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RESEARCH ARTICLE

HIGHER EDUCATION INSTITUTIONS: ANALYSIS ON STUDENT-TEACHER RATIO, STUDENT ENROLMENT, EDUCATION EXPENDITURE AND NUMBER OF UNIVERSITIES IN SINDH

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Abstract

Development and social safety of a country rely more on all the actions that involve proficiency, knowledge and highly qualified manpower who can bridge between new opportunities and job demand. Number of higher education institutions, student-teacher ratio which depict quality of education, student enrolment in universities and availability of qualified teachers is vital for the promotion of quality education with a smooth transaction of academic activities across the country. This research study is an effort to measure the situation of public and private universities in Sindh by focusing on the number of universities, student-teacher ratio in public and private sector, number of teachers and Sindh education expenditure. Data included in the study to achieve the objective has been reviewed and examined from the available source (Pakistan Education Statistic). An increase can be seen in the public universities but still there are more private universities in Sindh. Data reveals that the number of teacher's in both university sectors has declined and there is an increasing trend of part time teachers in respective universities. Prominent decline can be seen in public sector university enrolments whereas increasing percentage of student enrolments has been identified in private sector universities of Sindh.

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Introduction:-

Education is said to be the building blocks for a country's economy and its importance has been reflected by many researchers and in different studies which have enabled us to actually forecast the need and importance of education for economic growth and prosperity. Zain, Aspah, Abdullah, & Ebrahimi, (2017) have highlighted the importance of higher education with linking the Malaysian evolution. They suggested in the study that the growth of Malaysian student and graduate employment increases by properly managed higher education system. This study justifies the importance of current study which is again highlighting the importance of higher education for better economic growth in Sindh.

Reeves, T. C. 2006) also suggests that learning atmosphere shows satisfactory, associated factors including instructor role, content, learner tasks, student role, assessment, goals, instructional design and technical affordance which creates growth and prosperity. Furthermore, Information Technology (IT) as strategic tool has substantial standing is higher education (Khouja, et. al., 2018). Another study describes about the contribution made by the Indian government in the higher education system. The study justifies that Indian has noticed the economic growth

and development largely depends on education system hence it should be kept on the priority. India has made huge investments in its education system especially in higher education for the sustainable growth, development of the country (Sheikh, 2017).

A report by Noah Berger and Peter Fisher highlights the importance of education and has provided a clear connection of education with the economic growth and productivity. The report further suggests that there are more aspects their armory to boost productivity and have included investment in government sector, innovation in public academes and related institutions for betterment. There were some key conclusions of the report including clear, solid correlation between the educational successes and median pays. The report also suggests that the economic success and shared prosperity can be built by robust investments in educational foundation.¹

Productivity-education link has also been highlighted and it says that grown more in states with greater growth in the educational attainment of their workforce. The relationship between state productivity progress and increase in college attainment from 1979 to 2012 has been reflected in the report.

In the challenging technological society where education in developing countries for women is not considered to be an important thing but, if taken into thought, then no doubt educated empowered woman can mold the character of youth in the positive direction which can lead to a better positive society (Lovett, et. al., 2018). To generate an optimistic environment it is compulsory to encourage women's empowerment by forming and engaging women in educational programs and share the profits. Some writers have also emphasized the importance of education as an important facet for the development of a nation.

Moreover, according to Mercado, & Ortega (2018), to shape the knowledgeable dimensions and competences of people in a society it is significant to device competency based education. This further helps in grooming and training the citizens who are focus to such study which helps in the social development and beneficial for the society as a whole.

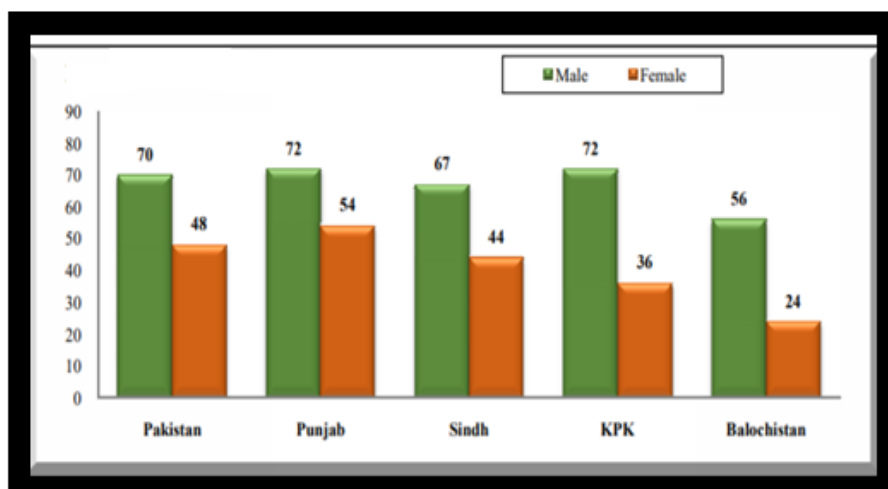


Figure -1:- Literacy Rate of Pakistan (Male and Female)

Source: Extracted from Pakistan Economic Survey 2017-18

Similarly, literacy rate of a country provide a wider picture about the education system of a country and the importance of education in a country. Figure 1.1 shows the literacy rate of Pakistan with a percentage share of male and female including all provinces in Pakistan which has been extracted from Pakistan Economic Survey 2017-18. Female literacy rate is lower than the male literacy rates throughout in Pakistan showing that that government should take measures to improve this percentage share especially the female percentage.

It can be clearly seen that KPK and Punjab shows 72 percent male participation whereas female literacy rate is different. Punjab shows 54 percent which is higher than the literacy rate of KPK which is 36 percent. While Sindh

¹<http://www.epi.org/publication/states-education-productivity-growth-foundations/>

stand at 67 percent male and 44 percent female participation and Balochistan last in the list with 56 percent male and 24 percent female indicating the least literacy rates of Pakistan.

Moreover, to look at the statistical ratio of total universities in Karachi, there are total 41 general purpose universities including 31 private universities and 10 public universities commissioned by the Sindh government along with the government of Pakistan. Nevertheless, considering universities commissioned by the government of Sindh specifically, there are total of 30 private sector universities and 8 public sector universities functioning in Karachi city as per the Higher Education Commission (HEC official website).

Literature Review:-

Higher Education

The moving world along with the importance of higher education is the matter of attention and being measured by many at different podiums. Frequently universities and colleges teach students to bring a variation to the world, varying patterns, attitudes change, inventions, social changes, research change. These changes have malformed the complete world and on the topmost all the businesses and to gratify students to move with the ever-changing world, so people and staff involved in higher education try to provide them relevant, solid, evidences. It has been witnessed through research that even after providing all relevant educational technologies and skills in curriculum and labs and assignments companies still complain that employees are not satisfactorily prepared for the changing world because of the never ending changing arrangement of the world itself.²

Challenges of Higher Education

When we talk about challenges which universities have to meet are based on many aspects. First and foremost problem is the sky reaching costs of universities, almost every private university has raised its fee structure to a maximum which de-motivate people. Since a few several years the enrollments in higher education have fallen with a greater and sudden curve which is of course the reason of high fee structures and low quality education. People do ask and question whether the raised costs will allow them to get anything return in future or not. The increasing insecurity and doubt regarding the apparent jeopardy and huge costs has caused many to think adverse and this has made them to back off from this step of life.

There have been examples which reflect that the vast increase in student's financial aid and alarming federal rules and regulations has increased the teaching cost inflation and has resulted negatively on the university education system. Particularly like in United States of America, these issues have resulted in reduced effectiveness, cultural freedom and diversity in almost all universities. Then there are also much inexpensive available lines and options for the young group to choose for living. The present risk to the lower end of the higher education market is also due to the cheaper methods like vocational capability and job market. Such factors are decreasing both the materialistic and non-materialistic resources of higher education. The resources are falling with no backup plan being prepared.³

Fast and new rising economies are positioning burden on the academicians around the globe to improve standards of education where the most important role is no doubt of higher education institutes. In Pakistan again the same setup is with our higher education, we better need to stream line our objectives and narrow down our goals so that our education system can provide even better education. Universities can transform into learning societies only if the leadership in university adapts a set of definite principles and all the academicians of the university mutually share its mission and vision established by the university leaders (Bratianu, 2018; Leithwood, & Riehl, 2003; Ireland, & Hitt, 1999).

Importance of Higher Education

Student learning in higher education has been reflected by Wilson, J. D. (2018) in his book he says, there have been variations in students learning since time, and that involves the policy makers to alter such policies for higher education which can help enable students to satisfy their perceptions. In this course of incorporations there are lots of challenges, these intuitions are facing due to the traditional alignment and disciplinary boundaries. Lack of institutional skills to operate all the instrument has been combating and annoying for the sustainable development and progress for the developing countries like Pakistan. Such walls can be removed if it is given priority and

²<https://er.educause.edu/articles/2017/10/the-role-of-higher-education-in-the-changing-world-of-work>

³<https://www.forbes.com/sites/ccap/2017/08/29/seven-challenges-facing-higher-education/#3b8ff4031809>

reception to implant the importance of HEIs in the education system. Hersh, & Merrow, (2015) says that higher education is in danger and will continue dipping if proper compulsory standards will not be given by the authorities and policy makers.

Furthermore, a report explains the role and importance of higher education and its strategies for the development of developing countries and elucidated that the declining priority to higher education will result in long term serious implications for the development (Tilak, 2000). The report also highlights that the transfer of higher education has been over looked and if this will continue any further, then results will be far unbearable also reflected in the message given by the Task Force of higher education for developing countries. The study also suggests about the disparities in the enrolments ratios between the developed and developing countries which is a clear and alarming picture for Pakistan. The findings suggested that it's the higher education that can enable development in the country also the importance of student's success within the viewpoint of higher education by (Kahu, & Nelson, 2018) also suggested in a study by Hanafi, & Abuzar, (2021).

Moreover, the significance of higher education is noticeable according to Khan, (2010); it is one of the most important sides of human resource development, in knowledge creation, advancement of a country and in the quality of higher education. For quality of education in higher education the importance of satisfied teachers cannot be ignored (Hanafi, et. al., 2019). The importance of improved quality of higher education has been realized by the higher education institutions and especially the policy institutions plus the Higher Education Commission of Pakistan.

Student-Teacher Ratio

Studies have provided justifications about the association between number of students to the teacher and have linked it with students overall learnings (Koc, & Celik, 2015; Etomes, & Lyonga, 2020). Recruitment of more highly qualified and experienced teachers can only improve student-teacher ratio with a control on the population by the government. This can only lead to improve literacy rate, enhance learning environment, advance quality of teachers and can boost overall quality education (Awan, & Hussain, 2020). An increase in the appointment of qualified teachers can improve student-teacher ratio in universities which will have a positive impact of the quality of education and it will affect individual's learning. Student success will be directly linked with the class size. Jones, Gallagher, & Midraj, (2020) suggests that smaller the class size reflects better learning opportunity for students.

Students feel more attentive and attentive when the number of students is low in the class room and teachers can easily emphasis on students learning and can maintain regular check on individual improvement. Worldwide universities follow average student-teacher ratio to improve students learning (Bedard, & Kuhn, 2008). This importance has been suggested for the class size effects on test-based outcomes in higher education.

Student Enrolment in Higher Education Institutions

The importance of investment has been reflected by (Adetula, et. al., 2017), according to the study economic development and high gross domestic product (GDP) mainly depends on the investment in education sector of a country. The government better collaborate more with the private sector through Public Private Partnership (PPP) for achieving fast development in the country. This will also help to reduce the burden and dependences on aids from developed countries and organizations. Higher education plays a significant part in the economic development with quality education with enhanced funded research and partnership projects in the country. Owens, (2017) justifies the important link in between sustainable development and education in the country.

Education Expenditure

Education expenditure has an important role in the economic development of a country (Esmail, 2020). Importance of proper allocation and unitization of education expenditure has been justified by many researchers. Vorhach, (2020) in his study has suggested that growth of highly qualified population and GDP per capita is directly influenced by the increase in education funding. His study has justified the importance of education expenditure and specified that the countries with heavy expenditure on the higher education tend to produce better percentage of qualified population which also increases the GDP.

Universities play a sufficient role with an enhancement of innovations in education that impact positively on the company's productivity. In the study, it has been formulated that role of universities is pioneering and erudite products which is helping the country to grow (Noel & Schankerman, 2013). Another research contributes that the

growth of countries is fast when the population is educated and capable of creating and maintaining new technology in use and produce better (Harmon et al., 2003). There is a need to invest more in human capital which will produce and improve growth which can increase capital (Barro& Sala-i-Martin, 2000). (Aghion et al., 2009; Kantor & Whalley, 2014) highlights that the expansion in higher education in a country will foster economic growth with increased capital both locally and regionally.

Research Method:-

The study adopted descriptive research design to represent the study objectives. Study variables were decided after a detailed literature review and comments taken from different university academicians. The variables include student-teacher ratio, number of teachers, number of enrolment and number of public and private universities in Sindh. The data used in the study has been taken from different official websites including Pakistan Education Statistics, Pakistan Economic Survey, Ministry of Finance (official website) GOP and from HEC official website respectively.

Research Objectives:-

1. To highlight the percentage increase/decrease in number of public and private universities of Sindh.
2. To inspect the percentage increase/decrease of student enrolment in public and private universities of Sindh.
3. To identify the percentage increase/decrease of student-teacher ratio in public and private universities of Sindh.
4. To assess the percentage increase/decrease of teaching faculty in public and private universities of Sindh.
5. To depict the percentage increase/decrease of education expenditure of Sindh.

Discussion and Analysis on Education Statistics of Sindh:-

A discussion has been made over the education statistics of Sindh from the year 2007 till 2017 as per the availability and reliability of the data. To have a complete picture of the overall education statistics, a number of observations have been made and details about the education expenditure have also been included from the official website of Ministry of Finance, GOP respectively.

Following statistical data has been included after a detailed literature review in the study. The data is from different sources that will provide a wider overview of higher education in Sindh. The tables are representing educational statistics of Sindh which includes number of public and private universities in Sindh, number of student enrolment, student-teacher ratio, number of teachers in HEI's, Sindh education expenditure and literacy rate during the specific years of Sindh respectively.

Table 1:- Public & Private Universities/ Institutions of Sindh.

S. No	Years	Public	Private	Total	Percentage Increase / Decrease
1	2007-2008	13	25	38	-
2	2008-2009	14	23	37	-3%
3	2009-2010	15	25	40	8%
4	2010-2011	16	25	41	3%
5	2011-2012	17	26	43	5%
6	2012-2013	17	26	43	0%
7	2013-2014	19	30	49	14%
8	2014-2015	17	30	47	-4%
9	2015-2016	17	30	47	0%
10	2016-2017	23	31	54	15%

(Source: Pakistan Education Statistic 2007-2017)

Table -1, Sindh reflects positive image as there is an increased number of universities in the year 2013-2014 and 2016-2017 respectively, however, rest of the years are showing comparatively slow increase by showing less number of both "public and private" academes within the province.

Moreover, in year 2013-2014 the table depicts 14 percent increase and the year 2016-2017 reflects 15 percent increase in the number of universities which shows progress in the higher education institutions in Sindh. However, in the year 2014-2015 and 2015-2016, data reflects that there was no increase in the number of universities of Sindh

and in 2014-2015 negative trend has also been detected where the number of universities has declined showing closures.

Table 2:- Teachers in Public & Private Universities/ Institutions of Sindh.

S. No	Years	Teachers				Total	Percentage Increase / Decrease
		Public		Private			
		Full Time	Part Time	Full Time	Part Time		
1	2007-2008	3026	645	2750	1626		
	Total	3671		4376		8047	-
2	2008-2009	3362	717	3290	1945		
	Total	4079		5235		9314	16 %
3	2009-2010	3,647	778	3,716	2,197		
	Total	4425		5913		10338	11 %
4	2010-2011	3974	848	4239	2507		
	Total	4822		6746		11568	12 %
5	2011-2012	4336	925	4850	2869		
	Total	5261		7719		12980	12 %
6	2012-2013	4746	1012	5590	3308		
	Total	5758		8898		14656	13 %
7	2013-2014	4746	1012	5590	3308		
	Total	5758		8898		14656	0 %
8	2014-2015	7098	1012	2947	3308		
	Total	8110		6255		14365	-2 %
9	2015-2016	4851	1032	4136	3374		
	Total	5883		7510		13393	-7 %
10	2016-2017	5676	1119	5097	1914		
	Total	6795		7011		13806	3 %

(Source: Pakistan Education Statistic 2007-2017)

Table -2 shows the percentage of the number of teachers and it is visible that there has been a steady increase in the number of teachers between the years 2007-2008 till 20012-20013. Conversely in the year 2013-2014 till 2014-2015, there is an increase in the number of teachers of public institutions but a prominent decline in private universities of Sindh. Again fluctuating data in the year 2015-2016 till 2016-2017 shows some increase in public sector whereas private sector represents decreasing trend in the following year.

Consequently, overall the data demonstrates that the number of teacher's in both university sectors has declined moreover the part time faculty members with the increasing number of universities in Sindh represented in Table -1 respectively.

Table 3:-Student-Enrolments in Universities/ Institutionsof Sindh.

S. No	Years	Public	Private	Total Enrolments	Percentage Increase/ Decrease
1	2007-2008	81,803	56,346	138,149	-
2	2008-2009	88,699	62,400	151,099	9%
3	2009-2010	103,069	72,874	175,943	16%
4	2010-2011	121,698	86,723	208,421	18%
5	2011-2012	144,551	104,063	248,614	19%
6	2012-2013	173,973	127,047	301,020	21%
7	2013-2014	173973	127047	301,020	0%
8	2014-2015	211867	58833	270,700	-10%
9	2015-2016	217311	67632	284,943	5%
10	2016-2017	142196	89541	231,737	-19%

(Source: Pakistan Education Statistic (2007-2017))

Likewise, Table -3 represents the total enrolments of university sectors in Sindh. According to the table a steady increase in the number of enrolments from the year 2008-2009 till the year 2012-2013 can be seen. Furthermore, the data depicts that in public sector universities there is a prominent 34.6% decline in enrolments whereas in private sector, data shows an increase of 32.4% in the number of enrolments in the year 2016-2017 respectively.

This 34.6% prominent decline in public sector academes depict a negative picture of the performance of higher education in Sindh that too for public universities and endorse the significance of the current research study and its recommendation.

Table 4:- Student-Teacher Ratio in Public Universities/ Institutions of Sindh.

S. No	Years	Teachers	Enrolments	Student-Teacher Ratio
1.	2007-2008	3671	81,803	22.28357396
2.	2008-2009	4076	88,699	21.76128557
3.	2009-2010	4425	103,069	23.29242938
4.	2010-2011	4822	121,698	25.23807549
5.	2011-2012	5261	144,551	27.47595514
6.	2012-2013	5758	173,973	30.21413685
7.	2013-2014	5758	173973	30.21413685
8.	2014-2015	8110	211867	26.12416769
9.	2015-2016	5883	217311	36.93880673
10.	2016-2017	6795	142196	20.92656365

(Source: Pakistan Education Statistic 2007-2017)

Furthermore, Table -4 represents student-teacher ratio of public universities in Sindh. It can be seen that throughout the years the ratio has not changed much starting from 2007. On the other hand it can be seen that the highest ratio reflected in the year 2015-2016 with 37 students per teacher, which is too high and indicates poor quality education. However, in the year 2016-2017 public university represents approximately 21 students per teacher which is better than the previous years, according to the table.

Table 5:- Student-Teacher Ratio in Private Universities/ Institutions of Sindh.

S. No	Years	Teachers	Enrolments	Student-Teacher Ratio
1.	2007-2008	4376	56,346	12.8761426
2.	2008-2009	5235	62,400	11.91977077
3.	2009-2010	5913	72,874	12.32437003
4.	2010-2011	6746	86,723	12.85546991
5.	2011-2012	7719	104,063	13.48140951
6.	2012-2013	8898	127,047	14.27815239
7.	2013-2014	8898	127047	14.27815239
8.	2014-2015	6255	58833	9.405755396
9.	2015-2016	7510	67632	9.005592543
10.	2016-2017	7011	89541	12.77150193

(Source: Pakistan Education Statistic 2007-2017)

Similarly Table -5 represents student-teacher ratio of private universities in Sindh. The year 2016-2017 represents around 13 students per teacher which is ideally far better than the student-teacher ratio of public academes in Sindh. This reflects the need to appoint more qualified teachers in public universities to main a balance and improve overall educational standards in Sindh.

Table 6:- Literacy Rate of Sindh (Last 10 Years).

S. No	Years	Sindh Literacy Rate	Percentage Increase/Decrease
1	2007-2008	56	-
2	2008-2009	59	5%
3	2009-2010	58	-2%
4	2010-2011	59	2%
5	2011-2012	60	2%
6	2012-2013	60	0%
7	2013-2014	56	-7%
8	2014-2015	60	7%
9	2015-2016	55	-8%
10	2016-2017	55	0%

(Source: Pakistan Economic Survey (2007-2017))

Furthermore, Table -6 reflects literacy rates of Sindh. Similarly a decline can be seen in the year 2013-2014 with 7 percent and 2015-2016 with 8 percent in Sindh respectively. However, there is no change in literacy rate of Sindh in the year 2016-2017 specifically perhaps no change does not reflect a good picture.

Table 7:- Comparison of Sindh Education Expenditure (Rs. in Millions).

S No	Years	Current Expenditure	Percentage Increase/Decrease	Development Expenditure	Percentage Increase/Decrease
1	2006-2007	20051	—	3170	—
2	2007-2008	31221	56%	6231	97%
3	2008-2009	40036	28%	8839	42%
4	2009-2010	44745	12%	8210	-7%
5	2010-2011	64370	44%	7925	-3%
6	2011-2012	57758	-10%	10810	36%
7	2012-2013	92697	60%	5728	-47%
8	2013-2014	99756	8%	6157	7%
9	2014-2015	109274	10%	7847	27%
10	2015-2016	123855	13%	11153	42%
11	2016-2017	134650	9%	12082	8%

Source: Ministry of Finance, official website, GOP.

Moreover the Table -7 presents a comparison between current and development education expenditure of Sindh from the year 2006-2007 till 2016-2017 respectively. The percentage share of current and development expenditure shows that percentage of current expenditure is increasing and development expenditure is not increasing as per the current expenditure.

Along with the time current expenditure has increased gradually and specially in the years 2007-2008, 2010-2011, 2012-2013 with prominent figures, however development expenditure stands with increasing percentages in the following years 2007-2008, 2008-2009, but can be seen prominent decline during 2009-2010, 2010-2011 and highest decline in 2012-2013 respectively whereas the year 2011-2012, and 2015-2016 shows an increase respectively.

Furthermore, rest of the years, the development expenditure did not show steady increase in numbers but a prominent decline in the percentage that can be seen in the year 2016-2017 which is only 8 percent increase as compared to the last year's development expenditure.

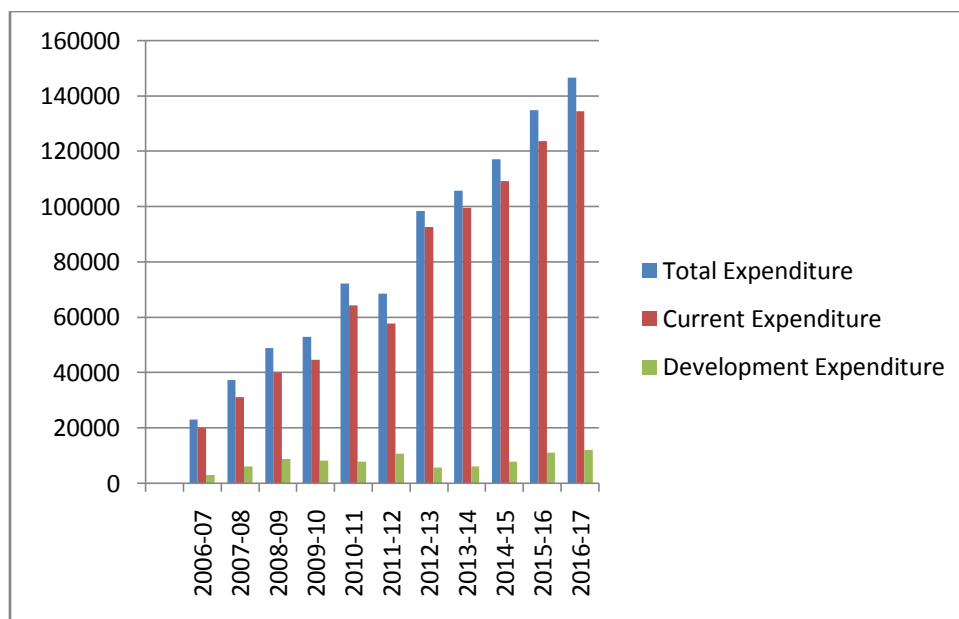


Figure 2:- Percentage Share of Sindh Education Expenditure (Current & Development)

Source: Ministry of Finance, official website, GOP.

In conclusion, Figure – 2 is illustrating the total education expenditure of Sindh and its percentage share in current and development expenditures. The graph shows that there is consistent increase in the total education expenditure of Sindh. However, the graph clearly highlights that the percentage share of total expenditure in development expenditure is quite lower than that of current expenditure which the government need to focus on and should increase the development expenditure to promote education by opening new public universities in Sindh.

Conclusion & Recommendations:-

A through study has been carried out to highlight the insights of important indicators of higher education in Sindh. To achieve the study objective relevant data has been included to help build a strong validation and highlight importance of higher education in the province. Moreover the discussion has made with a comparison of public and private universities in Sindh.

There is no point to doubt on the importance of education, its requirement in economic development, and in constructing the moral atmosphere of society. The data reveals that in Sindh there are more “private universities” than “public universities” and the data has shown a steady increase in the number universities in particular years respectively.

Furthermore, number of teachers has increased in “public sector” whereas there has been revealed a decreasing trend in the number of teachers in “private sector” universities in Sindh respectively. While considering the student enrolment in Sindh, the data showed a steady increase in “private institutions enrolments”, but a sudden decline in “public sector enrolments” in the following years which need to be looked into to avoid such decline in future.

It has been observed from the data that student-teachers ratio is better in “private sector” which may be due to more enrolment of students in “public universities” but public universities need to appoint more teachers to improve the student-teacher ratio which will further improve quality of education in the province also reflected in the literature review.

In Sindh, there are more “private” academes than “public” but 61.4% of total student enrolments are of “public” universities which indicate and justifies the need to open new universities hence the government should focus on the development sector of higher education and should increase the percentage share of development expenditure in Sindh as presented and highlighted in the study. There is not much of distinction in literacy rate that has been detected which might have increased or decreased due to the increase in population.

The study further highlights that the government need to encourage students by giving more avenues by increasing number of universities, must appoint more teachers to maintain student-teacher ratio in public universities in Sindh. The study also reflects the link with quality of education with the student-teacher ratio hence it is important to increase the developmental expenditure of education which can result in sustainable development in the province.

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