
Softball		-0.0644342	0.02429439	-0.0679696			-0.0124239	0.04704655	0.033965212	0.001754817	-0.03442119	-0.00902349
Swimming		-0.0781664	0.03252342	-0.1093075			0.03401144	0.03211304	-0.01611496	-0.06336072	-0.00455371	-0.02160692
Tennis		-0.0899541	0.05139351	0.15122091			0.04842168	-0.146741	-0.02324855	-0.05207838	0.012616005	-0.00604624
T&F		-0.1069972	-0.1724648	-0.0819362			-0.0227136	-0.0480253	-0.0097369	0.025177482	-0.00486293	-0.05269493
Volleyball			0.001627	-0.0098172			0.04709375	0.02730119	-0.00022188	-0.02283333	-0.02512906	0.002574356
Water Polo				0.27705093					-0.03387364			0.121588645
Wrestling			0.07776161				0.06452826		-0.00570877	-0.02709771	-0.00207522	0.021481633