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January 9, 2012

To: Sharon Schwartz
From: Kansas Legislative Research Department
Re: Veterinary College Rankings

You requested the Kansas Legislative Research Department review the ranking of the Veterinary College at Kansas State University with respect to the ranking of other veterinary colleges across the country. We have reviewed various materials and consulted with numerous individuals, some associated with the Veterinary College at Kansas State University. These individuals have been very helpful in providing data for our office to review. Please feel free to contact us if you have any questions.

Overview

The Legislative Research Department was asked to review the rankings of veterinary colleges and determine what, if anything, the Legislature could do to improve the ranking of the College of Veterinary Medicine at Kansas State University (KSU). This request was made in light of the Governor's budget pledge of additional resources to improve the standing of the College relative to its peer institutions.

The American Veterinary Medical Association's Council on Education and Committee on Veterinary Technician Education and Activities has accredited 28 veterinary schools:

- Kansas State University-Manhattan;
- Auburn University-Auburn, AL;
- University of California-Davis;
- Colorado State University-Fort Collins;
- Cornell University-Ithaca, NY (a private institution that receives some state funds);
- University of Florida-Gainesville;
- University of Georgia-Athens;

- University of Illinois-Urbana;
- Iowa State University-Ames;
- Louisiana State University-Baton Rouge;
- Michigan State University-East Lansing;
- University of Minnesota-St. Paul;
- Mississippi State University-Starkville;
- University of Missouri-Columbia;
- North Carolina State University-Raleigh;
- The Ohio State University-Columbus;
- Oklahoma State University-Stillwater;
- Oregon State University-Corvallis;
- University of Pennsylvania-West Philadelphia; (a private institution receiving substantial state funding)
- Purdue University-West Lafayette, IN;
- Texas A&M University-College Station;
- University of Tennessee-Knoxville;
- Tufts University-North Grafton, MA (a private institution that receives some state funds);
- Tuskegee University-Tuskegee, AL (a private institution that receives some Federal funds);
- Virginia-Maryland Regional College-Blacksburg, VA;
- Washington State University-Pullman;
- Western University-Pomona, CA (a private institution); and
- University of Wisconsin-Madison.

Ranking Sources

Veterinary colleges are ranked in two ways: U.S. News and World Report (U.S. News) publishes a ranking based on simple survey results, and the American Association of Veterinary Medical Colleges (AAVMC) distributes private rankings to its member institutions based on objective factors. This memorandum discusses the differences in those rankings, the factors that most affect those rankings, and steps Kansas could take to improve its rankings. None of the rankings discussed in this memorandum is associated with accreditation from the American Veterinary Medical Association (AVMA). Kansas and other states require graduation from an accredited school for a veterinarian to be allowed to practice. This memorandum includes suggestions for improvement at KSU from the AVMA.

U.S. News Rankings

Every four years U.S. News & World Report (U.S. News) publishes rankings for veterinary colleges as it does for undergraduate and for other graduate programs at American colleges and universities. U.S. News clearly states on its website that "All the health rankings are based solely on the results of peer assessment surveys sent to deans, other administrators, and/or faculty at accredited degree programs or schools in each discipline." KLRD received a copy of the survey from a representative of U.S. News; it simply lists the veterinary colleges and asks for a rating, 1 (marginal) through 5 (outstanding), for each college.

In the 2011 rankings, KSU was ranked 19th, tied with the University of Illinois and the University of Missouri. Other Big XII schools were ranked 8th (Texas A&M), 17th (Iowa State), and 25th (Oklahoma State). The rankings are listed in the table below.

Rank	School	Score
1	Cornell University	4.5
2	University of California – Davis	4.2
3a	Colorado State University	4.1
3b	North Carolina State University	4.1
5a	Ohio State University	3.8
5b	University of Pennsylvania	3.8
5c	University of Wisconsin	3.8
8	Texas A&M University	3.7
9a	Michigan State University	3.4
9b	University of Georgia	3.4
9c	University of Minnesota – Twin Cities	3.4
12	University of Florida	3.3
13	Tufts University	3.2
14	Purdue University	3.1
15a	Auburn University	3
15b	Washington State University	3
17a	University of Maryland/Virginia Tech	2.9

17b	Iowa State University	2.9
19a	Kansas State University	2.8
19b	University of Illinois – Urbana-Champaign	2.8
19c	University of Missouri	2.8
22	Louisiana State University	2.7
24	Mississippi State University	2.3
25	Oklahoma State University	2.1
26	Oregon State University	2
A	Tuskegee University	N/A
B	Western University of Health Sciences	N/A
0	University of Tennessee	N/A

Note that three of the colleges did not receive rankings in 2011. Schools lacking full accreditation are not ranked by U.S. News. U.S. News reported only 48 percent of the surveys for the 2011 rankings were returned. KSU officials said no one from KSU has responded to this survey for several cycles, and officials at several other colleges contacted by KLRD staff indicated they also do not respond to the U.S. News surveys.

KLRD noted few and small changes from the 2007 to the 2011 rankings, and those rankings could have been affected simply by which colleges responded. In 2011, only two veterinary schools had their overall scores improve (North Carolina State, which had its score increase from a 3.9 to a 4.1 and Purdue, which had its score improve from a 3.0 to a 3.1). Every other school either had its score hold steady or drop by between 0.1 and 0.4 points. In fact, other than North Carolina State, the only schools to move up in the rankings did so not because their scores improved, but rather because several schools in front of them had their score fall significantly enough to allow them to rank higher (although Purdue's score improved, Purdue did not move up in the rankings). Of further note is the fact that these scoring differences represent a very minor change in the amount of points awarded, making it difficult to determine what accounted for the difference in the scoring. This may indicate that the perceptions recorded on the surveys change slowly.

Due to the unscientific manner in which these rankings are done, the veterinary medicine teaching community puts little, if any, stock into the rankings provided by U.S. News. KLRD contacted numerous veterinary schools throughout the country to confirm this conclusion. Also, because of the nature of these rankings, it is impossible to determine how any school would go about improving its rankings in this system, other than to rank every other veterinary college with the lowest possible ranking, thereby lowering other college's overall scores while giving itself the highest possible rankings to improve its own scores.

AAVMC's website states the following regarding third-party rankings: "The Association of American Veterinary Medical Colleges neither endorses nor acknowledges third party ranking systems of colleges of veterinary medicine. Colleges of veterinary medicine are accredited by the American Veterinary Medical Association's Council on Education. We assert that as accredited institutions, the colleges of veterinary medicine all provide high quality education to students."

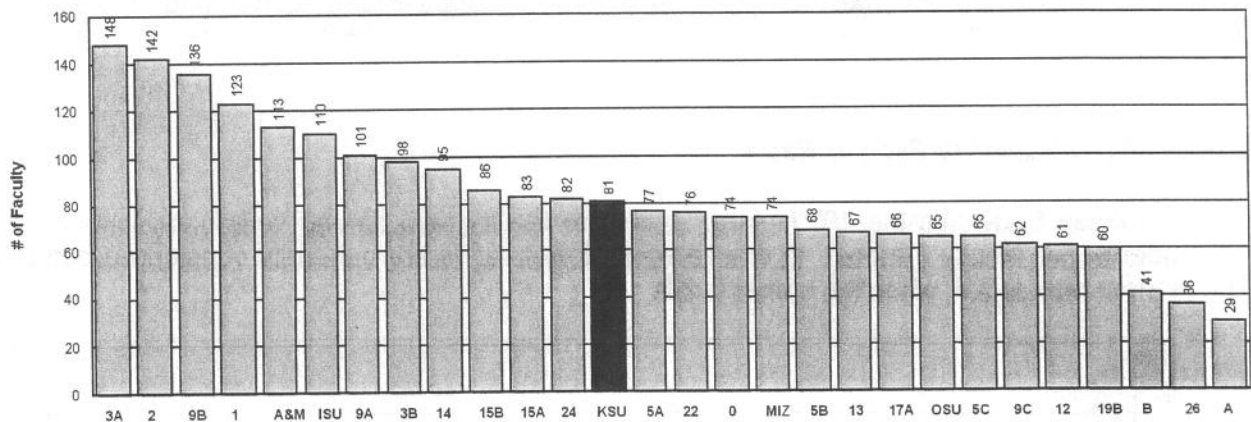
However, because the U.S. News rankings are the only widely available rankings of veterinary colleges, they no doubt affect the perception of a college and therefore the perceived quality of the program to applicants for both faculty and student positions, thus potentially affecting the long-term quality of the program.

AAVMC Data

The American Association of Veterinary Medical Colleges (AAVMC) collects data regarding its member veterinary colleges. KLRD received from KSU copies of that data and received permission to publish it in this memorandum and, in the memorandum, to identify KSU and other current Big XII universities. Numbers used to identify other schools are consistent among the charts. Below, this report presents the data and rankings in various categories: 2011 Faculty Headcount, 2010-2011 Academic Year Student Headcount, 2010-2011 Student to Faculty Ratio, FY2010 State Appropriations, and FY 2010 Research Expenditures.

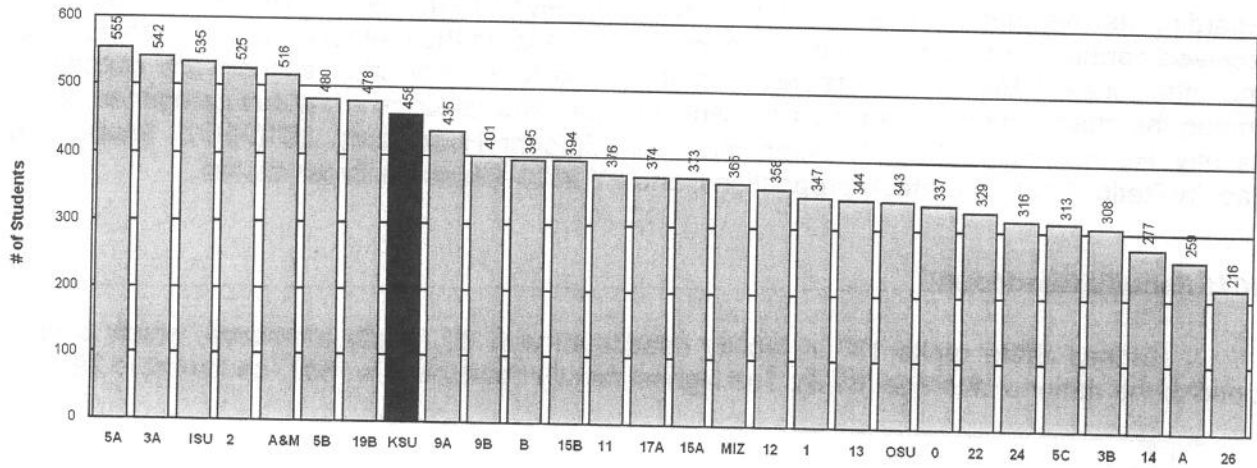
2011 Faculty Headcount

Kansas State ranks 13th in faculty headcount with 81 faculty members, which is very close to the national average (82.5). The highest faculty headcount is 148. The lowest is 29.



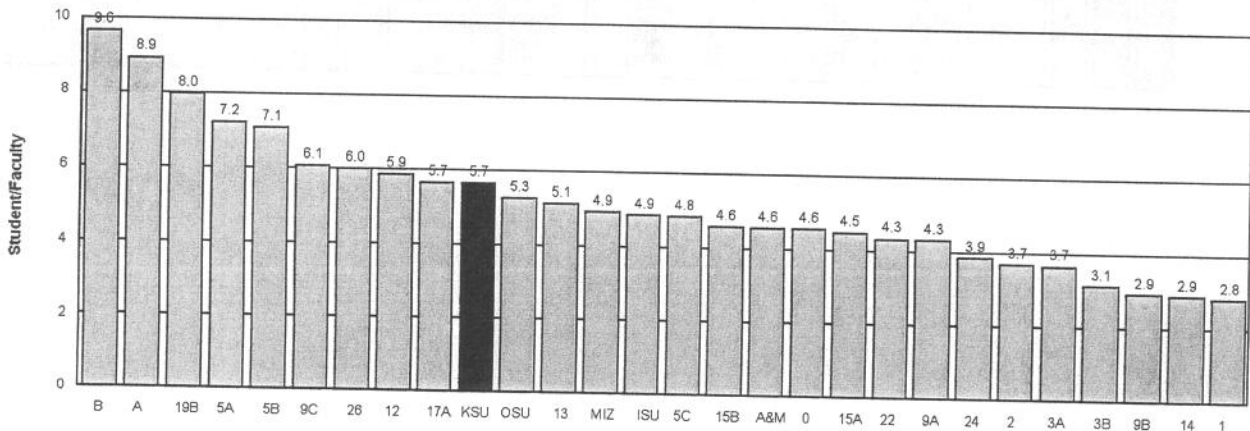
2010 – 2011 Academic Year Student Headcount

Kansas State ranks 8th in student headcount with 458 students. The national average is about 391. This is notable because this means that the student to faculty ratio at Kansas State is higher than at some other schools. The highest student headcount is 555 (this schools ranks just behind KSU in total faculty with 77). The lowest student headcount is 216 (this school has the second lowest number of faculty with 36).



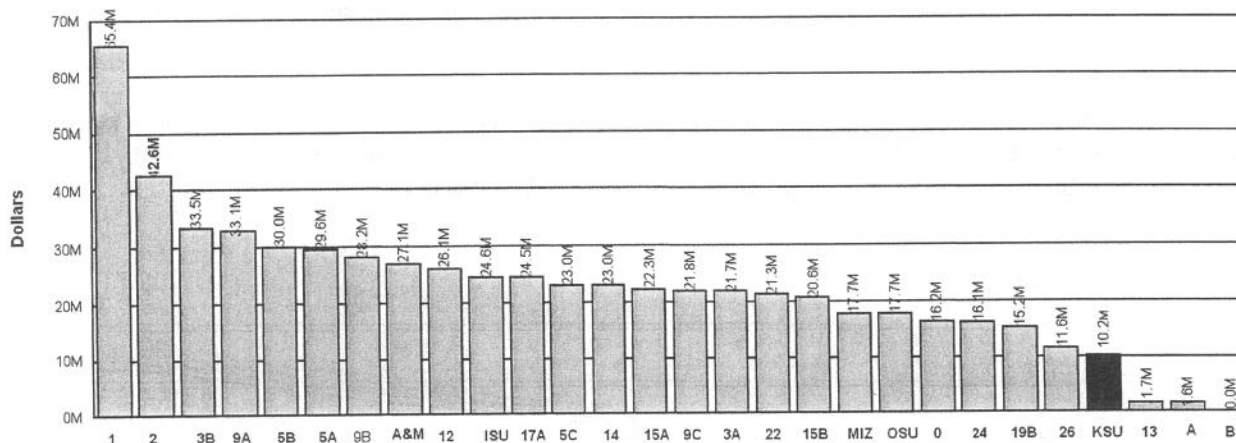
2010 – 2011 Student to Faculty Ratio

Kansas State has the 10th highest student to faculty ratio among veterinary schools at 5.7 students per faculty member. In this category, lower ratios are generally considered better. The highest ratio is 9.6, while the lowest is 2.8.



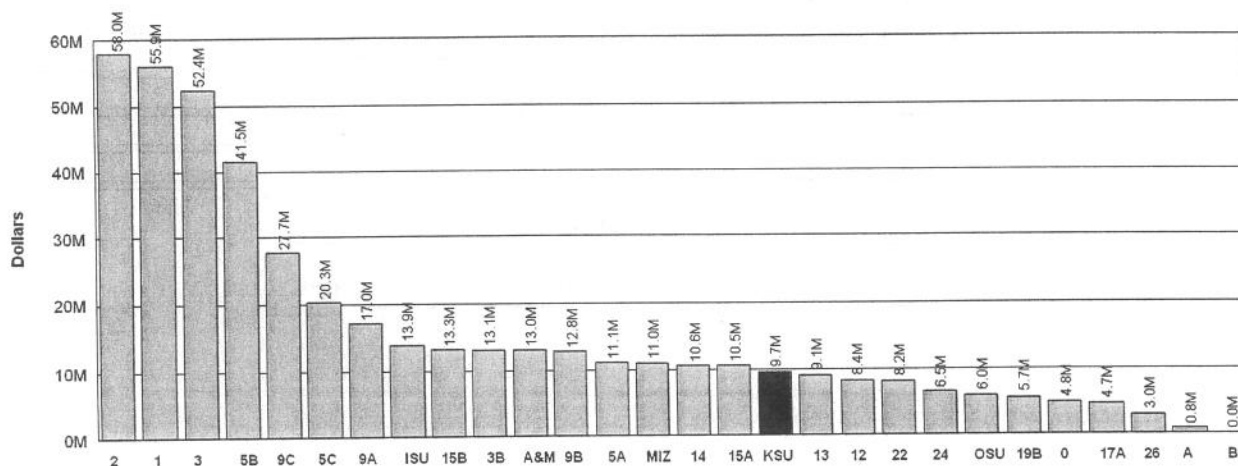
FY 2010 State Appropriations

KSU ranks 25th (out of the 28 schools) in FY 2010 state appropriations. There are significant gaps between the appropriations for the top school in this category and every other school in the country. There is also a significant drop off for the bottom schools in state appropriations. It is also notable that the only schools ranking behind KSU are private schools that receive little or no state funding at all.



FY 2010 Research Expenditures

Kansas State ranks 17th among all schools in research expenditures in FY 2010. In research expenditures, the top schools in this particular category significantly outspend their counterparts. It should be noted that the top two schools in state appropriations and research expenditures are the same (School 1 is #1 in appropriations and #2 in research expenditures, while School 2 is #1 in research expenditures and #2 in appropriations), and the bottom 2 schools also are the same (School A is #27 in both categories, School B is #28 in both).

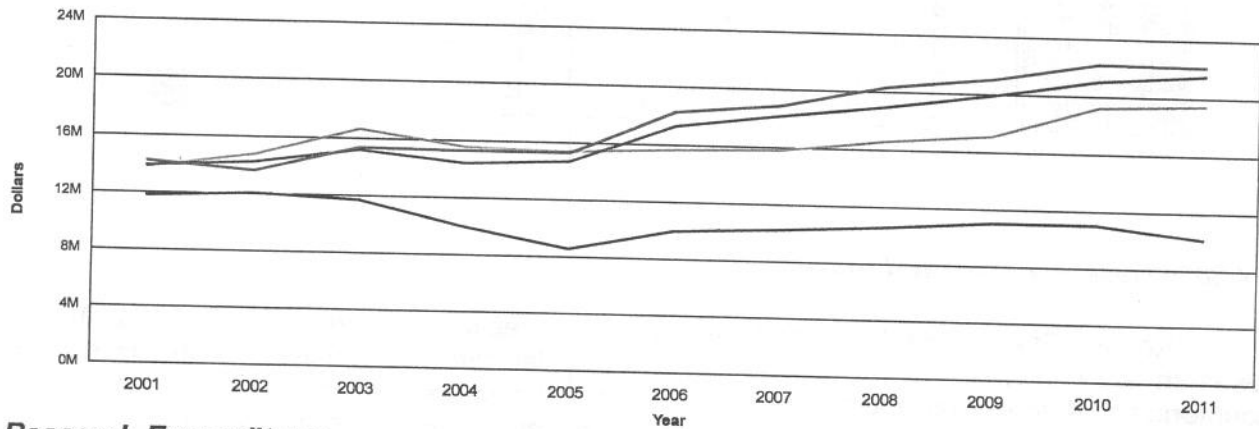


Recent Trends in Appropriations and Research Expenditures

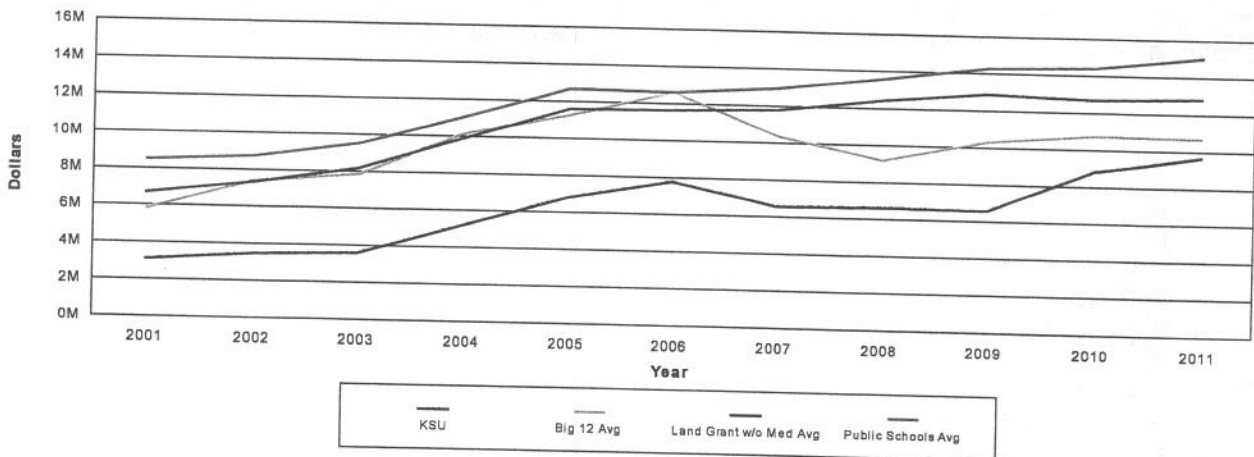
Included below are the trends over the past decade in both state appropriations to the veterinary colleges and research expenditures. Along with Kansas State's trendline, the Big XII average, the public school average and the land grant institution average (without an accompanying medical school) also are included for comparison purposes. Land grant institutions with accompanying medical schools are excluded because appropriations and research expenditures are not always kept exclusive for the institution, making comparison difficult.

It is notable that, although Kansas State has made up ground recently in research expenditures, it has lost ground in comparison to the average land grant institution, Big XII school and public school in state appropriations over that same period.

State Appropriations



Research Expenditures



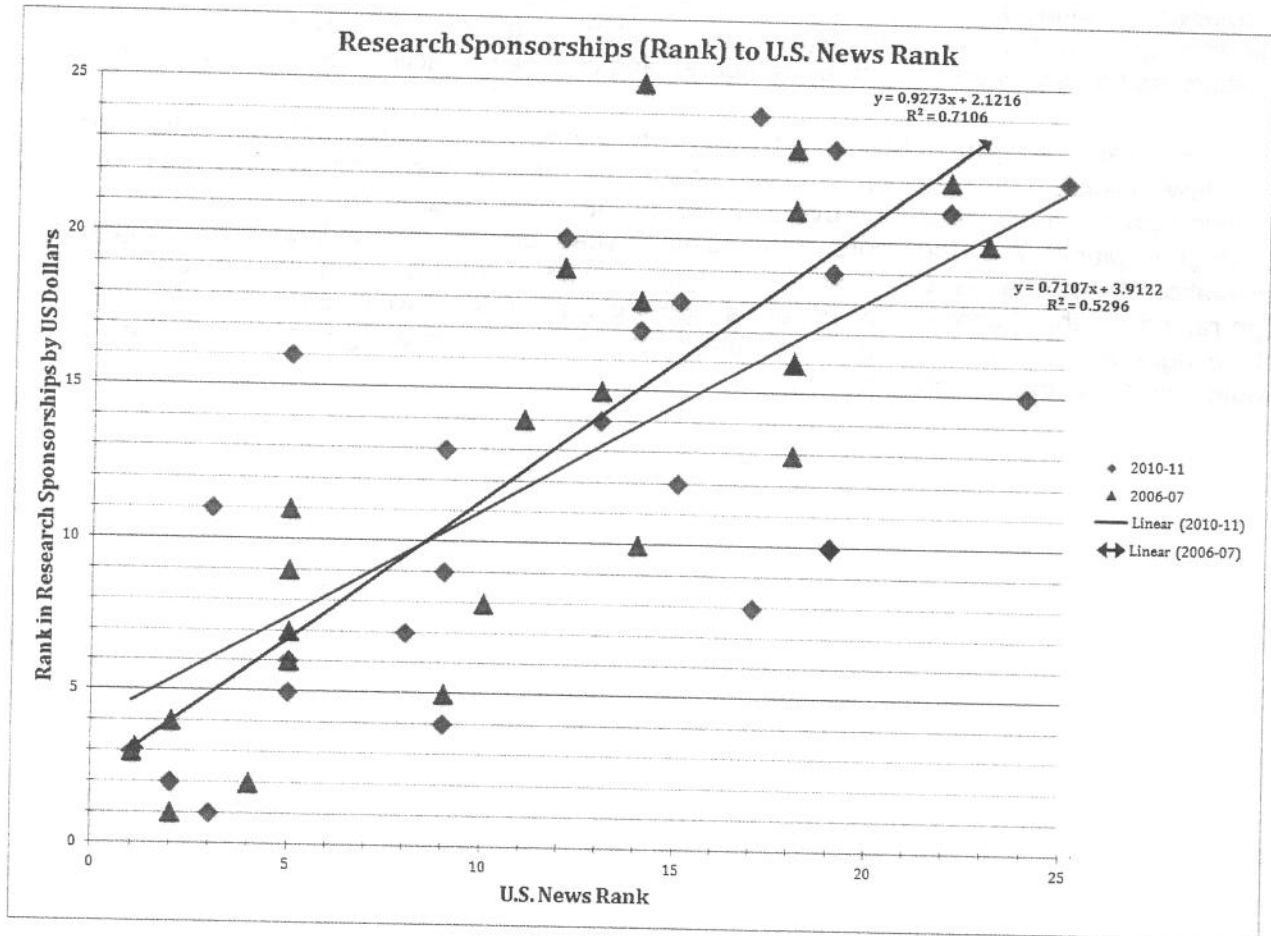
Correlation Analysis

The Legislative Research Department developed a methodology to determine what factors most closely correlated with the U.S. News rankings. KLRD utilized the information provided by the AAVMC in order to evaluate the likelihood of correlation between certain factors and the USNWR ranks. Categories considered were research sponsorships (by rank), changes in research sponsorships (by rank), research sponsorships by faculty member (by rank), research sponsorship per student (by rank), student to faculty ratio (by rank), student debt measurements, facility size (sq. ft. by category), and changes in facility size (sq. ft. by category).

For each category, a scatterplot graph is provided. The x (horizontal) axis is the school's U.S. News ranking, while the y (vertical) axis is the ranking based on AAVMC data for that specific factor. Lines indicate the overall trend for the points plotted. The closer the line is to a 45 degree plane, and the more data points plotted closely to the line, the stronger the correlation. Lines that ascend from left to right indicate a positive correlation (meaning that a high ranking in that factor would indicate a higher overall ranking) while lines that descend from left to right would indicate a negative correlation (meaning that a high ranking in that factor would indicate a lower overall ranking).

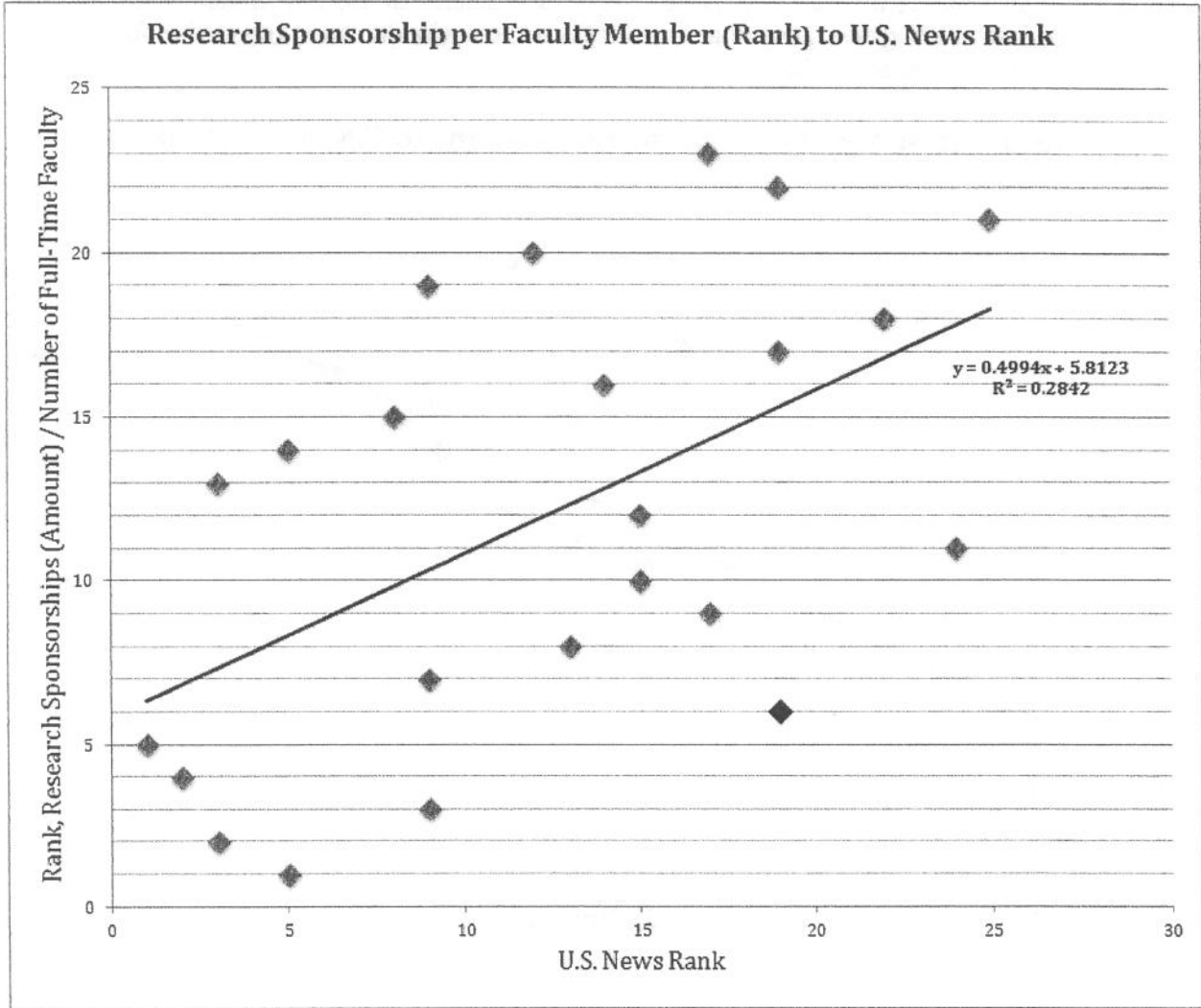
Research Sponsorships by Rank

Rankings in the category of research sponsorships (amount of money spent on research) show a strong correlation to overall ranking. The top five schools in research sponsorships are all ranked in the top 10 of the U.S. News rankings and no school ranking in the bottom five of the U.S. News rankings is higher than 15 in research sponsorships. This was the strongest correlation found.



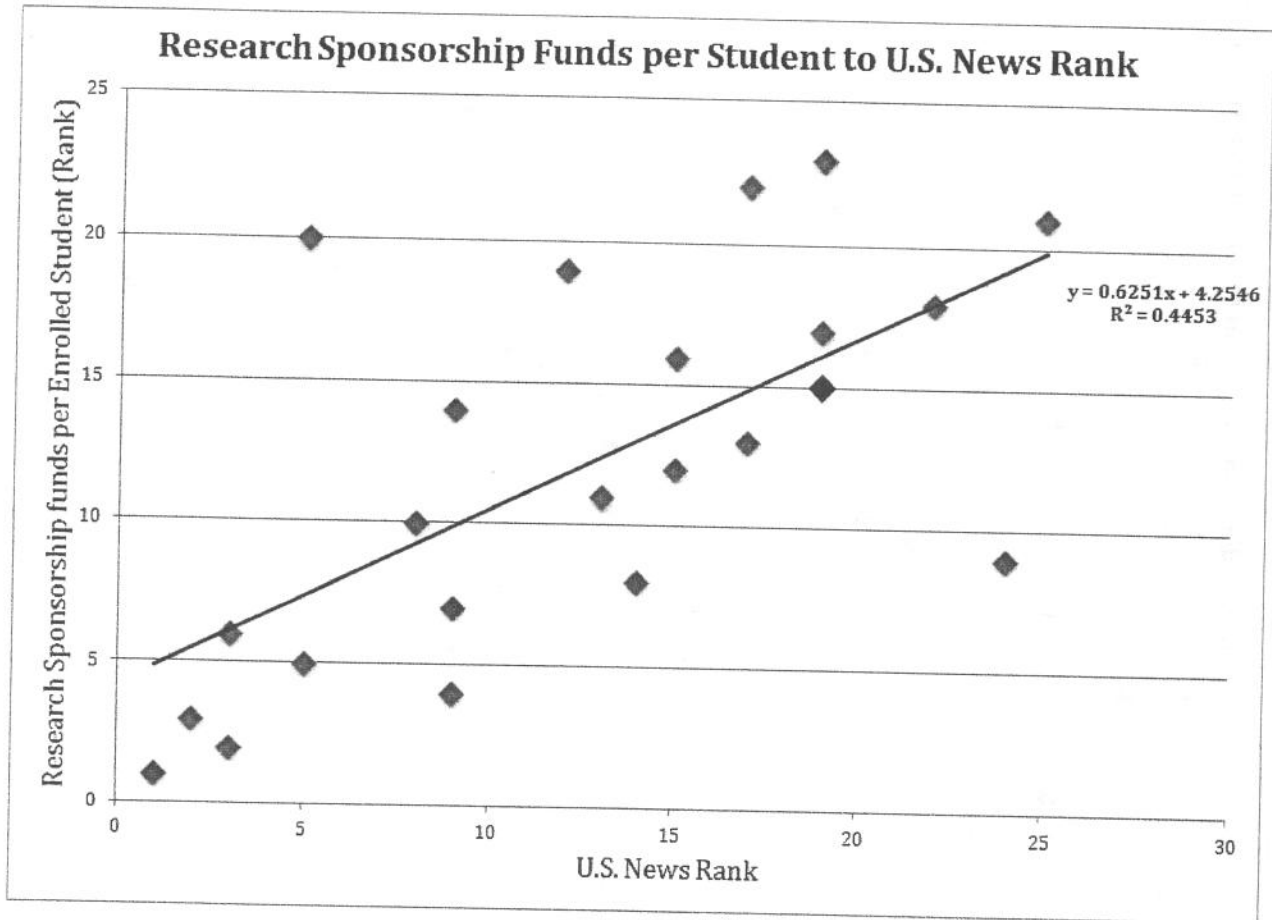
Research Sponsorships per Faculty Member by Rank

The research sponsorships per faculty members correlates to the U.S. News rankings. Indeed, four of the top six programs in the U.S. News rankings are in the top five in research sponsorships per faculty member, although the correlation is not as strong.



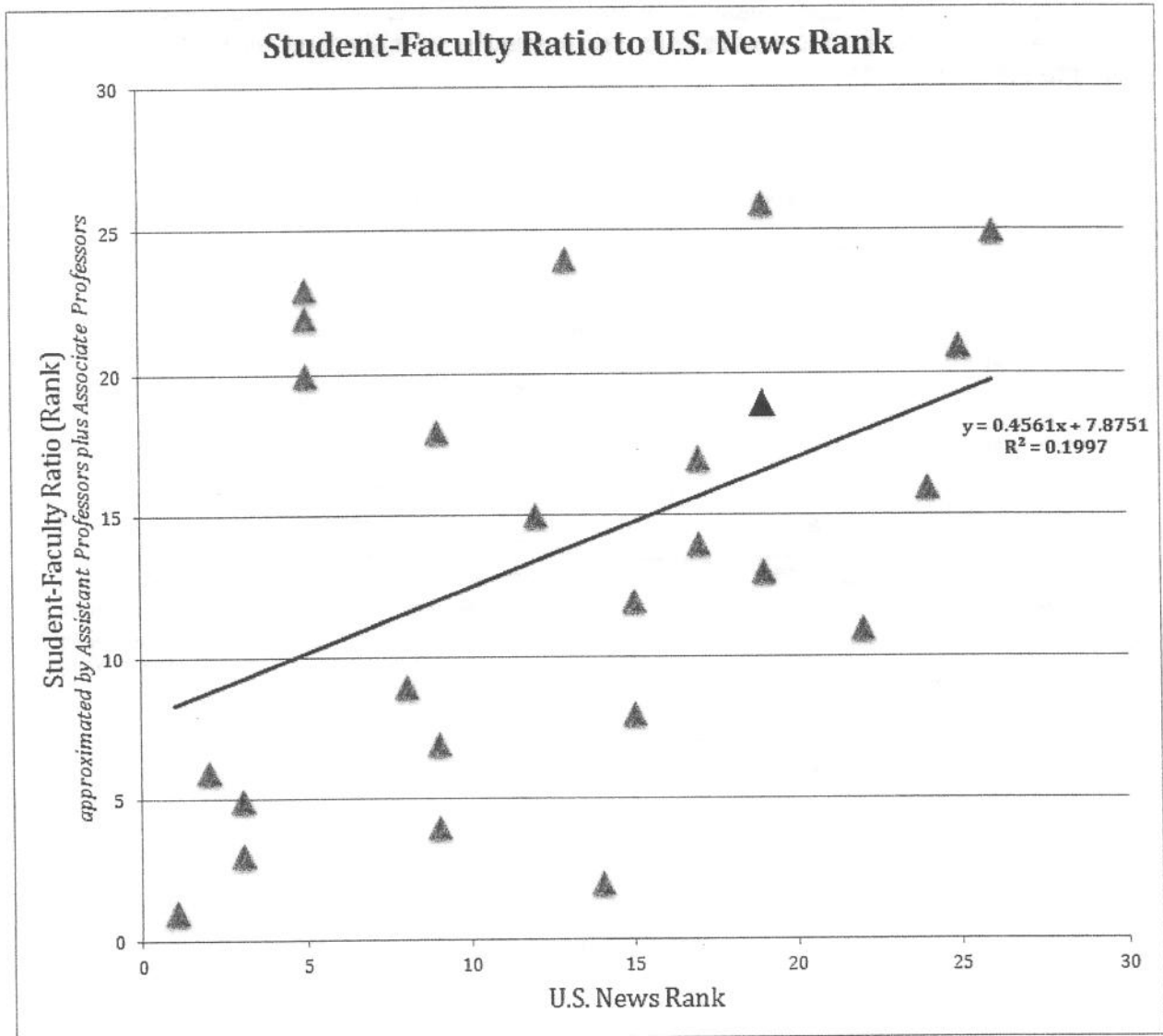
Research Sponsorships per Student by Rank

There appears to be a correlation between research sponsorships per student and overall ranking in U.S. News. It is notable that many of the data points are very close to the trendline, indicating that the relationship between research sponsorships per student and ranking by U.S. News is a close one. Again, there is a cluster of the top ranked schools (see bottom left corner of the graph), and that trend follows more closely, as many of the data points are very close to the overall trendline.



Student to Faculty Ratio

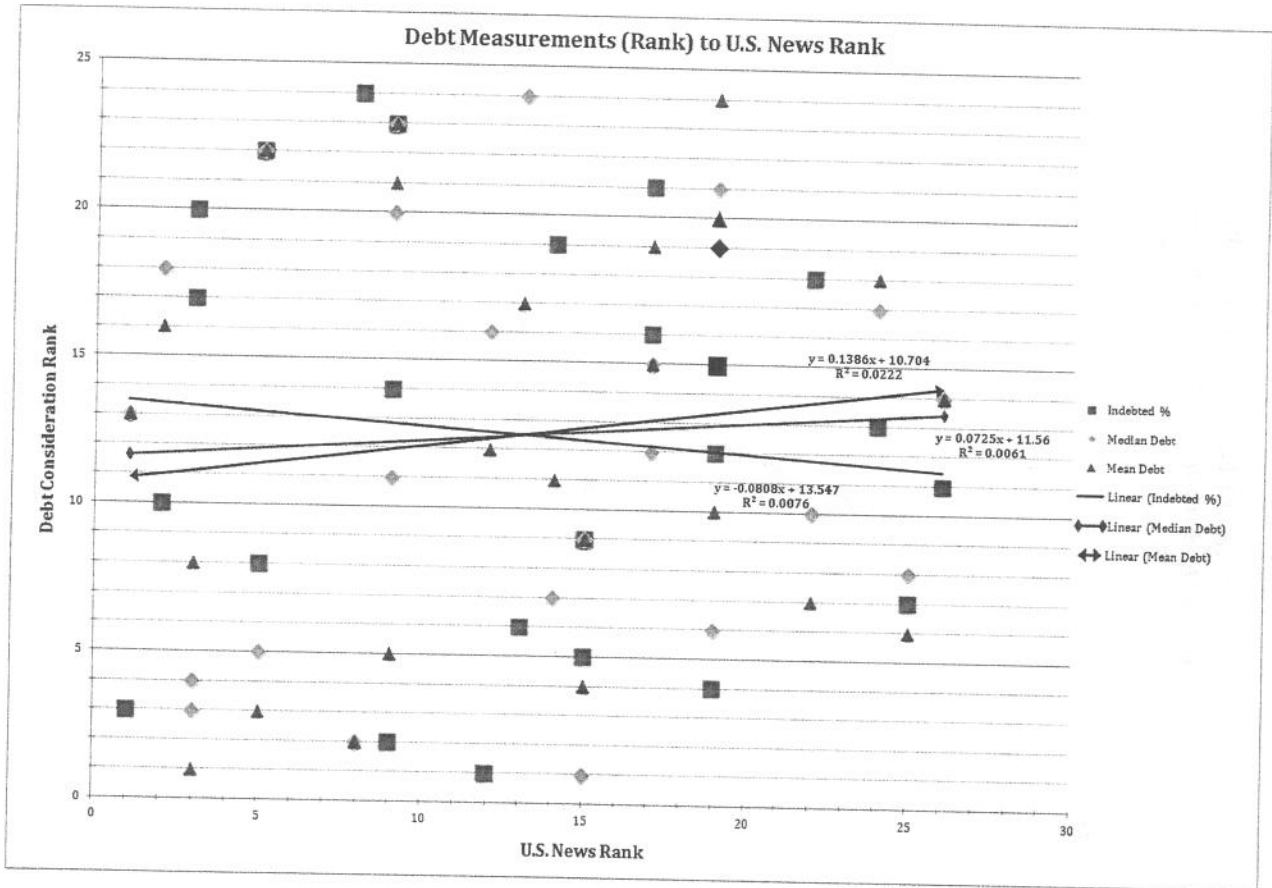
Student to faculty ratio was calculated by examining AAVMC data and adding the number of assistant and associate professors for a veterinary school and dividing that by current enrollment. There appears to be little correlation between student to faculty ratio and U.S. News ranking.



Student Debt Measurements by Rank

The debt trend lines are all relatively flat, meaning that there is no apparent correlation between low debt and better ranking. This is also made clear by the fact that the scatterpoints on this graph are seemingly drawn at random, with little consistency at any point in the graph.

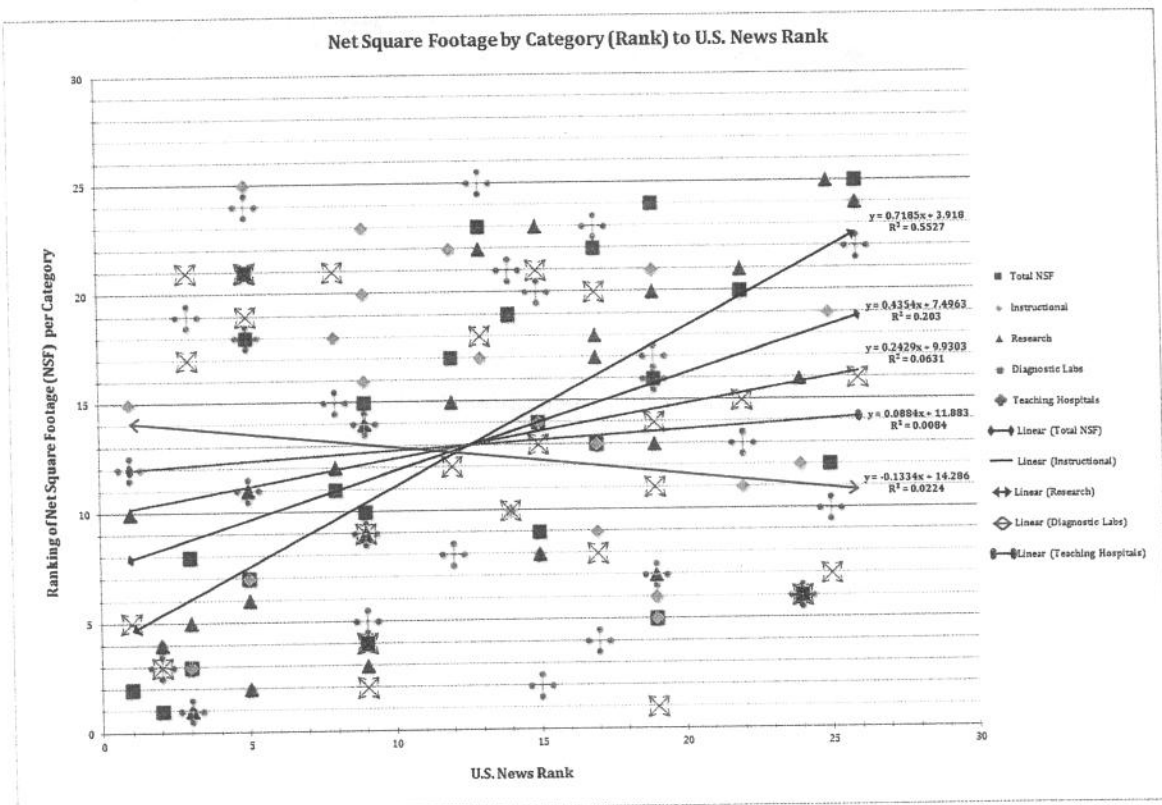
Although student debt measurements may factor into the decision making of the students at a specific school, the student debt measurements themselves do not appear to factor into school rankings.



Facility Size (square foot)

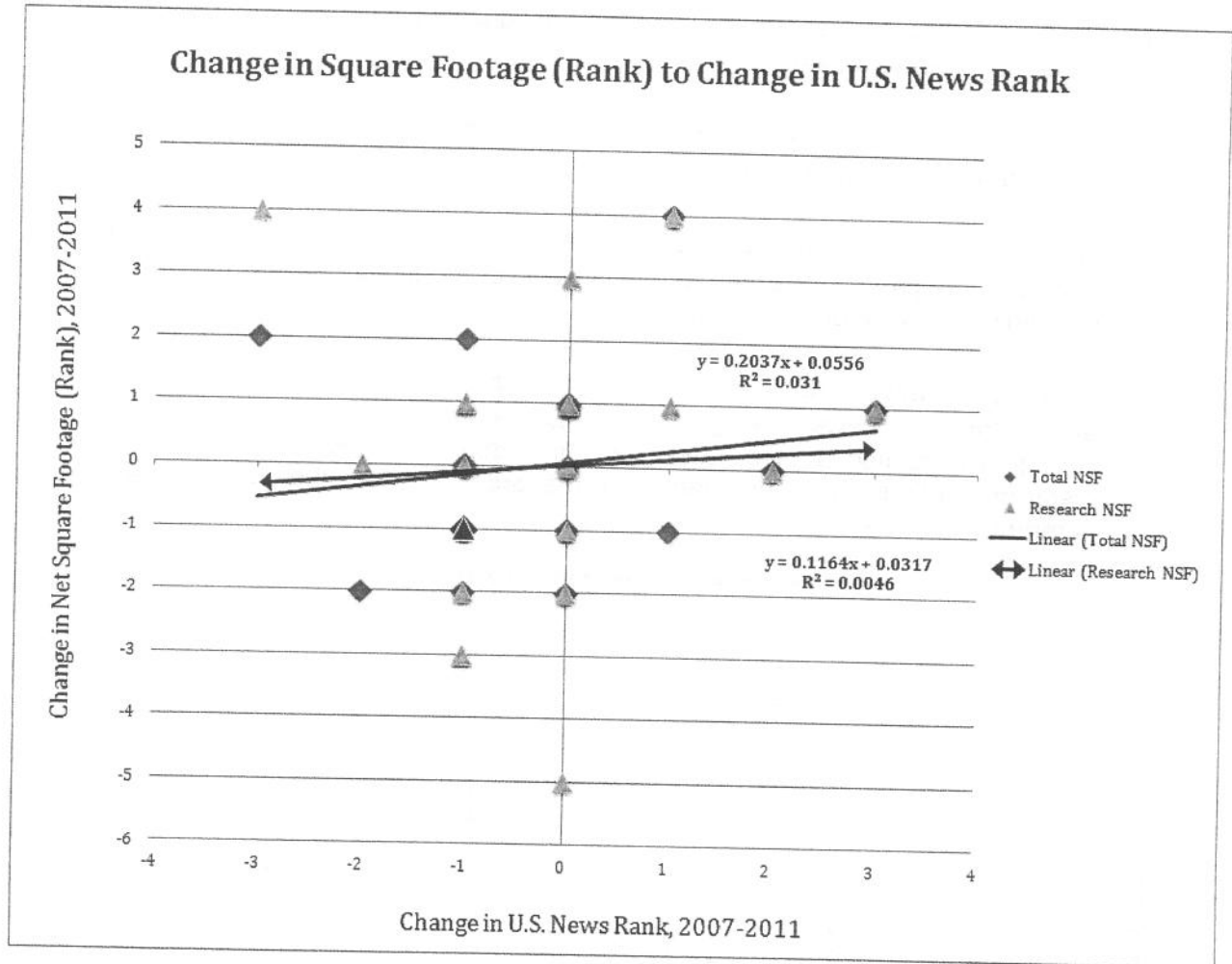
Correlations between U.S. News ranking and various measures of facility size differ. The information below discusses the plotlines in order of top to bottom at the left of the graph.

- There is no apparent correlation between total diagnostic lab square footage and overall U.S. News ranking.
- There is no apparent correlation between total teaching hospital square footage and overall U.S. News ranking.
- There is a weak positive correlation between overall U.S. News ranking and instructional space. There is a stronger positive correlation between U.S. News ranking and total square footage.
- There is a relatively robust positive correlation between research square footage and overall U.S. News ranking. This is consistent with other correlations between U.S. News ranking and research, indicating that U.S. News rankings place a disproportionately high emphasis on research, above other endeavors for veterinary schools.



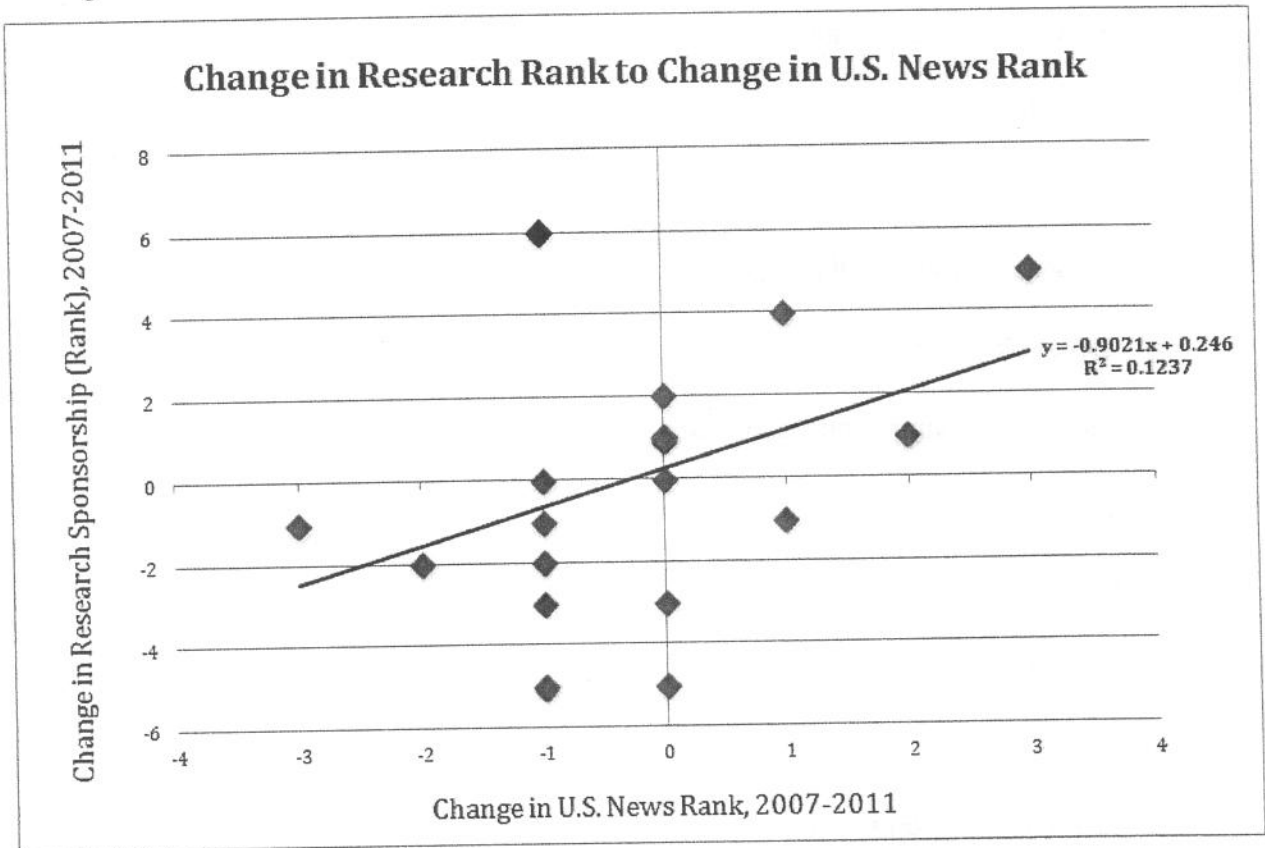
Change in Facility Size by Rank

The trendlines here are nearly flat, indicating that any change in the square footage rankings of veterinary medical colleges is not generally reflected in the overall U.S. News ranking.



Change in Research Sponsorship by Rank

A comparison of 2007 AAVMC data with 2011 AAVMC data demonstrates that schools that showed a decrease in ranking for research sponsorships from the 2007 rankings to the 2011 rankings also showed a decrease in U.S. News overall rankings. Although there is some correlation, the trend is not a steep one, suggesting that a decrease in research sponsorship ranking will not automatically be reflected in the U.S. News rankings.



American Veterinary Medical Association Accreditation Report

The American Veterinary Medical Association is the accrediting body of veterinary medical colleges. The AVMA issues an accreditation report every seven years for all veterinary schools on a rotating schedule. The last accreditation evaluation for KSU was done in June 2010, with the report for KSU issued in September 2010.

The AVMA examines 11 areas:

- Organization;
- Finances;
- Physical Facilities and Equipment;
- Clinical Resources;
- Library and Information Resources;
- Students;
- Admission;
- Faculty;
- Curriculum;
- Research Programs; and
- Outcomes Assessment.

In each of these categories, the AVMA examines the strengths and weaknesses of the school to determine whether the school will receive full accreditation for the subsequent term. Kansas State University received full accreditation for the current term as of September 28, 2010. This accreditation will run through the next evaluation in 2017.

In its report, the AVMA noted several things that KSU self-identified as strengths, as well as some challenges that the veterinary college listed. KSU identified these strengths:

- Faculty and staff;
- Facilities; and
- International recognition of research programs.

The challenges KSU identified were:

- Under-funding from the State of Kansas;
- Overcrowding in classrooms and teaching laboratories;
- Low number of technical and graduate students;
- Need for modern BL2 (BioSafety Level 2) animal housing;
- Overcrowding in offices and laboratory space in all academic departments; and
- Difficulty in providing facility maintenance and equipment replacement in a timely manner.

In addition to the veterinary college's self assessment, the AVMA did its own assessment in each of the categories mentioned above. It should be noted that Kansas State's veterinary college was judged to be in full compliance in each category. However, the AVMA's evaluation made these points regarding weaknesses.

- Of particular note in the facilities and equipment category, the AVMA noted that the College is facing overcrowding of office and laboratory space in all academic departments, and that the facility maintenance and equipment replacement is often deferred until there is a crisis. The AVMA recommended that more efficient use of space be considered prior to expanding class size.
- In the area of faculty, the AVMA notes that there has been a net gain of 20 faculty since the last accreditation site visit in 2003, most in the areas of diagnostic medicine/pathobiology and clinical sciences. However, that increase in faculty size has not been accompanied by an increase in support staff.
- The AVMA also noted that an expansion in research opportunities for clinical residents would be beneficial to the college in the research category. It is noted Kansas State is involved in two areas of emerging research – stem cell biology and select agent – bio-and agro-defense research.

In its overall recommendations, the AVMA identified 17 different areas for improvement, spread through the categories of Physical Facilities and Equipment, Clinical Resources, Admission, Faculty, Curriculum and Outcomes Assessment. It is notable that of the 17 recommendations, eight were in the area of Physical Facilities and Equipment. Most of these recommendations cited concerns about contamination. Another key recommendation was the addition of support staff such as veterinary technicians to enhance the teaching environment for students.

Summation

Although the U.S. News rankings are unscientific, they are more strongly correlated with research factors than with factors such as student debt measurements or instructional space. The school officials who respond to the surveys appear to rate the quality of a program by the faculty scholarship that is coming from that veterinary school, irrespective of the quality of the learning environment provided at the school. Rankings based on reputation would be slower to react to changes unless those changes are rather large, since reputations are built over long periods of time. **For KSU to improve its ranking in the U.S. News and World Report Veterinary School rankings, the veterinary school must improve its academic reputation among its peer institutions, and that reputation appears to be tied directly to research, specifically research expenditures and research space.**

Data provided by the American Association of Veterinary Medical Colleges show that, of the 28 veterinary medical colleges in the country, KSU ranks 8th in number of students, but 13th (and very close to the national average) in number of faculty. This means KSU has a higher than average student to faculty ratio. **This indicates that KSU faculty spend more time in the classroom than their peers and therefore have less time for research, meaning they are less likely to secure as many research grants.**

Comparing KSU's number 8 ranking in total student population with its ranking near the bottom and lowest among all public schools in state appropriations means the state appropriates less per students than other states do – less money is being spent on more students.

Kansas State has successfully begun to increase its research expenditures over the last decade, however the veterinary school still lags behind its peer institutions in the Big XII, as well as among Land Grant institutions without medical schools and among public schools. This increase has come even as state appropriations for the veterinary school have fallen, demonstrating the school's ability to attract outside research dollars. **However, to keep pace with other institutions, these figures must continue to increase, as Kansas State still ranks as below average in research expenditures when compared to other schools.**

As stated, the overall rankings of veterinary colleges do not affect the school's accreditation in any way, and any change in rankings does not affect a school's accreditation, either positively or negatively. However, the recommendations of the AVMA do affect accreditation. **Of particular note are the recommendations regarding facilities and equipment. It is notable that nearly half of the most recent recommendations dealt with facilities, maintenance and equipment.** Particularly concerning are the recommendations regarding contamination, as this is a scientific and medical environment, and any contamination could injure students, faculty, animal patients or the research being conducted on the premises. **The need for support staff to keep pace with the additional faculty is also an important concern for the future. Twenty additional faculty have been brought on since the last accreditation site visit in 2003, most in the areas of clinical sciences and diagnostic medicine/pathobiology.**

The strongest factor affecting the perception of a given school may well be that school's U.S. News ranking the previous year, as perception-based survey rankings can become a self-fulfilling prophecy. Our analysis did not isolate any factor that consistently predicted the ranking of any individual school more effectively than the school's prior ranking in U.S. News.