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SDSU Compared to Other Thirteen Universities in Research Expenditures

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SDSU Compared to Other Thirteen Universities in Research Expenditures



Issue 5, 2018

Economics Department

By Davis David, advisor and Abdalnaser Hesaien, master's student

Introduction

Research is the essential starting point for every successful project in the world. Development and progress of anything in the academic sector revolves around research. Different studies take place in various avenues that give different individuals the power to argue on topics that bring change in the areas of interest. The revolution that is created by research is not stoppable as long as the right foundation of ideas is formed at the start of any event. Research establishes the baseline of general life people live in the society. Everything that happens in the world requires knowledge and skills that have to be managed and realized through a specific platform and abilities. The only way to attain such professional attributes is through the development of smart moves that need to be monitored through carrying out particular studies. Exceptional concepts of any research give any individual the power to have

the energy and zeal to perfect in all undertakings that mold life in general. All academic steps students and the society at large undertake come out of all possible efforts that make up the requirements of being at large. The life of a scholar is only realistic and fulfilling if they can come up with specific processes that one has to be careful about all the time. Students always must be aligned to research for them to succeed in any activity they undertake. It is necessary to have a theme in academic life that offers a starting point for knowledge and skills improvement strategy through research work.

Research in SDSU is defined by the zeal to stay up to date with all necessary information that one would need to cope with day- to- day activities in different scopes of life. In any given moment SDSU offer a research-intensive environment that is not only possible to uphold but also able to provide a better way to adhere to information multiplication professionally. All efforts that are invested in the institution tries to give insights about the best ways to improve livelihood in South Dakota as the starting point that will impact the entire world. The most important plan that is necessary to be optimized is the application of information professionals to ensure that progress is evident on any platform. The ability of SDSU to offer a standardized avenue for research initiates the essential way to differentiate the society to a practical way of accomplishing processes. The role of SDSU in research is to contribute knowledge development among stakeholders. The benefits of research in any society are well attributed to the willingness of the available scholars to be able to take part in such studies. SDSU at the same time it offers a powerful way to attain a more practical improvement strategy to available systems of life and the society at large. The community is serviced by the sources of information that can be evident in the given areas of interest at a specific point in time.

The completion of this project will be attributed to the application of specific research modes in defining the exact impact of studies in society about SDSU. The success of the research was brought about by the implementation of specific strategies that have been attributed to the optimization of possible study attributes that are more relevant in other universities in the same category. The paper will be a comprehensive research of different elements of a scientific study to help improve various aspects of research at SDSU. The intensive information search will be done across thirteen universities and institutions in addition to SDSU. The institutions will be a reference point for learning how universities function in research initiation and completion. The paper explores the impact of financial allocations on research in SDSU in comparison to other universities that will give a platform for SDSU to improve its research on different platforms.

Different universities have unique research systems in place that define the quality of information obtained at each stage. It is critical to deploy the right tools in the development of frameworks that are able to redefine the issues in place. In any given moment the data collection and analysis methods give a more concise infrastructure to be adhered by the rest of the stakeholders. The notion of each student to take a given alienation in research is a developmental plan that is self-conceited. The amount spent on each type of study matters as different requirements are set for each type of study. Academic research is always a more powerful way of developing systems that have to be managed and realized in a modest manner. At any given point it is necessary to have a mode of data search and collection that concurs the given plans of study at each point in time. When it comes to the adoption of the right strategies it is necessary to have a definite way of operation that is concurrent with the mode of activities that each individual has to use in the development of better skills and knowledge acquisition. The smart move that is

evident at SDSU as an institution has been a major commitment that other universities have set strides in their development to achieve a more robust ability to carry out studies.

The following results of the study were collected from the different universities to give a comparative analysis of the funds used in research in different universities across the United States. It is a comparative study that gives an implication that each level of study is a practical analysis of the typical exposure of the activities that take place at SDSU and other universities. From the charts, it is evident that most of the processes have been initiated to give the university its significance in the given line of research. The thirteen universities that were included in the study gave enough information that defines the exact alienation of study in any sphere of studies. The communication strategy staged in the research is a powerful way to give insight about the importance accorded to research at universities. The mode of research that seems to take control of the different institutions is a clear indicator of what is expected in any given platform. There is always a need to know the exact orientation of research as a way to comprehend the necessary needs that give an individual the ability to service the study and any other accompaniment of the same. The only way that any individual is able to capture all the requirements in the given progression is through being able to master the necessary communication platforms.

Analysis of the charts:

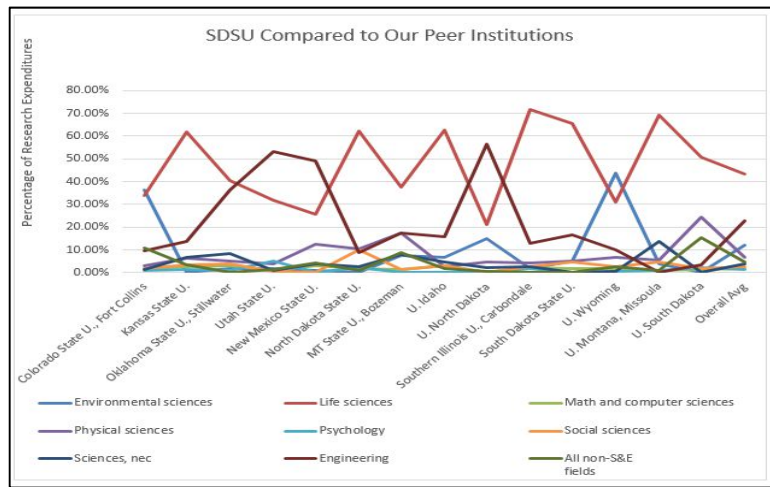
Analysis of charts by field of study

From the content of chart 1 exhibiting research work data of 2012, it is evident that from the analysis and presentation of the data about the expenditure of field of study life sciences is leading by amount spent on the studies. In all universities not only SDSU have spent substantial amounts of income initiating most research processes. There is an indicator that studies in life sciences are given the highest priorities unlike any other field of study. The amount spent by percentage is reaching up to 71% in a specific university like Southern Illinois U. Carbondale. The university gives much credit to the use of funds in managing life science research work. The same trend on prioritizing studies in life sciences is evident in the University of South Dakota that posts about 69% of its research expenditure on life science research work by 2012. It is a close range study that is well highlighted with much interest in the development of the given scopes of interest. The nature of study in other universities like North Dakota State University and Kansas State University seems to have the same expenditure margin of 60% in 2012. The indication is that the universities have the same alienation of conducting the life science studies as they form the basis of any society. The scope of action that is evident in any given point in time in the study shows that much emphasis is placed on the areas that have a large weight in influencing the livelihood of the community at any given point. It is a gesture of development frameworks that offer a given point of realizing the goals set for research. At any given point life sciences are always a focal point in any community as they form the baseline of any life activity. From the analysis, it is evident that most of the life science research avenues in the universities are all above most of the other fields of study. The university that seems to spend the least in life science research is the University of North Dakota at 21% which is still an immense expenditure on a single area of study

in the year ending in 2012. The field is more preferred by the universities as it is a more important part of the community that forms the base of any research. It seems more ethical to conduct a more realistic research work given that all the processes are able to connect to the people's welfare.

In 2012 the different universities also exhibit variations on how each institution spent their income in funding engineering studies. From the analysis of chart one, it is evident that engineering

Chart 1: Research Expenditures by Field of Study, FY 2012



takes position two in the amount of expenditure that the organization spends in funding different areas of engineering as a field of research. The average expenditure of the different universities on engineering research work is about 20%.

Different universities show much preference on the number of expenses they have in engineering research work as a field. The necessity to create a focal point in the development of the given research work is based on the fact that engineering is a field that constitutes a high percentage of the day to day activities that make up the society. The reality is that most of the activities that make up the engineering activities and research at large are in a way that shows much exposure to using of machinery and accelerated technology to solve issues. Life sciences have a large connection with engineering. It is an element that forms the basis of society given that most of the institutions have shown a large research preference to the field. By 2012, Utah State University leads in the amount spent in engineering at 55% of the total expenditure. The nature of courses taken in a given university also defines the type of studies that will have the highest weight at any given point in

time. The nature of a university in terms of research gives one the opportunity to illustrate the systems that have to be managed and realized in the given fields and scopes of study. There is also a similar trend in University of North Dakota with an average expenditure of 55% which is similar to that expenses most of the other universities exhibit by 2012 in engineering.

Environmental sciences come third by average expenditure in the sampled universities with 12.24% of expenditures. The connection between the leading research and the rest of the other fields is well illustrated given that the life sciences and engineering fields are closely connected to environmental sciences. The University of Wyoming leads in the amount spent in environmental research work at 43.89% in 2012 as illustrated in chart 1 in the analysis. The amount spent in this field is much lower compared to engineering and life sciences in general. It is a smart move that is made in a way that shows the commitment of the given institutions at large. The phase that comes in is all about the development of the specific expenses that each individual is able to attest in the best way possible. The need to have a specific way of operation in that avenue gives a more specific analogy in the given areas of interest as an institution. The development of the specific study opportunities in any university is an extensive evaluation to attain a society welfare-based project at large. All the universities under evaluation seem to have a big emphasis on the projects that have a major impact on the life of people in the society economically than the rest of the life spheres like social aspects. In 2012 as illustrated in chart 1 the field of study that exhibits the lowest fund expenditure is psychology which falls below 5% on average. The individual goals in research are mostly exhibited in the non-science based studies like in psychology. The trend of low expenditure of psychology studies is evident in all universities. There is a major reason why such a trend would be evident in the given chart on the studies of 2012. Each revenue directed to the field is an exact indicator of the value attached to the research in that field. The scope of interaction

between the specific players in any field defines the number of funds to be channeled in that field at any point.

From chart 2 the comparative analysis of the amount spent in SDSU and peer institutions gives a specific trend in research. SDSU is an institution that seems to have the great emphasis on research. All universities studies have a similar trend of spending in specific fields of study. The highest percentage of funds that have been spending in the universities is in life sciences. It is an aspect that is defined by the number of funds channeled to this fields. SDSU is leading in funds allocation on studies in the field of life sciences. An allocation amounting to 65.71% is what defines the expenditure SDSU has in this field. There is a great correlation with other universities that shows the same aspect of expenditure by having an average expenditure of 43.21%. The peer universities focus more on the living welfare of the community that can only be enhanced through intensive research on life sciences.

Engineering research works take the second position in the comparative analysis of SDSU and peer universities in 2012 data evaluation. Both SDSU and the peer universities exhibit a similar orientation when it comes to the research expenditure allocations. At any point, it is evident that each university on average allocates a substantial amount of funds to enable engineering studies to progress. SDSU in its allocation it reaches about 16.70% of its total research cost that researchers undertake in any given project in engineering by 2012. Other peer universities spend an almost close amount on average that accounts for 22.89%. The trend exhibits the nature of studies that have to be evident at any point in time. The nature of institutions seems to have minimal impact on the concentration given on engineering. In that way, the different organization in the academic field have a similar way of spending on any given platform. There is a common trend that defines the number of funds acquired by researchers to conduct engineering projects in

all universities in the region. In chart 2 the data depicted in either of the two different aspects gives an indication of what to expect in any given field of research. The peer universities exhibit a high level of allocating funds to the engineering research in a manner that shows great disparity to that of SDSU allocations. The greatest focus of SDSU is on life sciences than any other field as per the chart 2 of 2012 data.

When it comes to the analysis of chart 2 on the focus of environmental sciences. SDSU is still lagging behind the peer universities in terms of fund allocation on the research projects. It is obvious that the peer institutions show much interest in other projects, not the life sciences as depicted by the

Chart 2: Research Expenditures by Field of Study, FY 2012

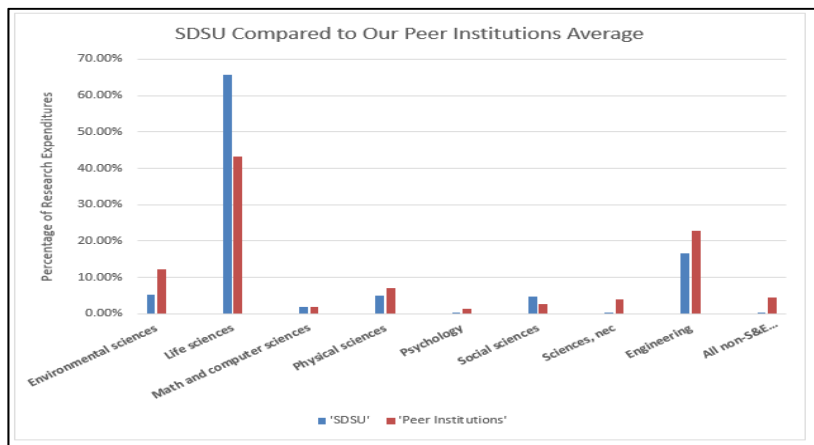
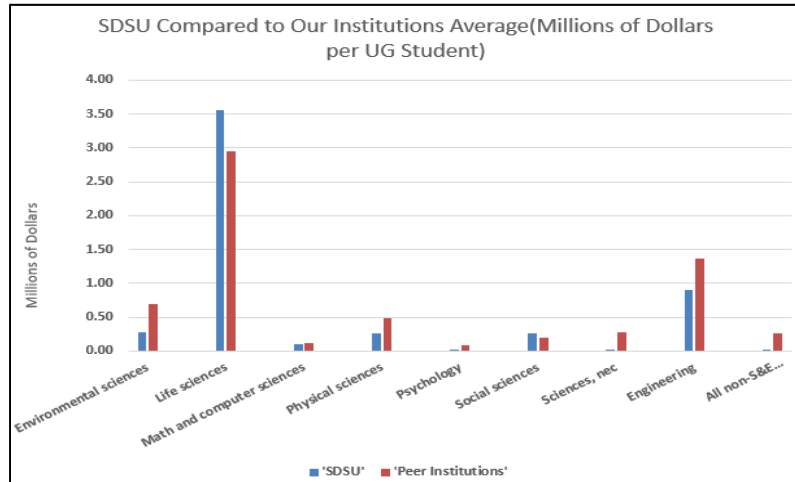


chart 2. The research project allocations that are evident in the university are defined in such a way that exhibits expenditure that is beyond what is seen in SDSU as an institution. Peer universities have allocations on environmental research topics amounting to 12.24% on the higher side than SDSU. The total allocations of funds for environmental science research in SDSU is stated at 5.18% which is far below the peer universities.

The peer universities seem to have a low allocation of funds to do psychology-based research projects that are slated far below 1%. The same trend is evident in SDSU that shows no allocations for such research projects. In normal circumstances, if a course may not be offered in an institution it will be hard to have allocations to carry out research at any given point in time. The nature of services that have to be managed in a given manner is an aspect that is easy to

manage at any given point in time. The need to have a specific way of operation is only done through the utilization of more specific goals that have to be managed and realized throughout the research processes. There is always a strategy that is seen to exhibit in the nature of studies that

Chart 3: Research Expenditures by Field of Study, FY 2012



SDSU carries out. The notion is to be able to know the exact concept that is necessary to the success of the society based research plans. It is all about the development of research goals that work hand in hand with the given strategies of interest in the research platform.

The same peer universities in the study have one aspect in common that they lead in the rest of the courses that are undertaken in the given way of operation. The alienation of each form of study that gives the specific aspects of interests is all about the utilization of the right concepts that have to be managed and realized in the best way possible. There is a connection that seems to work well for the SDSU that is in the science-oriented research plans and not any other field at large. The focus of SDSU is much in other disciplines that the peer universities seems not to focus all the same.

Chart 3 analyzes the number of dollars allocated to UG (Under graduate) student in the different universities in millions of dollars. SDSU leads in life science funds allocation to students that average to \$3.55 million in 2012. The peer universities also show the same trend in having much emphasis on the fund's allocation per UG student. Peer universities allocated \$2.95 million for life science research projects per student. In that way, it is seen that most of the activities that

make up the institution are all in line with the given plans in any given platform. The necessity to create a diverse way of communication is all about the utilization of enough funds in the management of research processes in the given organizations.

Chart 3 also depicts the way allocations of funds to individual projects in engineering was effected in 2012. SDSU comes second in the allocation of funds that were used in engineering research all the time. The components of the research came in as a result of the development of the right plans that have to be managed and realized in line with the number of funds available for such activities in the first place. The peer universities show great allocations is millions in the engineering research projects. \$1.37 million was given to UG students to do engineering research works in the various universities on average. The intensity of funds that were allocated to the research works shows the importance attached to the given areas of study. On the contrary, SDSU lags behind in reference to the number of funds that a student was allocated to carry out research on an engineering project. About \$0.90 million per UG student had been allocated by 2012 in SDSU in the bid to support engineering projects. The amount of resources that a project would consume is usually proportional to its benefits economically and all other spheres in the society and the institutions initiating the same.

In chart 3 also it is seen that peer universities gave a similar emphasis to environmental sciences as SDSU did. Peer universities in 2012 allocated about \$0.69 million per UG student to carry out their projects. It is an amount that is above what SDSU utilizes in the field. It is all about the development of the different resources that have to be developed and managed in a given way of activities at any given point in time. There is an adherence to the way each strategy that is modest in the development of better strategies that have to offer a better way of communication at any point in time. There is a connection that is able to define the number of allocations that each

institution gives to its students. On the side of the SDSU, there is a much lower allocation to environmental science research that stands at \$0.28 million per UG student. Each aspect gives a different way of considering the cost of research that seems to exist between the different scopes of interest.

A similar trend is evident in the social sciences research in the different organizations. It is obvious that each institution takes different starting points that have to offer a common infrastructure in the development of specific resources in the accomplishment of research. There is always a platform that is able to offer a common working environment that is developed and styled in the different organizations. The specific nature of research that has to be attributed to the given standards is all about the application of the smart moves that have to show a more realistic way of carrying out research in the given fields. SDSU allocated about \$0.26 million per UG student in the accomplishment of a research in social sciences field. It is in the same orientation that is evident in terms of the peer institutions that offers a common infrastructure in research that allocated about \$0.20 million per UG student to complete similar types of research. The connection between different institutions in the process of carrying out research is all about the nature of resources that are allocated to such types of researchers in the completion of such projects.

The number of funds that paved their way to the physical sciences was large in comparison to the amount of the funds that was directed in another research field in the different universities in 2012. SDSU spent about \$0.27 million in the given scope of alienation. It is necessary to comprehend how each situation had to be realized at any given point in time. The amount of time and resources that a researcher seems to spend on a single project seems to determine the number of funds that are received for its servicing. The number of funds given to students in the peer universities in seen to go higher in the 2012 research year amounting to about \$0.49 million. It is

a trend that repeats in almost all disciplines. Some of the fields take many resources in comparison to what one would expect at any given point in time. The development of most of the research processes is an aspect that comes in to offer a more realistic way of communication that has to offer a researcher the power to contribute to the given allocations of interest at any given point in time. When it is the allocation of resources for research a modest way of operation is required to give credit to the specific mode of action to ensure success is attained with ease. In that alienation the allocations of funds that an organization uses to capture some of the strategies that may give a more specific way of alienation in the physical science research work. The only way to capture the best out of research is through the utilization of enough funds in a given field all the time.

The science NEC and psychology records the lowest amount of funds allocation in SDSU research budgets. There is a common signature that has been exhibited in the way the research processes are carried out at each point. The amount allocated to the psychology is about \$0.01 million per UG student. In a similar manner, the amount allocated to a UG student to carry out a research in science NEC is about \$0.01 million. It is a low average spending that SDSU shows in terms of allocated funds at any given point in time. The smart move that is exhibited by the given areas of interest is all about the development of master plans that have to work hand in hand with the number of funds available for the specific type of research. The genre of studies in the peer universities shows a common trend in funds allocations to Science NEC and psychology. However, the amount allocated to the psychology in peer institutions is far higher compared to SDSU. A UG student is allocated \$0.27 million and \$0.08 million in carrying out research in Science NEC and psychology respectively at peer universities.

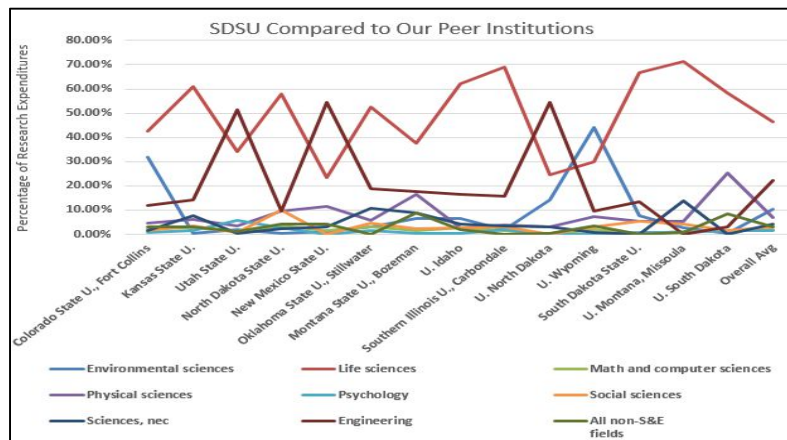
In 2013 research work funds allocation in terms of research fields have the same trend as those in 2012. Life sciences seem to take the bulk of the research work funds across the different

universities. It is the same aspect that is seen to happen in SDSU as a research institute. The information displayed in chart 4 for research work carried out in 2013 the life sciences have been given the highest priority in terms of funds allocations. The concept at hand is that life sciences have taken the highest amount of allocations across the thirteen universities studied. An example is the fact that the University of Montana Missoula allocates about 71.4% of its total research expenditure to life sciences. It is a trend that is seen in most of the other universities that prefer life sciences more than any other field of study. The second highest in life sciences research funds allocation by percentage is the Southern Illinois U. Carbondale with 68%. The same trend is exhibited in most the universities studied in 2013 academic year. It is an aspect that shows the comparative development of systems that have to be in place to ensure that life sciences are given the highest priority in any field of research. The number of allocations as seen in the different areas of research work are well reflected in the way the different areas of concern are able to work on any given platform.

Chart 4 also depicts another interesting trend in fund allocation to a different sphere of research. From the 2013 data, the second highest field of research in terms of research work allocated funds is the engineering field. The way each strategy of study is attributed is all about the development of standards that would help in the accomplishment of research processes. At any given point it is necessary to offer a more convenient way of allocation that any university had granted to researchers in a given area of research. The allocations of engineering research work are attributed at an average of 22.25% per year. The different universities have taken almost similar allocation to the amounts spent on engineering projects. From the data collected and analyzed of 2013 and recorded in chart 4, it is obvious to see the way each university has the power to allocate researchers enough funds to help in the management of specific allocations to students

pursuing engineering students. The University of North Dakota shows a major way of allocations that have been used in the development of more specific fund utilization in reference to the way each individual is able to operate in general. About 54.46% of the total research funds on the University of North Dakota is directed to engineering studies. The University of North Dakota is followed by New Mexico State University which allocated about 54.30% of their annual income

Chart 4: Research Expenditures by Field of Study, FY 2013



expenditure in engineering projects. Most of the projects done at Utah State University seems to be engineering in nature as 51.33% of the total expenditure is allocated to this field. All other universities seem to take a

different platform altogether in terms of the aspects undertaken in the engineering field in 2013.

From the data identified in chart 4, environmental science research fund allocation comes third with an average allocation of 10.37%. Though most of the institutions offer low funds for this field of research it is evident that each institution has been able to offer a definite line of research that is able to come up with better research modules. All possible strategies that have been developed give an implication that all systems that have to be organized in any platform in the given area of study. Yearly utilization of resources by different universities seems to be leveled in environmental research work. Some of the universities like U. Wyoming and Colorado State U., Fort Collins have been able to allocate almost 50% of their total contribution of funds in research. U. Wyoming leads in funds allocation in the environmental science research field at 44% which is a large number of resources that are allocated to the different fields of study. The nature

of studies that may be evident in the U. Wyoming may be all aligned to the environmental science genre hence the possible allocations. The Colorado State U., Fort Collins follows the suit by having more resources in the given areas of interest. There is a major communication strategy that is developed to offer a more specific way of communication in line with research attainment. The idea is to be able to have a more specific way of operation in line with the communication hurdles all the time. The moment each strategy is developed in a given genre it is easy to see the real expenditure the research will hold at the end. All other universities have low allocations to the environmental sciences research. The rest of the research fields shows less than 15% of the total allocation of total research funds in that order.

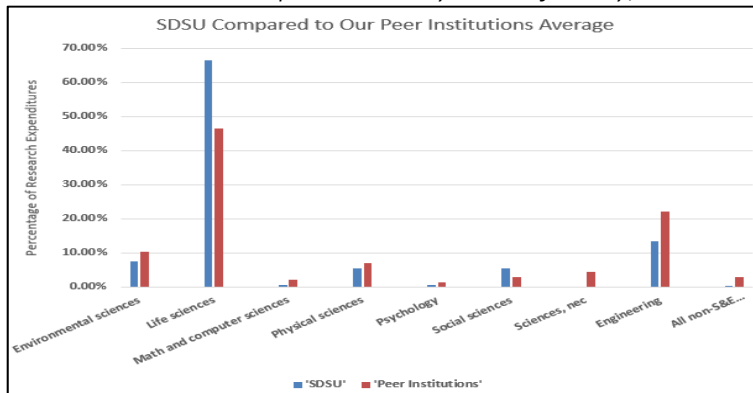
In chart 5 the information collected reveals that all universities in 2013 placed much emphasis on the Life sciences research work. The ability of SDSU to lead in the analysis is a comparable trend that was evident in 2012 academic year funds allocation in the same genre. About 66.62% of the total expenditure by the university was allocated to the life sciences field of study. The peer universities have also followed suit the same alienation of study goals that led to the allocations that claim about 46.54% in the given order of activities. It is necessary to connect to the specific way of actions that specific universities take in line with the support of different study processes in the societies. The university allocations in life sciences seem to increase with time as exhibited in the chart.

The engineering sector has also received considerable amounts of income when it comes to resource allocation of the different segments of the given scope of communication. The nature of processes that have to be managed and realized in the study field as it shows a similar trend with previous years in terms of funds allocation in the given areas of interest. The infrastructure of the given plans that are necessary for the developmental plans that are easy to manage in the different

plans. Peer universities accounted for 22.25% of the total amount of funds that had been allocated to engineering. The research plans that SDSU had in engineering accounted for about 13.44% of the total expenditure in the given scopes. All the funds that had been defined in the given area of research gave a momenta way of ratification in any defined plan of operation at large. The trend of communication strategies that have to cater for the management of better plans that have to make it possible to achieve the best way of operations in all processes. The research fields in the different components that have to communicate a more specific way of operation at large.

Chart 5 at the same time offers much information on how environmental science research allocations had been done in 2013. Unlike in the life science, research funds allocated to

Chart 5: Research Expenditures by Field of Study, FY 2013



environmental science research is lower in SDSU than the ones allocated to peer universities. The amount researchers obtained as funds in SDSU in 2013 for environmental science research

accounted for about 7.50% of the total value of information in any given platform. All developmental accounting plans that the organizations had to undertake in environmental science research was lower compared to what was evident in other disciplines of research.

Physical sciences research has been given a lighter emphasis in comparison with the rest of the top-funded projects in the rest of the disciplines. It is evident that peer universities have been able to allocate more funds to physical sciences research amounting to 6.99% of their total expenditure as compared to 5.55% an amount allocated by SDSU as a unified organization.

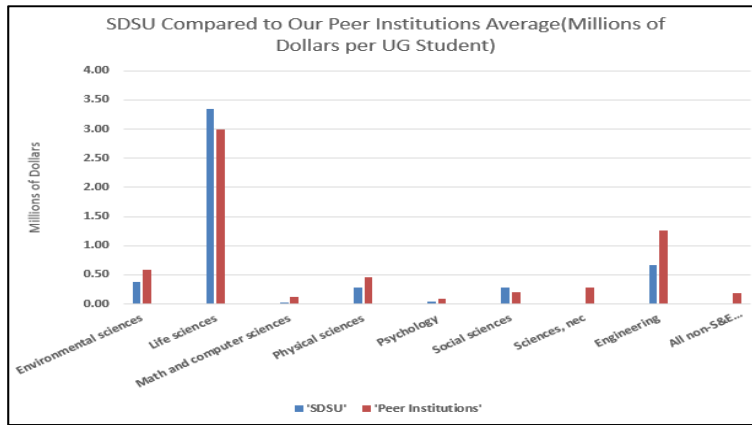
Physical science study allocations are below the different universities that have been seen as drivers of development in the society. The ultimate goal of the research is to offer a specific way of operation that is in line with the operational strategies that have to be managed and realized in the specific areas of interest. SDSU focuses more on science-based studies as it is explained by chart 5 of the information collected in 2013.

In 2013 peer universities increased the number of allocations in research of science NEC projects. There is an increase to about 4.3% as compared to what SDSU institution that gives 0.00% of the total expenditure in the same year. On that note other disciplines that show the same order of research allocation is defined by the given concepts of interest. There is a strategy that is seen to rule the rest of the research fields with great emphasis being on the development of more sustainable projects in the science genre. Psychology research allocations continue to lag behind in the overall research allotments.

Chart 6 shows the comparative analysis of funds allocations in million of dollars per UG student. The research funds allocated in 2013 in millions of dollars depicts the way research has scored in SDSU and other peer universities. The total fund's allocations for life sciences is estimated at \$3.34 million per UG student in 2013 for SDSU research projects. It is a value that shows the level of commitment of the university in delivering information at any given moment. The development of the specific infrastructure of research in the given platform. The standard way of research that is able to offer a more concrete way of research is all about the amount allocated to service the given study goals. The peer universities were allocated about \$2.99 million per UG student in expenditure. The ultimate goals of research as evident at each level is an aspect that

defines what each individual may be looking for in any platform. In the same note, the actions taken in the research are all managed and realized in a modest way that creates a significant way

Chart 6: Research Expenditures by Field of Study, FY 2013



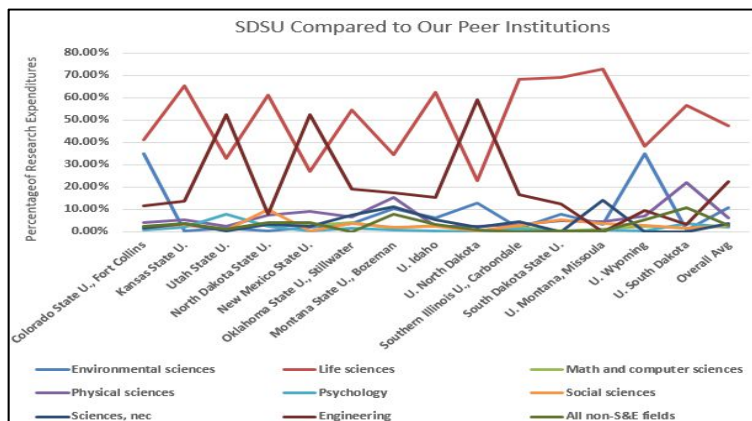
of operation at any point of interest.

Some aspects of congruence are evident in 2013 academic year in engineering projects undertaken by researchers. The standard of

funding in the engineering sector is defined by the use of specific fund allocation concepts in place. SDSU researchers got \$0.66 million per UG student for research with peer university students getting \$1.27 million per UG student in the same field.

Chart 7 gives fund allocation to SDSU and peer universities for 2014. A similar trend of priority of funds allocation is seen with life sciences getting an average allocation of 47.48%. In

Chart 7: Research Expenditures by Field of Study, FY 2014

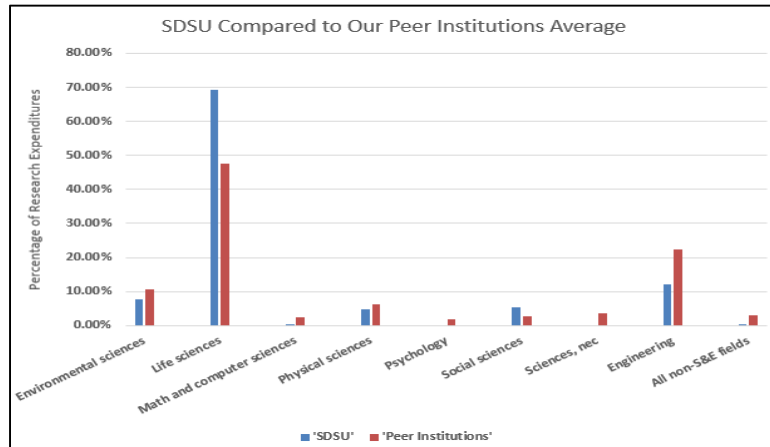


close range, engineering is allocated about 22.25 % of the overall expenditure of the given areas of interest at any given point in time. The infrastructure that is evident in the realization of more specific funds in the given areas of

research is all about the development of better engineering projects to serve the study goals like in SDSU to impact the society.

Chart 8 gives the comparison between SDSU and the peer institutions in 2014. From the available data, it is evident that life sciences as a discipline of research are leading in both SDSU and peer institutions. About 69.16% of the total expenditures SDSU has in research is slotted for

Chart 8: Research Expenditures by Field of Study, FY 2014



life science research work. The idea is that the society is able to benefit much from the life science research as per the mission of the university. Life sciences research still takes a larger proportion of fund allocations. Peer universities

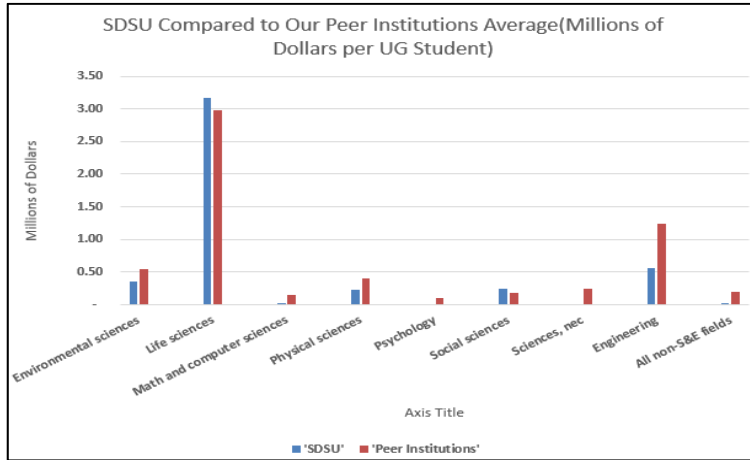
exhibit 47.48% of funds allocation in life sciences.

Engineering is defined by different scopes of allocations that gives averages of 12.22% in SDSU and 22.25% in peer universities. It is an average evaluation plan that is able to offer the required components at each point in time. Environmental sciences research is allocated 10.63% for peer universities and 7.86% for the SDSU in 2014. SDSU does not have any allocation in 2014 for psychology, math and computer sciences, science NEC and all in- S&E fields.

Chart 9 gives an indicator that life science carries the largest share of resources in both SDSU and the peer universities. \$3.17 million per UG student was allotted to be used in life science studies at SDSU. The ability of the different strategies that are managed in the universities in the given avenue that is able to offer the funds management plan in the right way. \$2.98 per UG student was allocated at the peer universities to conduct life science related research work.

When it comes to engineering \$1.25 million per UG student were used in conducting

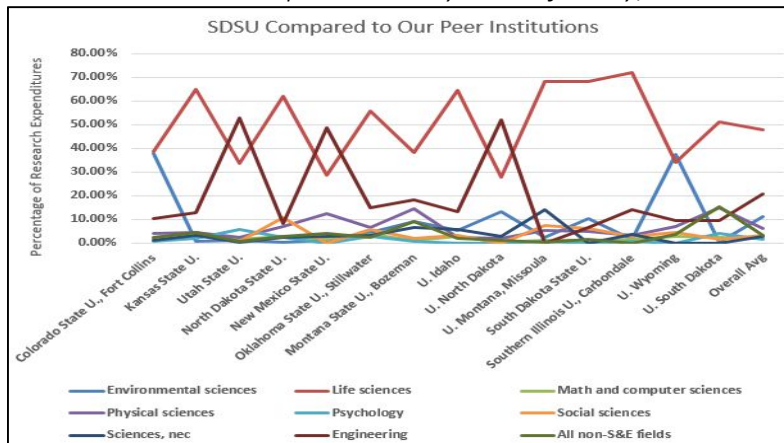
Chart 9: Research Expenditures by Field of Study, FY 2014



engineering projects by the peer universities. The amount allocated to SDSU researchers to carry out engineering research works were set at \$0.5 million per UG student in the specific projects of 2014. There were no allocations evident in most of the other field like psychology, science NEC, All-non-S&E fields and Math and Computer Sciences. The amount of funds allocated to any field of study is directly proportional to their importance in the society the universities serve.

From the information detailed in Chart 10 the average amount of funds used in research in 2015 is much comparable with the previous years on how the research was carried out in various

Chart 10: Research Expenditures by Field of Study, FY 2015

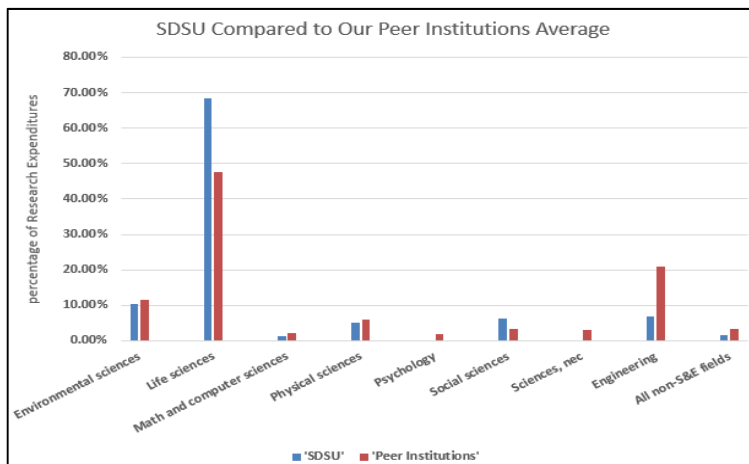


spheres of interest. Life sciences research developed in a way that the funds allocated accounted for 47.74% of the total expenditure on research. Engineering research comes second with an allocation percentage of 20.98% of the total expenditure on research. The most conspicuous stance that is evident on the given platform is able to differentiate the given scopes of action in the specific fields of research. There is a great gap between the second highest percentages in research with the third highest environmental science

research which is at 11.44%. In 2015 physical sciences research expenditure was slated at 6.05% of the overall cost of research. The trend in the research is defined by the way the specific scopes of interest are highlighted in the first place. Priority on specific areas of interest gives the nature of allocation of funds that are given at any given moment. The number of funds that are used to cater for a given research is derived and managed in line with the utilization of a specific line of operation in the research genre.

The comparative survey of 2015 research expenditure between SDSU and our peer universities is illustrated in Chart 11. The illustrations are initiated in a way that it is easy to know the exact concepts of research alienations and the possible cost of spending. It is a necessity that has to be incorporated into the different areas of interest at each point. There is much that is to be managed and realized in a way that shows the exact alienation to the different standards of interest in the given platforms. The research cost of life sciences is 68.40% and 47.74% for SDSU and

Chart 11: Research Expenditures by Field of Study, FY 2015



peer institutions respectively.

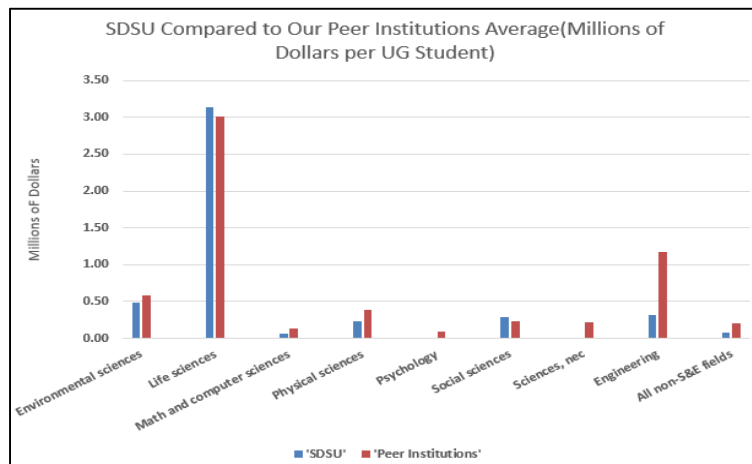
The information developed in the given standard is in a way that exhibits a diversification of research areas. There is much that has been evident in the given platforms that gives much power to

the specific standards in research. Engineering research funds allocation for peer institutions is 20.98% while that for the SDSU is 6.85%. The research standards in other disciplines are set in a way that it is possible to have a different allocation in various institutions. Environmental sciences research funds were evident to be 11.44% for peer institutions while that for the SDSU institution

is 10.50%. There is a big disparity between the funds spent at SDSU and the same research areas at the peer institutions.

Chart 12 shows information about the comparative analysis of the amount spent in the specific areas in terms of dollars per UG student. SDSU as an institution was able to spend an average of \$3.14 million per UG student in life science research, with peer institutions spending \$3.01 million per UG student in the same field. The number of funds spent on engineering research in the peer institutions was recorded at \$1.17 million per UG student. It is evident that SDSU expenditure on engineering research went down to a flat level of \$0.31 million per UG student in the research. The same gap between the amount spent by SDSU and peer institutions is evident in the environmental research field. SDSU was able to spend \$0.4 million per UG student. However,

Chart 12: Research Expenditures by Field of Study, FY 2015

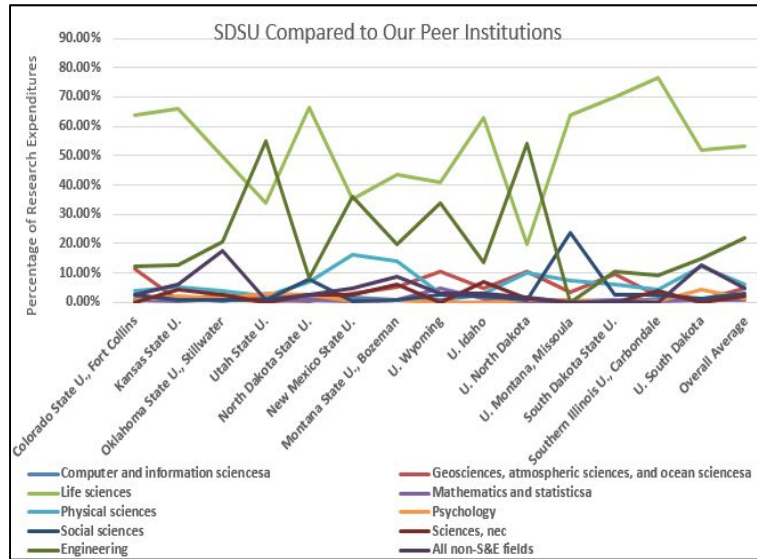


peer institutions rates of expenditure per UG student was up to \$0.58 million in the environmental science field. On the same note, SDSU expenditure per UG student in physical sciences was recorded at \$0.23 million per UG

student. The peer institutions marked \$0.38 million per UG student an aspect that showed how SDSU was far below the rest of the institutions in physical sciences research areas. However, SDSU came first when it came to the social sciences research with an average allocation per UG student at \$0.29 million per UG student with peer institutions coming second at \$0.24 million. There was a similar trend on how the peer institutions and SDSU featured in research cost allocations.

By 2016 SDSU and peer institutions recorded specific expenses in different areas of research as evident in Chart 13. The data developed at each level was collected from specific

Chart 13: Research Expenditures by Field of Study, FY 2016



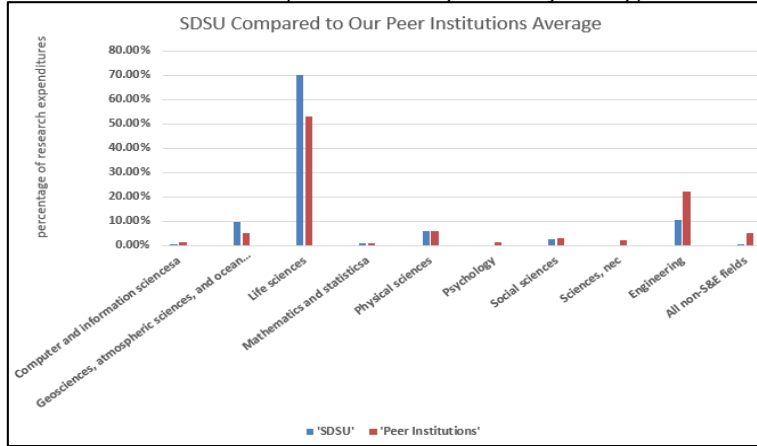
research entities. Life sciences lead in the research expenditure as per the data by SDSU and peer institutions at 53.22%. Engineering expenditure comes second at 22.08% in total expenditure. The record shows the commitment of the institutions in allocating more funds to life sciences and

engineering than any other research discipline. The research programs are set in a way that gives one the ability to compare and contrast each phase in any given plan. The rest of the study avenues are set in a modest manner to incorporate the specific aspects of interest in enhancing society commitment and success in different disciplines.

Chart 14 explores the 2016 research expenditure between the SDSU and the peer institutions per the area of study. Different research areas had been added to the different universities. The addition of the computer and information sciences research comes in the study with SDSU spending 0.00% of its total allocations. However, the peer institutions spend about 1.43% in computer and information studies. Life sciences contribute the highest share of the cost of carrying out research in the SDSU and the peer institutions. On the higher note, SDSU spends 70.04% on life sciences with the peer institutions spending 53.22% on the same field. Engineering accounts for 22.08% of the peer institutions research expenses with SDSU spending an average of

10.69%. Geosciences, atmospheric sciences comes in as a new field of research taking about 9.69% of SDSU and 4.92% in the peer institutions. Physical sciences take substantial amount of

Chart 14: Research Expenditures by Field of Study, FY 2016



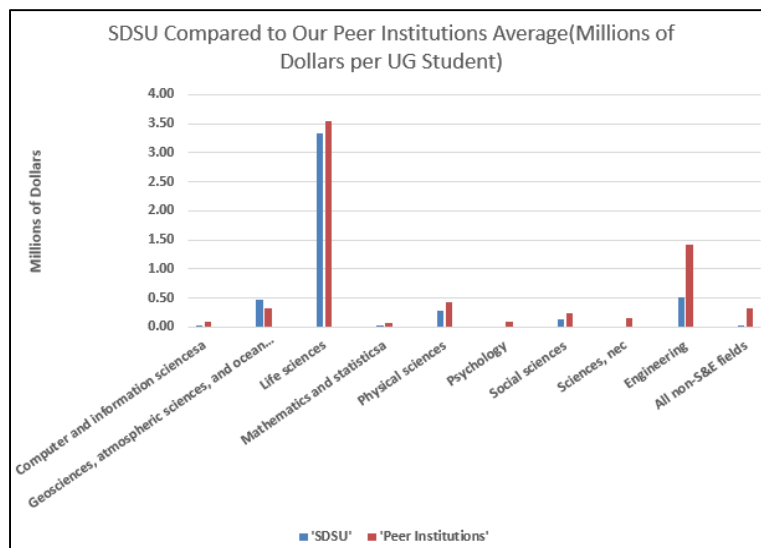
research funds as SDSU spends 5.94% of its total funds with peer institutions accounting for about 6.04% on the same field. Social sciences show a significant increase in expenditure being evident at 2.77% for SDSU and

2.96% for peer institutions. The data exhibits a much involvement of institutions in carrying out more research in more areas other than the life sciences than in the previous years. Each strategy of research seems to work in line with the different aspects of interest in the realization of research in the given order of fund allocation in accordance with the priority.

Chart 15 explores the researchers' expenditure per research area in dollars in millions.

From the chart, it is evident that peer institutions spend the highest funds amounting to \$3.54 million per UG student. Whereas the SDSU institutions spent the least funds amounting to \$3.34 million per UG student in life sciences.

Chart 15: Research Expenditures by Field of Study, FY 2016



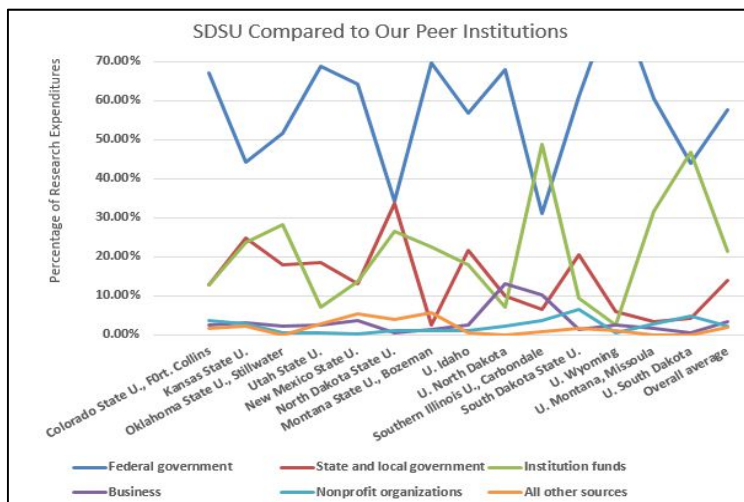
million per UG student. Whereas the SDSU institutions spent the least funds amounting to \$3.34 million per UG student in life sciences. When it comes to engineering the peer institutions were still on the lead by allocating the highest funds which were \$1.42

million per UG student. The SDSU were seen to lag behind by recording the least amount of funds which was \$0.51 million per UG student. Looking at another column; Geoscience, atmospheric sciences, and ocean, it is evident that SDSU institutions took the lead by recording the highest amount which was \$0.46 million per UG student. The peer institutions recorded \$0.31 million per UG student. From the above results that were being recorded from each column concerning the million dollars per UG student, it is clear that there was a good competition amongst the different institutions and SDSU. None was left behind by the other. The difference only came by when it turned to the remaining six columns, where the peer institutions were seen to have taken the lead all through in recording the highest amount of dollars per UG student.

Analysis of charts by funds Source

As from Chart 16, it is evident that the sources of funds are defined by what each university has to do as a research work. There are different sources of funds that are used in the research work

Chart 16: Research Expenditures by Source of Fund, FY2012

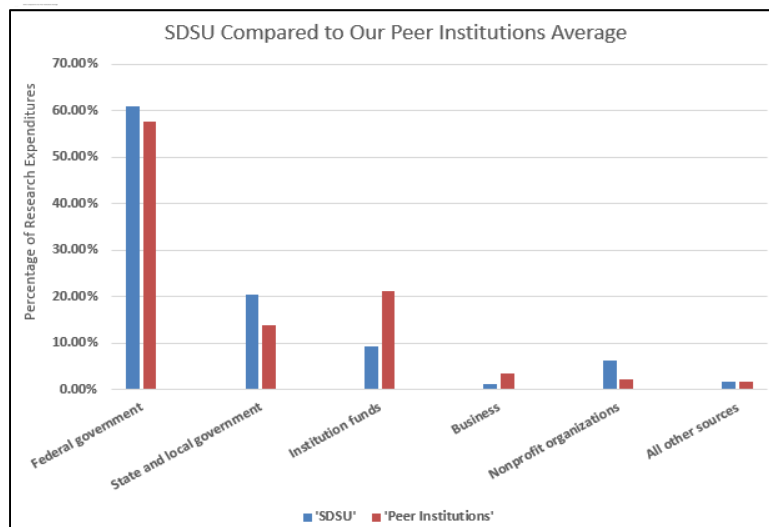


as evident in chart 16. The fund sources are the Federal government, State and local government, Institutional funds, Business, Nonprofit organizations and all other sources. The highest overall average was the Federal government which recorded a

percentage of 57.78%, followed by the Institution funds which recorded a percentage of 21.26% and lastly the State and local government that recorded 13.88%.

Chart 17 shows how different fund sources were compared between SDSU and its peer institutions. First are the percentages recorded by the Federal government in the year 2012 which showed that the SDSU had the highest expenditure of 61.06% whereas the peer institutions had 57.78 %. It was seconded by the State and local government which recorded that SDSU had the

Chart 17: Research Expenditures by Source of Fund, FY2012



higher percentage of expenditure which was 20.51% while the peer institutions recorded the lower percentage of expenditure which was 13.88%. The third source was the Institution funds, where the peer institutions had recorded the higher percentage of expenditure

as 21.26% as compared to the SDSU which had the lowest percentage expenditure of 9.24%. The fourth source was Business, it recorded that the peer institutions had the highest percentage of research expenditure of 3.35% and the SDSU had the least by recording a percentage expenditure of 1.28%. The fifth source was the nonprofit organizations, it was evident that the SDSU had recorded the higher percentage of research expenditure that was 6.34% whereas the peer institutions had the lower percentage of research expenditure of 2.17%. From the above recordings, it was evident that the SDSU had recorded the best percentage expenditures as compared to the peer institutions.

Chart 18 shows the amount in millions spent per UG student by source in the year 2012. To begin with, the first source which had the highest recordings, was the Federal government where the peer institutions spent \$3.78 million per UG student as compared to the SDSU which had the least recording of \$3.30 million per UG student.

Chart 18: Research Expenditures by Source of Fund, FY2012

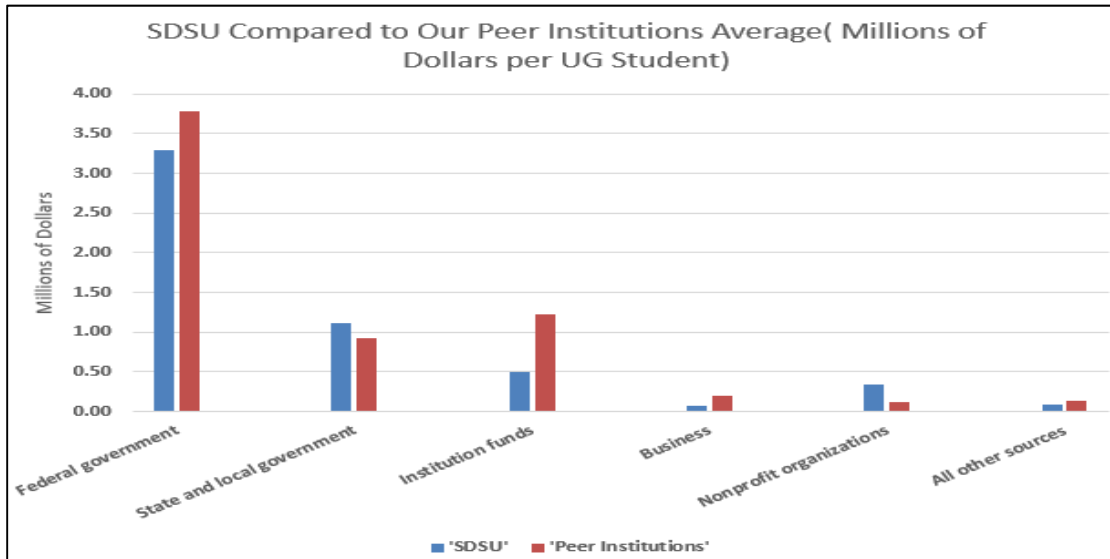
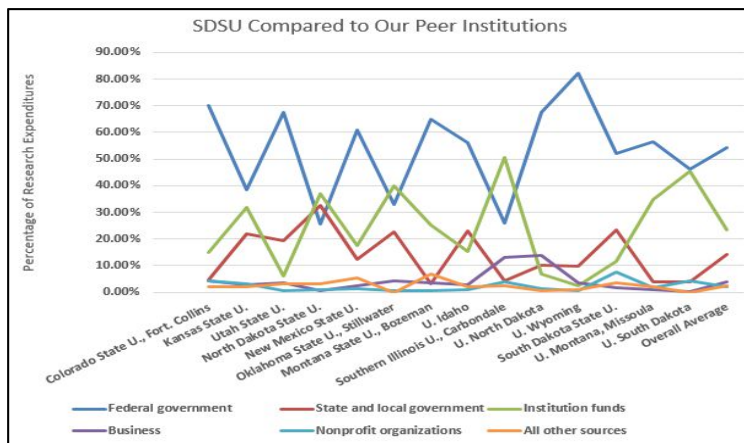


Chart 19 is a definition of different aspects of interest in reference to the academic research expenditure in 2013 and the respective sources of income to undertake such studies. The federal

Chart 19: Research Expenditures by Source of Fund, FY2013



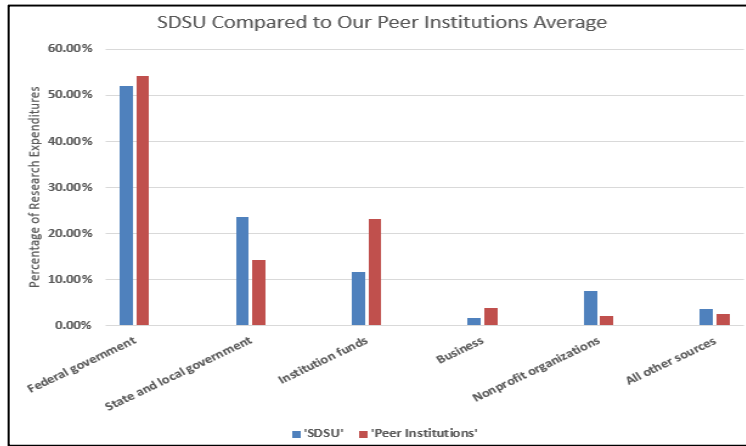
government is leading in the provision of research funds by 54.25%. It is followed by the institution funds with 23.26% of total funds coming from the specific sources. It is also evident that state and local government offers about

14.32% of the required research funds to students. On that note, it is noted that SDSU students had

received more than 50% of their research funds from the federal government. Other funds sources had contributed below 5% of the total expenditure of UG students in research.

Chart 20 depicts the source of income of SDSU in comparison with other peer institutions. From the chart, it is evident that federal government provided the largest amount of funds to SDSU

Chart 20: Research Expenditures by Source of Fund, FY2013



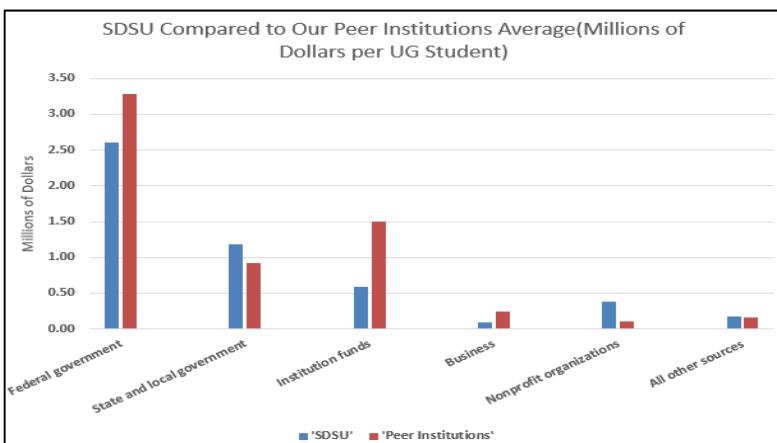
and peer institutions that amounted to 52.05% and 54.25% respectively.

The state and local government accounted for 23.51% of SDSU funds and 14.32% of the peer institutions. Institutions' funds accounted for 23.26% for all funds

for Peer institution with 11.71% going for the SDSU researchers. Non-profit organizations contributed 7.51% to SDSU and only 2.03% to the peer universities. Business and other sources gave less than 5% each in the total research funds.

From Chart 21 it can be noted that the number of dollars in millions granted from federal

Chart 21: Research Expenditures by Source of Fund, FY2013



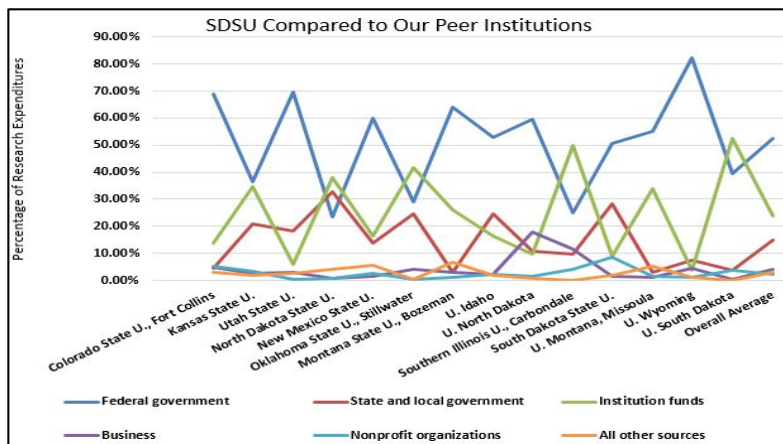
government to a student for research in 2013 were averaging at \$3.28 million for peer institutions UG students and \$2.61 million per UG student of the SDSU. The amount received from institutions for SDSU was

\$0.59 million compared to \$1.50 million for the peer institutions. The state and local government

contributed about 1.18% and 0.92% to SDSU and peer institution's students consecutively. The non-profit organizations contributed to 0.38% of the total expenditure of SDSU with 0.11% to peer institutions.

Chart 22 explores research expenditure in 2014 by giving the estimated amount of funds received from different sources. Various institutions received different amounts of funds. The federal government was leading in expenditure at 52.43% of the total money allocated to

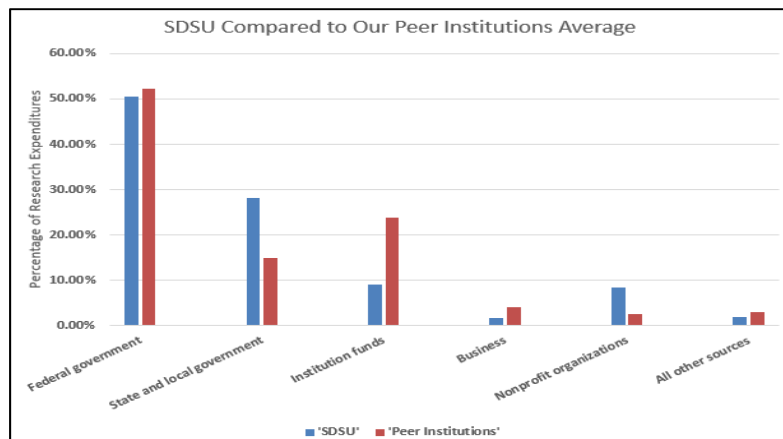
Chart 22: Research Expenditures by Source of Fund, FY2014



researchers in 2014. Institution funds coming second highest in funding research project at 23.92%. State and local government contributed about 14.80 percent of the total earning in the given line of operation.

From Chart 23 the comparative analysis of fund sources in different organizations with SDSU gave an indication that federal government provided the highest amount reaching to 52.37%

Chart 23: Research Expenditures by Source of Fund, FY2014



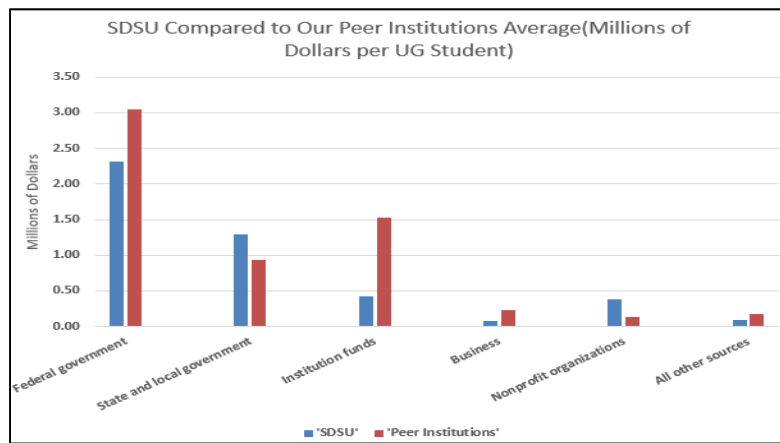
and 50.61% for peer institutions and SDSU respectively. The state and local government gave an estimated value of about 28.23% to SDSU and 14.80% to peer institutions. It is also evident that the institutions provided about

23.92% of all funds used by researchers in peer universities with only 9.12% going to the SDSU

institution. The non-profit organization came fourth and business and other sources closing the scale.

Chart 24 gives a detailed information about the fund source in 2014 in millions of dollars. The federal government allocated \$3.04 million per-peer institution’s student and \$2.32 million to SDSU per UG student. Individual institutions provided about \$1.52 million per UG student in

Chart 24: Research Expenditures by Source of Fund, FY2014



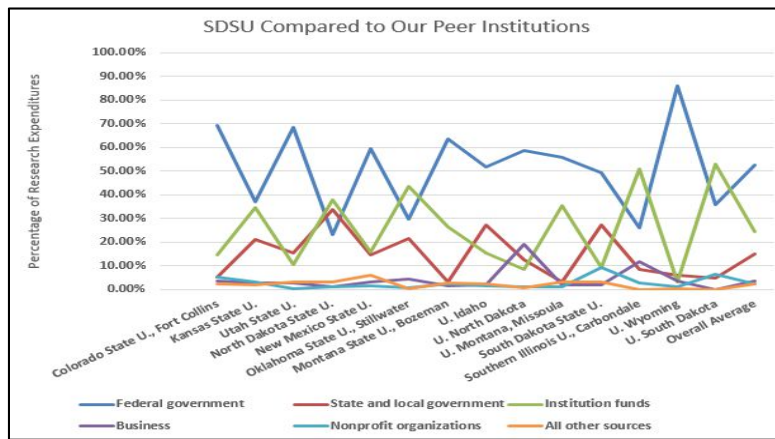
peer institutions while giving minimal funds of \$0.42 million to SDSU per UG students. The state and local government also contributed to the research work by allocating \$1.29 million per SDSU UG student and \$0.93 million to

the other institutions. Businesses from the chart had been able to offer \$0.24 million to peer institution and \$0.08 million to the SDSU UG students on average. The non-profit organizations played a crucial role in the development research work by allocating SDSU UG students \$0.39 million and \$0.13 million to the other institution's UG students.

The comparative study on funds sources in 2015 is displayed in Chart 25. From the data, it is evident that about 52.72% of the funds were contributed by the federal government. It is the highest source of funds with most universities getting higher of 50% of their fund from the federal government. The institutions provided 24.28% to universities to carry out different research works. The state and local government provided about 14.77% of the 2015 academic year research funds

on average through all universities. The other sources of funds sources fell below 5% of the total

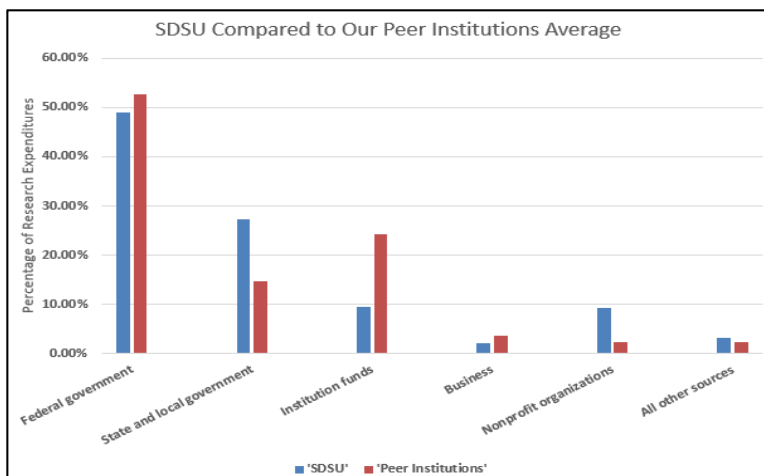
Chart 25: Research Expenditures by Source of Fund, FY2015



expenditure. It is an amount that gave the universities the ability to carry out different research activities.

Chart 26 gives the comparative analysis of funds were allocated to specific institutions in reference to SDSU. The federal government provided the highest amount of income to students carrying out research in various universities with 49.12% going to SDSU and 52.72% being allocated to the other peer universities in 2015. The state and local government funds that reached the SDSU accounted for 27.25% of the research funds while in peer universities it accounted for

Chart 26: Research Expenditures by Source of Fund, FY2015

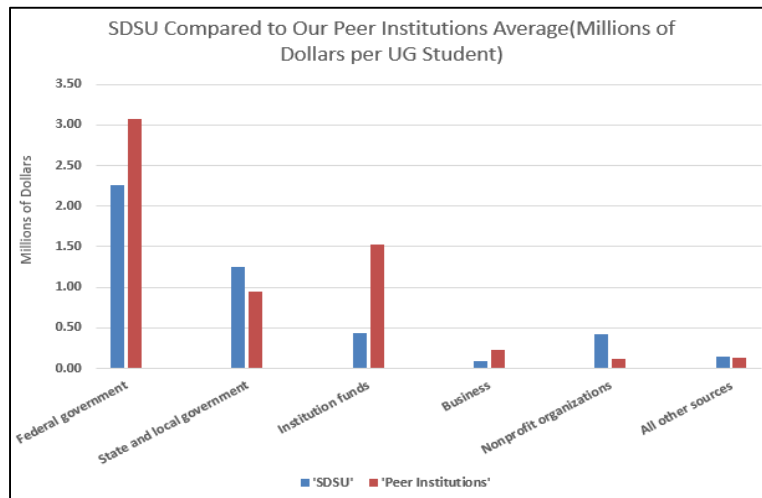


14.77%. The individual institution's Funds provided about 24.28% to the peer institutions with 9.38% going to the SDSU. The SDSU researchers received a larger amount of research funds from nonprofit organizations of

9.17% and 2.25% going to the peer universities. Businesses and other sources provided the lowest amount of funds to the universities.

The number of dollars allocated to students in millions is well displayed in Chart 27 of 2015 research data. \$3.08 million per UG students was allocated to researchers in peer universities

Chart 27: Research Expenditures by Source of Fund, FY2015 from the federal government.

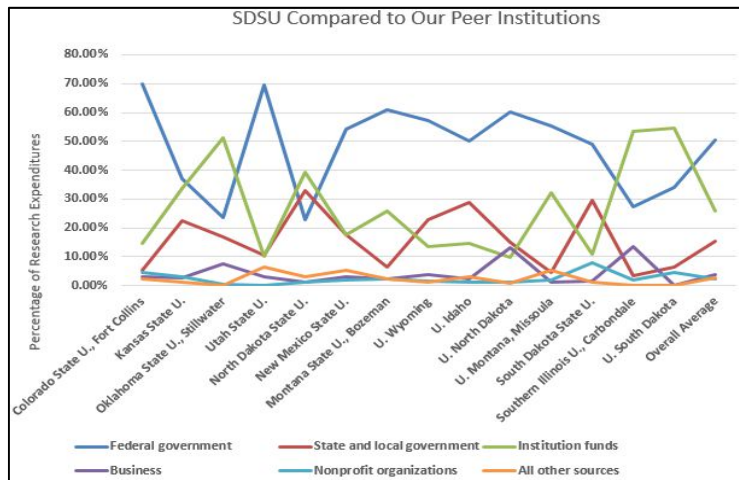


However, the federal government provided about \$2.25 million per UG student at SDSU. researchers in peer institutions received about \$1.53 million for research from the given institutions with \$0.43 million from the same institutions

being allocated to SDSU researchers. \$1.25 million and \$0.95 million of funds were released to students from state and local government funds to SDSU and its peer institutions respectively. From the nonprofit organizations, SDSU received \$0.42 million and peer institutions gaining about \$0.12 million.

Chart 28 shows the 2016 expenditure by sources of funds to the specific universities in respect to the SDSU as the reference point. The federal government is leading with the provision

Chart 28: Research Expenditures by Source of Fund, FY2016

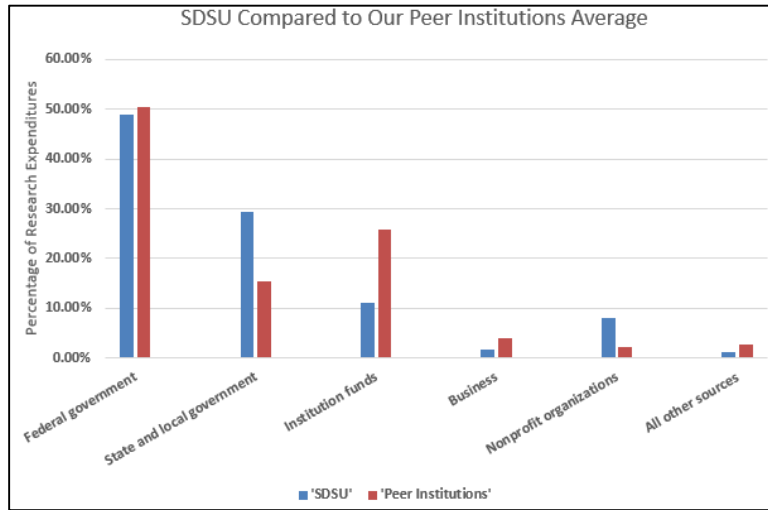


of research funds in different universities. From the chart, it is evident that in 2016 the federal government allocated about 50.36% to research institutes. The institution funds came second with 25.71% of the total funds that were used in universities. It is evident that

each institution gave many funds to different students to carry out research. On the same note, 15.37% of the funds used in research came from state and local government funds. All funds used in different institutions were allocated from specific sources all the same. Colorado State U. Fort Collins lead in the amount allocated for research that amounted to 69.58% of the total funds used in research work. Utah State University came second in the largest amount received for research that amounted to 69.58% in 2016. It is an analysis that shows a great comparison with previous years all the same.

Chart 29 defines the research funds sources by breaking them down into two comparable parameters. The two parameters that are given are the peer universities and the SDSU institution at large. In the analysis, it is evident that federal government was able to allocate more funds to

Chart 29: Research Expenditures by Source of Fund, FY2016

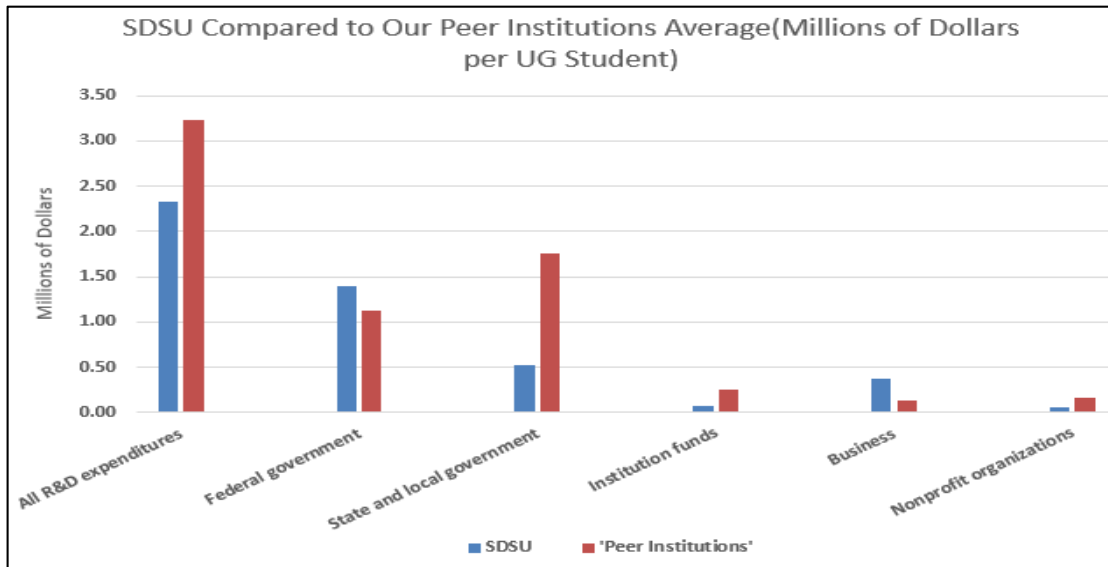


the peer institutions amounting to 50.36% of the total year allocations while only 48.84% of funds went to SDSU researchers. State and local government went ahead and provided about 29.42% of funds to SDSU with 15.37% being allocated to peer institutions. The individual

institution funds that were given to students amounted to 11.04% for SDSU and 25.71% going to peer institutions. Non-profit organizations provided 7.97% of funds to SDSU and about 2.11% of funds to the peer institutions. Business and other sources of funds provided less than 4% of the total expenditure students would incur in research.

Chart 30 shows that the federal government allocated \$1.40 million per UG student at SDSU with peer universities researchers being allocated about \$1.13 million per UG student. State and local government were able to offer a substantial amount of funds that had to be used research by giving SDSU \$0.53 million and \$1.76 million to peer institutions per UG students.

Chart 30: Research Expenditures by Source of Fund, FY2016



Conclusion

SDSU funds allocation seems to decline from 2012 to 2016. There is a major decline in the amount that is allocated to specific research works. Engineering and life sciences take the largest share in research in the SDSU. Different universities have exhibited a similar trend in research activities. It is necessary to see that funds allocation from different sources was in line with the nature of research work that is carried out in such organizations. From the analysis defined it is evident that institutions that carried out research in life sciences had a great opportunity to get many funds as compared to the other studies. Engineering research works accounted for the second largest funds allocations in the different organizations. SDSU funds allocations were in line with the nature of research that each individual student had to undertake. The number of funds that peer institutions spend in research continued to increase through the five years. The federal government gave the highest amount of funds that SDSU and Peer's universities used in research.

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<https://www.nsf.gov/statistics/srvyherd/#sd&tabs-2>