DEVELOPMENT IN THE EDUCATION SECTOR: A COMPARATIVE STUDY OF KERALA AND GUJARAT

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Abstract

This paper aims to analyse the concept of growth versus development based on empirical evidence. It discusses the states of Kerala and Gujarat by analysing their growth in terms of GDP and expenditure in education with development in the quality of education provided. To discuss and analyse this sector, parameters used include gross enrolment ratio, drop-out rate, pupil-teacher ratio, and government expenditure on education. The analysis resulted in the conclusion that mere GDP growth or increased spending in the education sector does not lead to the development and effective growth in the sector.

JEL Classification: C1, H1, H7, I2, I3, O1, Y1
Keywords: GDP and expenditure in education, Growth v/s Development, Kerala v/s Gujarat, Gross Enrolment Ratio, Pupil-Teacher Ratio, Drop Out Rates, Effective Growth

1. INTRODUCTION

Education in any state is a key basis for judging the nature of the economy and its market structure. The government of a country focuses on several areas for the development and progress of the nation as a whole. In the process, a lot of factors are improved over the years, whereas some of them remain left behind. In the race of nations to expand their economy at a global level, the growth rates and GDP of a country have played a key role. But economic growth cannot solely guarantee a nation's development in the complete sense. According to Sen (1992), the capability of a person to lead a good life is what stands for economic development. What constitutes a good life depends on the opportunities provided to them and based on their capabilities only can they make progress.

Regarding capabilities, better opportunities for an individual to grow are necessary. This includes various political, social, and economic opportunities such as education, healthcare and employment for everyone in the society. Therefore, good quality education can have a positive impact on a person's capabilities.

This paper aims at studying certain parameters of education, and their growth for a period of ten years from 2006-2016.

The states chosen are Kerala and Gujarat. The parameters are Gross Enrolment Ratio, Pupil-Teacher Ratio, Dropout Rates and Government Education. The data that we have discussed further in the paper is that of secondary public schools in the states. The reason behind this is that the number of students in secondary schools decreases drastically, after a good number of enrolments in primary schools. (This has been further analysed with the help of various parameters.) This may have to do with the fact that education is free of cost till primary school, and the poor population mainly loses interest in pursuing further education (Joshi, 2016).

2. LITERATURE REVIEW

There is plenty of literature discussing the education sector and making comparisons. We have emphasised on literature where development parameters were discussed as well as on the history of economic growth and development of the two states.

Kingdon (2007) compares India with its South Asian contemporaries. It is observed that it has been lagging in youth literacy and secondary school participation. Despite its improvement in many aspects over the years, it is still behind in terms of the development of secondary school education.

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There is a lot of scope for improvement in this area. This shows how despite developing infrastructure, there is a poor quality of teaching and poor results. Various factors affecting the quality of education such as teacher absence, lack of teaching materials and incentives have been discussed here.

Joshi (2007) highlights that enrolment and attendance are different. Attendance should be given more importance to judge the progress of education. A lot of students drop out after enrolling which must be considered. The quality of teaching and the presence of teachers is also something that is lacking in Indian classrooms. Teacher absenteeism in government schools is a very big problem that has been prevailing. It discusses secondary level education by saying that the major difference in education can be seen in the secondary school data, as the primary schools have shown better results in recent years, but students tend to drop out once they reach secondary school. The reasons behind this are reflected upon a lot of economic and social hindrances faced by people. Apart from poverty and the low standard of living, there are various problems rooted in gender, teachers, lack of resources, and cultural inhibitions as well.

Alongside, Tilak (2007) explores the difference between income poverty and education poverty, along with exploring poverty amongst the poor in India. It states a close relationship between income and education poverty, as income poverty forces children to leave school, leading to education poverty. Education is a link to many basic needs. The focus of poverty alleviation has mainly been on primary education, and not secondary or higher education. Only recently have researchers been paying attention to secondary and higher education having any role in poverty alleviation, as well as growth.

3. WHY CHOOSE THESE PARAMETERS?

Similarly, Parwez (2016) talks about the difference in demographic structures in Kerala and Gujarat. Kerala is a state-developed by public investment more focused on education and health. On the other hand, Gujarat develops by FDI and focuses on growth through entrepreneurial savings. It considers plenty of factors for making a comparison between the two states based on employment, poverty, health, and education and explaining the reasons behind them as well.

Tharamangalam (1998) explores Kerala's social development in comparison to the rest of the countries. It tells us how the state's history has been recorded well and we see through that how it has developed over the years. Despite upward trends, it's been seen that there has been a lot of glorification of its achievements, leading to stagnation. But overall, it has shown much more progress than the rest of the states in the country. It discusses how Kerala became a model for other states and even contemporaries from other countries.

PARAMETERS	DEFINITION	REASON FOR CHOOSING
1. Gross Enrolment Ratio (GER)	Gross Enrolment Ratio shows the general level of participation of students in education.	GER was considered appropriate for the study since it can reflect on the education sector by showing its capacity to accommodate students. It can help us study how the number of students attending school at the secondary level is affected by the expenditure by the government in this sector as well as the GDP of the state.
2. Drop-out Rate	The drop-out rate is the percentage of students who drop out from a given level of education.	This parameter was chosen because it tells us the ability of the sector to be able to retain its student population. Mere enrollment to students is not enough to study the population of students involved in education. Drop-outs play a crucial role in this determination. For this study, annual average drop-out rates are taken.

3. Pupil-Teacher Ratio (PTR)	The pupil-teacher ratio is the number of students under a teacher in a classroom.	This parameter indicates the efficiency of teaching in the class. If the PTR is high, more students are being taught by one teacher. Consequently, the quality of education declines. This follows from the fact that the more students under one teacher, the less is the chance for one student to get attention from the teacher. By comparing the PTR for the two states, Kerala, and Gujarat, we can assess the quality of education in the states.
4. Government Expenditure	The amount of spending by the public sector for acquiring goods and services in various fields such as education, healthcare, Defence, etc.	The reason for choosing this parameter was simply to assess the amount the government invests in education and comparing it with other development parameters. This can show us, in a way, the returns from the investment made by the government. Despite the great headway made by India in terms of per capita income, several human development indicators have not made much progress. The HDI index of 2020 ranked India at 131 out of 189 countries. Therefore, comparing government expenditure with certain educational parameters can help in understanding the development in the field.

A major difficulty faced by us while studying the existing literature was the lack of such comparisons in India. Where there are states like Kerala which are way ahead in performance, there are also states like Gujarat, Uttar Pradesh and Rajasthan with dismal progress in the quality of education and participation. It shows the need to do such studies and suggest policy measures and implications for the same. These conclusions aided us in exploring the nature of the economies of the two states.

The data for the parameters have been taken from the Ministry of Human Resource Development Report on Education, Education Statistics at a Glance, for the years 2006-2016. Government expenditure has been taken from the MHRD Planning, Monitoring and Statistics Bureau Report for the same years.

3.1 WHY CHOOSE THE TWO STATES?

KERALA

Kerala is one state in India that has focused more on development than mere economic growth. It has prioritised the welfare of the population over economic growth and has worked towards this goal even before independence. According to a report by Yale Review of International Studies, in 1991, Kerala had a per capita GNP of $298, but it nearly had a 100 per cent literacy rate.

The reason for choosing Kerala was to study this development pattern adapted by the state over the years and compare it with its growth rate. This would help in understanding how a state can allocate its resources and focus on development and not only growth parameters.

GUJARAT

Gujarat is a state which has shown an immense increase in economic growth parameters like the state gross domestic product. However, it has not focused much on the developmental parameters. When it comes to education, it has not worked much on development, as we will see by analysing various parameters for education.

Gujarat has also incurred the least expenditure on education sector development, considering the education outlay as a percentage of the state's GDP (ASSOCHAM, 2013). Therefore, Gujarat was deemed appropriate to study how a state can develop in terms of GDP but not improve sectors involved in development like education.

Hence, we have taken two states with diametrically opposite approaches to growth and development for our analysis.

4. ABOUT THE PARAMETERS

4.1 Gross Enrolment Ratio

According to the Department of School Education and Literacy Statistics Division (Ministry of Human Resource Development), 2015; Gross Enrolment Ratio (GER) is defined as the total enrolment of pupils in grade or cycle or level of education, regardless of age, expressed as a percentage of the corresponding eligible official age group population in a given school year.

In this case, GER at secondary education is thought to be appropriate by us. This is because secondary education marks the completion of basic education at the primary level. It also sets the basis for further development of human capital by imparting appropriate knowledge and skill set by more specialised teachers.

GER is calculated by considering the enrolment in all types of schools and educational institutions including public, private and other institutions. This indicator shows us in general the level of participation of the population at a given level of education. This helps us in identifying how the education system is being able to accommodate the population of students. It should be noted that this indicator also includes late admissions, underage and overage students as well in the data collection process.

4.2 Dropout Rate

According to the Ministry of HRD, 2015; drop-out rate is defined as the percentage of pupils who drop out from a given grade or cycle or level of education in a given academic year.

Drop-out rates negatively impact the education level of a country. They affect not only the development of human capital but also promote social exclusion and poverty. There can be several reasons behind drop-out which include financial constraints, involvement in economic or domestic duties and lack of interest in education. According to the District Information System for Education (DISE), students' disinterest towards education is due to the lack of educational and vocational counselling at the school level to the students.

4.3 Pupil-Teacher Ratio (PTR)

The pupil-teacher ratio is defined as the number of teachers relative to the number of pupils in a school. PTR is important to study the efficiency of teachers, which in turn is important for the quality of education.

The pupil-teacher ratio reflects the quality of education in an education system. The quality of education provided in a school, private or public, is important to assess as it helps us understand the development indicators as well as how efficient and fruitful the investment, again, both private and public, is. The governments of countries devote a certain amount from the GDP for education and it varies from country to country, as well as state to state.

In India, the government also spends, as of now, 4.6 per cent of its total GDP on education, according to the Union Budget, 2020. Whether it is a sizable amount or not is not an objective, but looking at certain growth and development parameters, like PTR, can help us understand this better.

5. ANALYSIS

5.1 Kerala

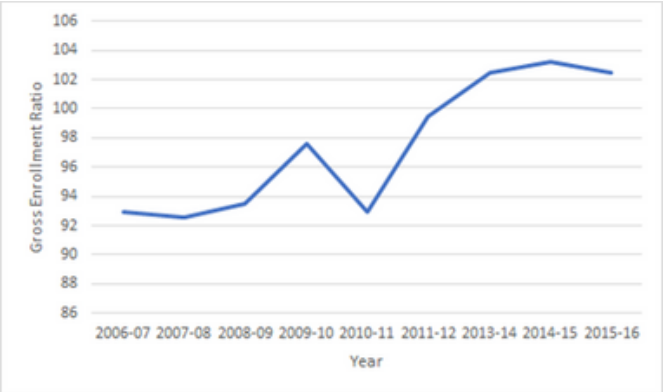
A. Gross Enrolment Ratio (GER)

The higher the level of GER, the greater participation of students depicting a higher capacity of the education system to accommodate students of a particular age group. In the case of Kerala, GER reaches 103.24 per cent in the year 2014-15 depicting its ability to accommodate all of its school-

aged population but it does not indicate that the full cohort for secondary education which is eligible is enrolled.

Since secondary level education is imperative in developing an appropriate skill set for a given set of population, it is imperative to have a high GER for a country to develop its human capital which can lead to further development of the country soon. This shows that Kerala has made credible efforts towards educational development in the state.

Figure 1: *Gross Enrolment Ratio for the period of 2006-07 to 2015-16*



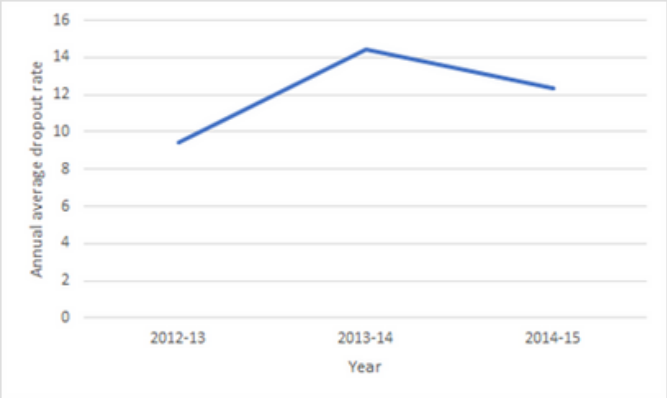
Source: MHRD data (2006-16)

This diagram shows the Gross Enrolment Ratio for Kerala for the period of 2006-07 to 2015-16. As seen in this trend line, GER for Kerala can be seen increasing over the years being consistently higher than 100 per cent since 2011-12. It was the lowest in the year 2006-07 at 92.93 per cent but has seen an upward trend ever since. This increase shows that the government can accommodate a greater sector of this set of population. In 2015-16 it was 102.44 per cent when the GER for the entire nation was 80 per cent showing that Kerala has been better than most states in terms of GER. This is because the state has invested in infrastructure by opening a large number of institutes in not only the main cities but the backward areas increasing its capacity and facilitating people with easy access to education.

B. Drop-Out Rate

The behaviour of drop-out rates in Kerala can be seen from the following chart. Kerala is among the states with the lowest drop-out rate in the country.

Figure 2: *Annual Average Drop Out Rate 2012-15*



Source: MHRD data (2006-16)

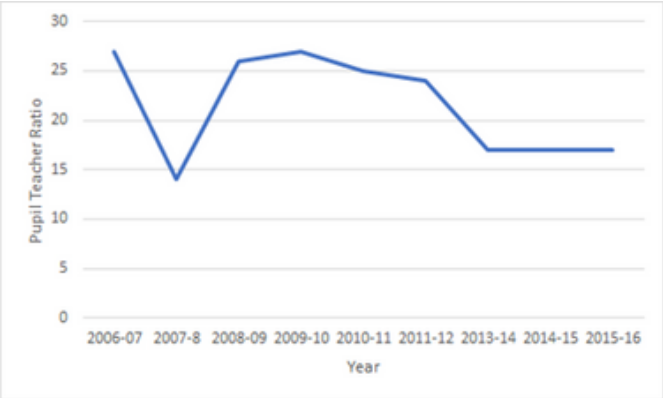
This reflects a lot upon its education sector. As seen in the chart, drop-out rates increased from 2012-13 to 2013-14. Then they decreased from 2013-14 to 2014-15 to 12.32. This happened when the average annual drop-out rate for the country was 17.06. The reason behind students drop-out in Kerala can be attributed to family and socio-economic needs.

C. Pupil-Teacher Ratio (PTR)

The pupil-teacher ratio for secondary education in Kerala over the years has seen a lot of improvement and has gone as low as 17 students per teacher in the year 2015-16. The importance of this is that the number of students per teacher describes how much attention is given to each student. This leads to better performance and increases the education attainment levels of the students.

Here, the pupil-teacher ratio of secondary schools is being discussed. The secondary schools in Kerala have been lowering over the years and are much better than the rest of India. A low pupil-teacher ratio has a lot of benefits as it helps the teacher to manage the students more efficiently. The quality of education is also improved, and the teacher is less burdened and can do their work in a much better manner. It is important to see that the teachers are also sharing their burden, for them to perform.

Figure 3: *PTR of secondary schools in Kerala from 2006-07 to 2015-16*



Source: MHRD data (2006-16)

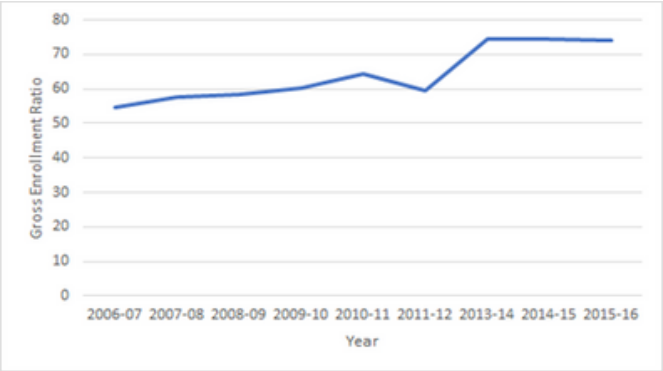
We can see that it was at a high number of 27 students per teacher in 2006-07 and falling over the next few years. The progress of PTR has not been uniform but scattered. Although, in the later years there has been a downward trend, with PTR being at a constant for three years, from 2013-14 to 2015-16. This shows that the government has paid attention to this aspect of educational development.

5.2 Gujarat

A. Gross Enrolment Ratio

On one hand, where Kerala seems to be performing better than most states, Gujarat on the other hand seems to be different.

Figure 4: *Gross Enrolment Ratio for the period of 2006-07 to 2015-16*



Source: MHRD data (2006-16)

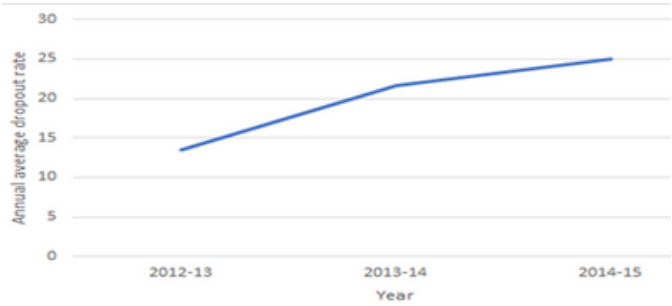
Even though the GER of Gujarat has also been rising over the period, the increase has been rather slow, being nearly consistent from 2013-14 to 2015-16. GER for Gujarat was highest at 74.34% for the year 2014-15. For 2015-16, when the nation's GER was at 80%, Gujarat was below average at 74.13%.

The reason behind why Gujarat has a lower than average GER is the state's inability to invest in crucial aspects of this sector. Another reason is universities showing an inward approach. Massification of education seems to be an issue here (Prof. Mohan B Menon).

B. Drop-Out Rates

As seen in the chart below, it can be seen that the average annual drop-out rates have been continuously increasing in the state of Gujarat. This reflects upon the quality of the education sector and the standard of living of people in the state of Gujarat as high drop-out rates indicate the inability of the sector to retain students due to either economic or financial hardships or the lack of interest in education.

Figure 5: *Annual Average Drop Out Rate 2012-15*



Source: MHRD data (2006-16)

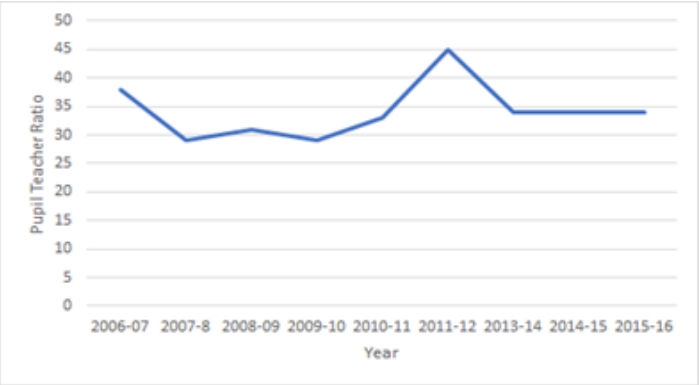
The drop-out rates increased from 2012-13 to 2013-14 from 13.55 to 21.61. It further increased to 25.04 in 2014-15. In this year, the average annual drop-out rate for the country was 17.06.

C. Pupil-Teacher Ratio

In Gujarat, the pupil-teacher ratio has been high over the period of ten years we have looked at in this paper. According to the latest AISHE report, only 10 other Indian states have a PTR which is worse than that of Gujarat. This shows the lack of development in the education system of the state. Gujarat has also shown a shortage of teachers and professors at the higher education level; including secondary schools.[1]

[1]Bharat Yagnik, TNN, Updated: Nov 8, 2019. "Pupil-Teacher Ratio in Higher Education Worrying IN Gujarat: Ahmedabad News - Times of India." The Times of India.

Figure 6: *PTR of secondary schools in Gujarat from 2006-07 to 2015-16*



Source: MHRD data (2006-16)

Looking at the data for secondary schools in Gujarat of ten years between 2006-07 and 2015-16, we also see the same pattern with the PTR. It started at a high level in 2006-07 and continues to rise, reaching a maximum of 45 students per teacher in 2011-12, and going down, only slightly, over the next few years. For the last three years (2013-14 to 2015-16), it has been at a constant number of 34 students per teacher.

Another aspect of maintaining an optimum PTR is not only that of government expenditure in education, but also the correct deployment of existing teachers and appointing new staff wherever needed. Hence, a correct approach is needed as well as government expenditure in education.

6. COMPARISON WITH GOVERNMENT EXPENDITURE

Government expenditure is the funds used by the government in the public sector in various sectors like education, healthcare, etc., to influence the economy as well as to stimulate economic growth.

In India, the government also spends a part of its budget on education. The responsibility for the same is with the state governments. Although, what India spends on education is not adequate for the proper development of the sector. According to the Economic Survey 2016-17, the total government expenditure on education, combining both Centre and state, was 10.2 percentage. This is low compared to the average of over 11 per cent spent on education by OECD countries.

The reason for comparing government expenditure with the different parameters discussed above is that it reflects the investment made by the government in the field and will show us the returns for the same. It would put light on whether the parameters grow in proportion with expenditure, or not.

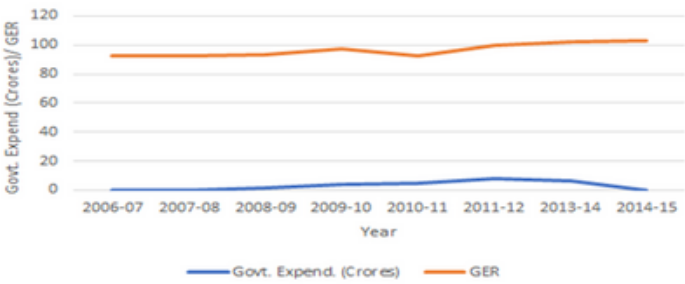
6.1. GOVERNMENT EXPENDITURE AND GER

The relationship between government expenditure and Gross Enrolment Rate is crucial. It tells us how the capacity of the education sector to accommodate students is increasing with the amount invested in the sector. It determines whether the expenditure on education is leading to an expansion by either increasing infrastructure or other factors motivating students to attend school at the secondary level.

The following charts show us a comparison between the behaviour of GER and government expenditure. Ideally, GER must increase with an increase in government expenditure showing us that the investment is leading to positive returns. We will analyse the basic trends in the two variables to judge the impact they have on one another, assuming both parameters are not affected by other variables like the population of students, total state budget among other things. We will study these trends further below.

KERALA

Figure 7: *Government Expenditure and GER from 2006-07 to 2015-16*



Source: MHRD data (2006-16) & MHRD Planning, Monitoring and Statistics Bureau

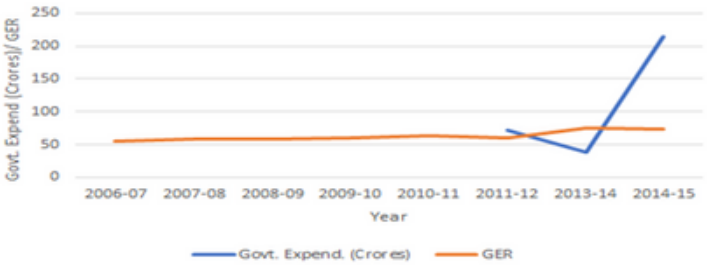
As seen in the diagram above, for the state of Kerala, initially with an increase in government expenditure, GER increases showing us that the expenditure on education helped in expansion and therefore, enrolment of new students. Afterwards, GER and government expenditure both showed scattered and

not uniform trends but overall, both increased over the period of 10 years. Therefore, for the state of Kerala, it can be said that government expenditure and GER are positively related. The reason for the same can be an investment in crucial aspects of this sector. Improving the overall capacity and the quality of education provided.

GUJARAT

The following chart depicts the behaviour of government expenditure and gross enrolment ratio for the year from 2006 to 2015. As seen in the chart, till the year 2011, government expenditure on education was not very significant. After that period, with an increase in government expenditure by a huge amount from 2011-12 to 2014-15, the enrolment ratio went up only a little.

Figure 8: *Government Expenditure and GER from 2006-07 to 2015-16*



Source: MHRD data (2006-16) & MHRD Planning, Monitoring and Statistics Bureau

This indicates that investment was not made in the crucial parts of the sector. Mere investment in infrastructure is not enough for an increase in education, the government needed to spend on other factors like subsidised education at the secondary level to increase enrolment.

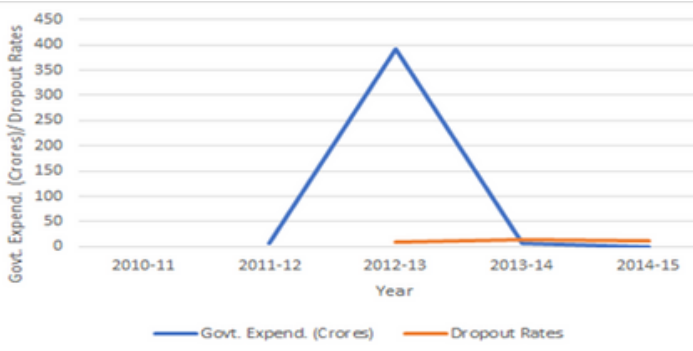
6.2. GOVERNMENT EXPENDITURE AND DROP-OUT RATE

The relationship between drop-out rates and government expenditure tells us whether the expenditure by the government in this sector can retain the students enrolled. A major reason for dropouts in secondary education is the lack of interest of students in education due to either the quality of teaching leading to an increased level of difficulty or inadequate facilities provided.

As per common knowledge, drop-out rates must decrease with an increase in government expenditure This is because with additional expenditure the quality of education provided must increase. Therefore, they must have a negative relationship. We will study their behaviour and discuss it for the states of Kerala and Gujarat.

KERALA

Figure 9: *Government Expenditure and Drop Out Rates from 2010-15*



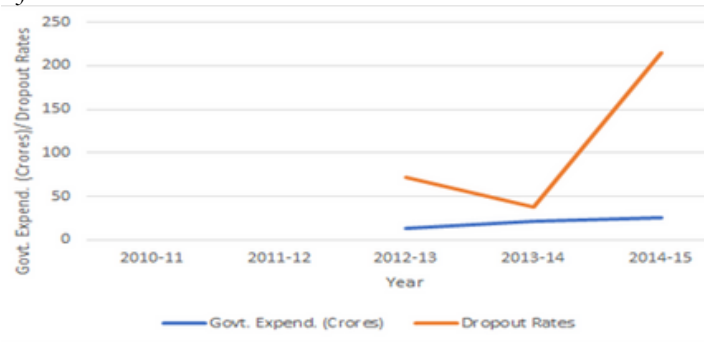
Source: MHRD data (2006-16) & MHRD Planning, Monitoring and Statistics Bureau

In the above chart, we observe the relationship between dropouts and the government expenditure for the state of Kerala. Government expenditure should have a negative relationship with drop-out rates according to common knowledge and existing literature. To assess the relationship, we observe from the chart that with a great degree of fall in expenditure during the period of 2012-13 to 2013-14, the drop-out rates increase from 9.45 to 14.46. With further decrease in government expenditure to not a very significant amount, the drop-out rates now fall to 12.32. With such a vast decrease in expenditure on this sector, not having a vast difference in dropouts is appreciable. The reason that can be attributed to this behaviour can be an already developed education sector in which expenditure is made only in the necessary aspects which is enough to motivate people to continue education.

GUJARAT

As seen in the diagram, drop-outs are increasing throughout whether government expenditure increases or decreases. However, we observe that the amount of increase varies. With a decrease in government expenditure, drop-out rates increase by a larger proportion as compared to an increase in government expenditure.

Figure 10: *Government Expenditure and Drop Out Rates from 2010-15*



Source: MHRD data (2006-16) & MHRD Planning, Monitoring and Statistics Bureau

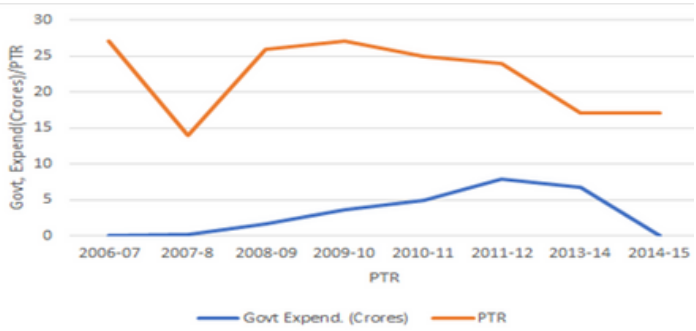
Therefore, we see that the trend in the state of Gujarat does not go along with common knowledge as it shows no concrete relationship between the two. However, the degree of increase in dropouts varies with changes in government expenditure.

6.3. GOVERNMENT EXPENDITURE AND PTR

KERALA

Kerala has shown an improving PTR, and in recent years has even presented an ideal ratio of 17 teachers per student. This, when compared with the expenditure done by the government will tell us how much the government has focused on this parameter. The importance of a better PTR and its relationship with government expenditure will tell us in which field has the government been paying more attention. Mere infrastructural growth will not be sufficient for a better performance by the students.

Figure 11: *Government Expenditure and PTR from 2006-15*



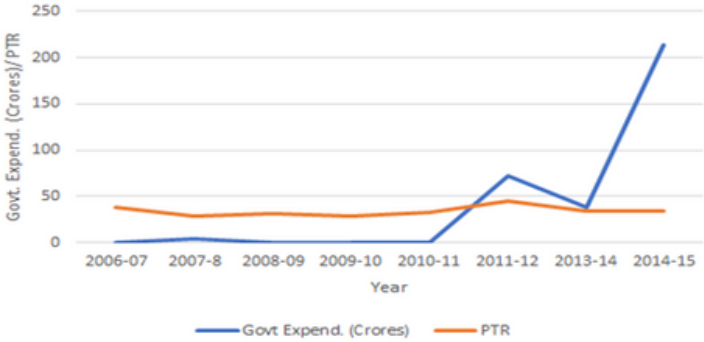
Source: MHRD data (2006-16) & MHRD Planning, Monitoring and Statistics Bureau

The above graph gives the relationship between Government expenditure and the pupil-teacher ratio of secondary schools in Kerala, for the period of ten years, between 2006-2016. We can see how PTR progresses along with how much the government spends each year. As the years' progress, Kerala's investment has gone down, lowest in 2007-08 at 0.1377 Crores and what is more shocking is that the same year, it also has the lowest PTR, at 14 students per teacher, which is a very commendable number to maintain. The PTR has risen after 2007-08, along with more investment in education by the government. It continues to show the same pattern of a falling PTR along with a fall in government expenditure. The reasons for the same can be due to various fields of education that the government could have invested in, but it has paid attention to this development parameter, nevertheless.

GUJARAT

Gujarat has also been spending a large amount on education, and over the years it has only increased in value. The following diagram is the data for government expenditure and PTR of secondary schools in Gujarat for the years 2006-2016.

Figure 12: *Government Expenditure and PTR from 2006-15*



Source: MHRD data (2006-16) & MHRD Planning, Monitoring and Statistics Bureau

As we can infer from the figure, the government expenditure by the Gujarat government has been rising continuously for the last three years of the period taken by us (2006-2016). Before that, it was showing an increasing trend, except in 2010-13. A lot of data has not been provided for all the years of government expenditure. But the general trendline tells us how the PTR has been rising, seeing a high point of 45 students per teacher, and going down only slightly, and has remained at a constant of 34 students per teacher for the years 2013-2016. A lot can be said about this trend. The government of Gujarat has been investing in infrastructure areas, and not paying attention to human development. The investment it makes in education would make little impact on the quality of education received by the students.

7. GDP AND THE PARAMETERS

The two states studied in the paper have both shown tremendous progress in their respective areas of growth and development. Kerala has been a model of human development for other states and has shown tremendous improvements in the field of healthcare and education. However, it has not shown similar trends in industrial and economic growth (Yale Review of International Studies, 2013). This shows us how economic development is incomplete without social and human indicators.

Although growth rates and HDI indicators not going in the same proportion is not necessarily negative for an economy; however, true development cannot be achieved without paying attention to the social development requirements.

Gujarat can be seen as the flip side of this situation. It has been showing tremendous growth rates, especially in recent years. However, it has failed to show similar successes in its HDI indicators despite accounting for 7.6 per cent of the country's GDP. (Report of the Planning Commission, 2014). It also spends a large sum on the education sector every year, as shown by our data on government expenditure above. Nevertheless, the parameters discussed have not shown improvement.

For a long time, Kerala has shown growth lower than that of the rest of the states in the country, but it has consistently done better at the HDI indicators. The opposite has been seen in Gujarat where the expenditure on education has increased over the years, but the HDI indicators are not reflecting the same.

There is a definite need to improve infrastructure but also the quality of education needs to be emphasised as well. Other factors may also affect the same, but an active government action at the state level and appropriate measures and policies can change the path of development in education in any state.

8. CONCLUSION

The paper was aimed at showing how two states with opposite approaches towards economic development have progressed in indicators pertaining to education. Through this analysis, we were able to conclude that educational growth is not something that can only be achieved via government expenditure; it also needs the correct approach and allocation of these funds. The quality of education needs more attention than just infrastructural investments. The quality of education has a huge role to play in the welfare of the people and in improving their standard of living. Therefore, the comparisons are shown via the parameters discussed in the paper inform us about the importance of a correct approach towards the development of a country, one that is not solely based on growth rates.

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