

the period of 2007 to 2017 was compared. Though the broadband data state wise till year 2014 is not available, it is observed during the period (year 2014 to year 2017) for which data is available that states that have higher levels of broadband have higher levels of GDP per capita. Analysis was also done for different countries taking data from World Bank and ITU for GDP per capita and broadband per 100 people in these countries. Countries analysed (USA, UK, Australia, China, Malaysia, India and Kenya) for comparison were at least one from each continent.

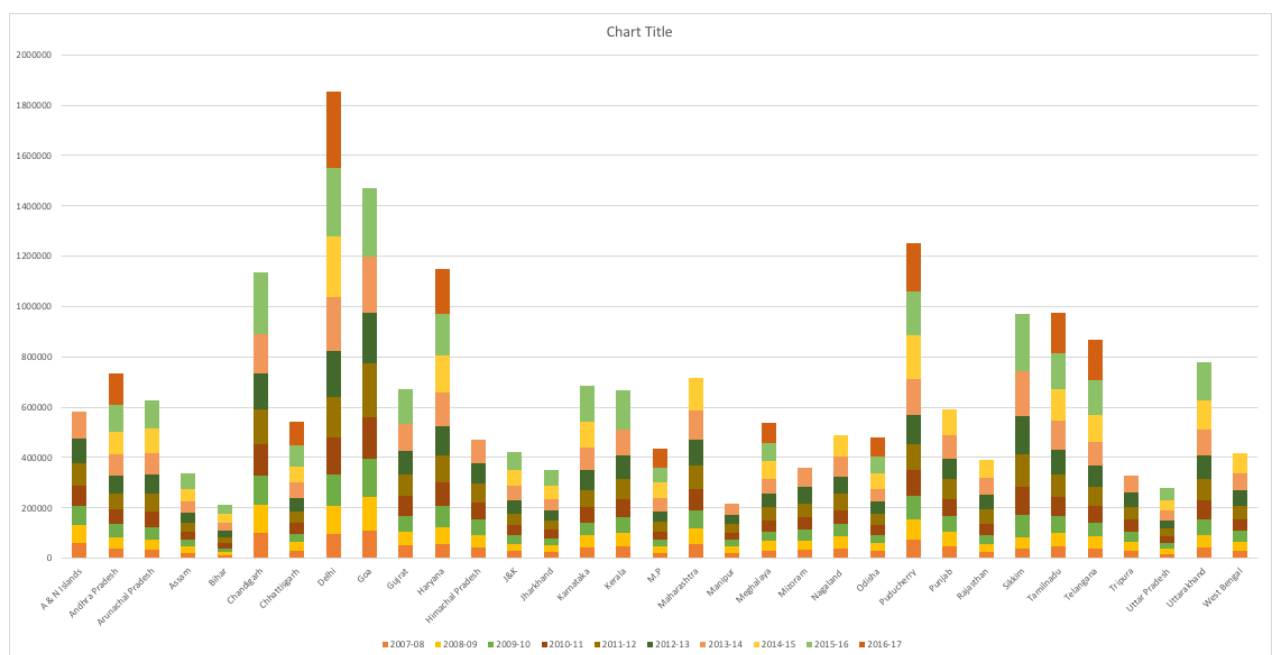


Figure 5.8: GDP per Capita of Indian States

Source: Author

5.3 Conclusion

Globally, broadband has been identified as one of the key drivers for achieving a country's socio-economic objectives. Studies have provided empirical evidence of the direct impact of broadband coverage and speeds on the GDP growth of countries. Additionally, broadband drives the transformation of lives of millions of people by enabling services such as healthcare, education, other development programs by the Government etc. Broadband has far reaching implications and has been leveraged to achieve national objectives by multiple countries.

We are amongst the fastest growing economies of the world, having progressed at 7.6% GDP growth rate in 2015-16. Presently, sustaining and enhancing this economic growth, while bridging the divide between various sections of society, are the key national objectives for India. As India strengthens its position as the world's fastest growing economy, it becomes imperative for the country to use broadband as a lever for growth. This becomes even more important considering the amount of investment and resources various countries are committing towards broadband proliferation. We cannot afford to lose our strength as a knowledge-based economy, thus making broadband growth even more important for our nation. Countries such as the US, the UK, China, South Korea, etc. have used fulfilment of national broadband plans to achieve one or more of their national objectives. For India, it is expected to not only contribute to the socio-economic development but also enable the Government's ambitious plans and strengthen our position as a knowledge-based economy. Rise in broadband penetration to the level of 60% in India is expected to translate into a 5-6% increase in the country's GDP.

It seems clear that access to broadband Internet increases economic growth. For example, access to broadband allows individuals educate themselves (thereby contributing to a nation's overall human capital stock), helps organizations streamline business procedures and cut costs, yields access to new buyers and sellers in remote markets, enables new business models (consider telemedicine), facilitates more efficient market prices by reducing information asymmetry, forms an important part of an overall business environment that is conducive to growth.

5.3.1 Benefits of broadband for individuals

With high-speed Internet connections, individuals have the opportunity to enhance their knowledge and skills through resources such as online courses, materials, blogs and other on line information available. Even access to recreational technologies such social networking

sites has the potential to grow individuals' social networks and expose them to different cultural values. Finally, broadband access has the potential to empower individuals to drive innovations of products based on their own needs, rather than waiting for institutional forces to make the changes for them. For example, high-speed Internet enables participation in community-lead open source projects (Hippel,2009).

5.3.2 Benefits of broadband for firms

Broadband Internet access has immediate potential to lower costs and raise productivity for private companies. For example, one paper cites that a collection of U.S. firms were able to save \$155 billion in operating costs as a result deploying broadband. The reasons for reduced costs depend largely on the company's business model. One company in Britain, for example, was able to save 60 million pounds in employee's medical expenses and overall productivity by using broadband to allow employees to work from home and connect remotely to internal computing resources. In more extreme cases, broadband gives companies the potential to completely alter their business models. For example, industries with products that can be distributed entirely through electronic means, such as the advertising, movie, music, or gaming industries, can (and do) change their business strategies when their customers have access to high-speed Internet. Moreover, broadband yields access to foreign markets that companies would otherwise not have been able to reach; one study found that if the number of companies with Internet access within a country increases by 1 percent, there is a corresponding boost of 4.3 percent in exports, and a 3.8 percent boost in exports from companies in low-income countries selling to high-income countries.

5.3.3 Benefits of broadband for Communities

Broadband also plays a role in creating stronger communities at the municipality level. For example, if a community subsidizes residential and commercial broadband deployment, it stands to foster a better environment for businesses to grow in. A study from MIT compared

early-adopters of broadband versus late-adopters between 1998 and 2001, and found that communities with broadband experienced higher employment growth rates, more startup businesses, and higher rent prices (a proxy for the perceived value of living in the community) than communities that did not adopt broadband (Gillett, S., Lehr, W., Osorio, C. and Sirbu, M., 2006). Broadband also plays a crucial role in reducing information asymmetry (where customers do not have sufficient information to make informed buying decisions), thereby creating a more efficient market for both buyers and sellers. Lastly, broadband helps communities deploy public services that otherwise might be intractable. For example, services such as telemedicine and online education benefit the overall community at a low cost if broadband is pervasive which is especially relevant for remote communities.

5.3.4 Benefits of broadband for the overall economy

Broadband deployment in theory may carry positive externalities with it that affect the overall economy. Several speculative studies have predicted the macroeconomic effects of broadband on individual countries. One study by a technology company research lab² found in 2003 that increased broadband deployment had the potential to contribute \$500 billion to the United States economy. Besides the microeconomic reasons already described, there are several reasons why broadband deployment might yield macroeconomic benefits.

One major reason is that access to the Internet facilitates overall trade with foreign economies in services and globalisation. In support of this reasoning, it has been shown that the existence of broadband is an important factor in whether foreign countries decide to place investments in growing markets (Abramovsky, L. and R. Griffith, R., 2006). Broadband also stands to transform research and development, the means by which countries make technological progress. One study in this space surveyed the role broadband plays in generating inventions. Another cited that broadband encourages collaboration, access to data, and round-the-clock development. Broadband can also help governments streamline public services, thereby

facilitating a more conducive business environment. E-governance and electronic customs processes are examples of such streamlined services. Same has been established by the study undertaken with the help of questionnaire and GDP and broadband penetration comparative analysis.