Road Connectivity: Transportation Costs, Commodity and Agricultural prices in Rural Meghalaya

Lyngdoh, Shailynti[1] and Mawiong, Sainkupar[2]

1 Department of Economics, Saint Mary's College, Shillong, Meghalaya, India

2 Department of Basic Sciences & Social Sciences, North Eastern Hill University, Shillong, Meghalaya, India

* Corresponding Author: Lyngdoh, Shailynti

Abstract

Road connectivity is the backbone of the economy of any nation. India being a developed country faces many challenges in the field of Economic and Social development. Improvement of living standards of the rural populace can be achieved by having well connected networks of roads to various nooks and corners of all existing villages. In this paper we will show that nonexistence of good and well maintained road has detrimental effects on the economy of the rural areas of some of the districts in Meghalaya. We will stress our study more on the effect on Transportation cost and Agricultural Prices which are the two main components of the rural economy which are directly affected by nonexistence of Road.

Keywords: Road Connectivity, Infrastructure, Dispersion, Transportation cost

Introduction

India's economy is predominantly rural in character. This is evident from the fact that in 2001, nearly 72 percent of its population lived in its nearly 6.38 Lakh villages and about 52 percent of its workforce was engaged in agriculture and allied activities in rural areas[28].Mahatma Gandhi, the father of our nation, declared in the beginning of the twentieth century that the soul of India lives in its Village[15].

According to 2011 census, Meghalaya has a population of 29, 64,007, 6839 villages, both inhabited and uninhabited and 22 towns. Besides, about 80.42 percent of the population consists of rural population and 19.58 percent of urban population (2001 census)[10]. This shows clearly that a sizeable number of population still reside in villages.

Provision of basic infrastructure in the forms of road transport, power, safe drinking water, school and primary health facilities is imperative to enhance the socio-economic conditions of the rural masses as well as to improve their quality of life.

Several other studies examined the role of infrastructure in economic development through various ways; like Kohli, Thakur and Singh (1970)[16] studied the role of power in economic development, Coyle et al. (1982)[9], Nayak (1999)[19] examined the role of transport and communication on the economy, Pandey, Rao (1985)[24], Pant and Verma (1983)[22] examined role of irrigation in agricultural sector of a country. Also, Cairncross (1962)[6], Nurkse (1962)[20], Schumpeter (1954)[26] and Joan Robinson (1952)[25] examined the role of banking and finance and that of Tinbergen (1967)[31], Rao (1985)[24], Kuznets (1971)[17], Sen (1966)[27] and Panchmukhi (1979)[21] on human resource development through education and health care.

However, this paper tries to highlight the importance of road transport to economic and social development, as road is the only form of connectivity in Meghalaya, where villages and small towns are connected, facilitates mobility of people and goods from place to place.

In Meghalaya almost 50 per cent of the villages still remain unconnected by all weather roads. It reflects the poor quality of road connectivity in the State. According to Meghalaya Human Development Report 2008 almost all the Garo hills districts are not well connected by pucca road followed by Ribhoi District, West Khasi Hills and East Khasi Hills Districts[13].

The road density per 100 sq km in Meghalaya was 36.66 km on 1st April 2008 which was far below the national average of 100 km per 100 sq km. About 60.10 per cent of roads are surfaced and the remaining 39.90 percent are still un-surfaced roads. 2578 numbers of habitations out of total 5782 habitations in the state are yet to be connected by motor-able roads[13].

Therefore, quite justifiably roads have been described as the veins and arteries of a nation by the British Sociologist[15], Herbert Spencer, in his organismic analogy[15] as mentioned by Kar in his paper.[15]

In his paper Rural transport in India Ramaswamy has chosen Kerala as a model state which has the excellent communication and transportation systems, where all villages are well connected by all weather roads (AWR) or Fair weather roads (FWR) [23]. Rural people in Kerela can commute easily to their work place to other towns and districts without too much hassle. Besides, they have easy access to school and health facilities and get a good price for their agricultural produces as they can market them faster with low transportation costs[23].In the study of Shilpa aggarwal she illustrates that improved road connectivity increase the scale of production, trade and the variety of food consumed[1].

This paper will also try to highlight that variation in transportation costs across districts in Meghalaya can be attributed to road connectivity, which also can be one of the causes of variation in commodity and agricultural prices in rural areas. Many studies which are relevant to these areas have been carried out by many scholars. Like, G.Banjo et.al showed that Farm incomes and adoption of new technology is directly related to Rural infrastructure in particular roads and transport services. Marketing of agricultural product and their sale is severely hampered and hindered due to high costs of Transport Services. People will not be able to enjoy a better Social and economic life if there is no platform to sell their goods at a competitive prices. Accessing School and Health facilities without proper road would be very difficult[4].

Suri & Ali show that farmer are willing to use hybrid seeds and modern machinery in their farm to improve productivity as the transportation cost has come down as a result of better Road infrastructure, this led to increase in production[30,2].

Donaldson (2013) also found out that Road construction indeed reduced transportation costs and led to greater market integration, as dispersion of food prices declined in districts with greater road construction[11]. Further, the following studies done by Boughaes et al. (1999)[5], Baier and Bergstand (2001)[3], Limao and Venables(2001)[18], Clark te al. (2004)[8], Hummels and Skiba,(2004)[14], Feyrer (2001)[12], Storeygard(2012)[29] show evidence that there is a negative relation between Road Infrastructure and Transportation Cost.

In a study set in Sierra Leone, Casaburi et al. (2013)[7] found that the market price of both rice and cassava decrease considerably because of the improved rural feeder roads which facilitated easier market access for farmers which they linked it to a reduction in transport costs and search costs[1].

Observation and finding

Table 1, 2 below show the variations of commodity and agricultural prices in two districts, East Khasi Hills Districts and West Khasi Hills Districts based on the availability of data for the year 2013 respectively. Table 3 shows road density per 100 sq. km across district in the state.

From the above table 1&2 six commodities are found to be common in both the districts. Five commodities banana, cabbages, ginger, potato and pumpkin are cheaper in East Khasi Hills District as compared to West Khasi Hills District, where road density is highest as shown in table 3.Whereas, Orange is cheaper in West Khasi Hills than East Khasi Hills Districts this is due to the fact that the district produces more of the commodity. In West Khasi Hills, the prices of all commodities are very

expensive except orange. Where the road density per 100 sq.km is lower than the East Khasi Hills District as shown in Table 3.Looking at the above tables we can expect that there is some relation between road connectivity and commodity prices.

Further, the study has conducted a survey by selecting two villages, one which is well connected by all weather roads (AWR) and the other one which is badly connected. Both villages have almost had similar distance from the state capital. According to household interviews in both villages, prices of essential commodities differ almost between Rs 3- Rs 5, where people in badly connected village has to pay more

Besides, the transportation costs for agricultural produce in the well connected village is Rs 1.2 per Km (Rs 60/ 50 kg for 50km) whereas in the badly connected village it is Rs 1.71 per km (Rs 60/50kg for 35 km). Further, in the well connected village the travelling cost per passenger is Rs 1.2 per Km (Rs 60 for 50km) whereas in the badly connected village it is Rs 1.42 per km (Rs 50 per 35km).Thus, we see that transportation costs as well as travelling cost are more expensive in badly connected village.

Conclusion

The above study reveals clearly the importance of rural transport in the states. Availability of adequate and quality road facilities will definitely improve the socio-economic conditions of the rural masses in bringing down transportation costs as well speeding up the transportation of agricultural produce and goods from villages to nearby towns/ districts and state capital and as such will reduce travel time and wastage of perishable commodities.

Besides, adequate road connectivity will open job opportunities in nonfarm and other allied activities. Rural masses will have better access to school and basic health care facilities enhancing their quality of life as well as reducing their poverty.

References

1. Aggarwal, S. Do Rural Roads Create Pathways out of Poverty? Evidence from India, 2014.

2. Ali,R. Impact of Rural Road Improvement on High Yield Variety Technology Adoption: Evidence from Bangladesh. Working Paper, University of Maryland, 2011.

3. Baier, Scott,L. and Bergstrand, J.H. (2001). The Growth of World Trade: Tariffs, Transport Costs, and Income Similarity. Journal of International Economics, 2001, 53 (1), 1-27.

4. Banjo,G., Gordon, H., Riverson, J. Rural Transport Improving its Contribution to Growth and Poverty Reduction in Sub- Saharan Africa. SSATP Africa Transport Policy Program, 2012, Working Paper No. 93.

5. Bougheas, Spiros, Demetriades,P.O, and Morgenroth,E.L.W. Infrastructure, Transport Costs and Trade. Journal of International Economics,1999, 47 (1), 169-189.

6. Cairncross, A.K. . Factors in Economic Development. London: George. Allen & Unwin Limited, 1962.

7. Casaburi, Lorenzo, Rachel Glennerster, and Tavneet Suri. Rural Roads and Intermediated Trade : Regression Discontinuity Evidence from Sierra Leone, 2013, Working Paper,MIT

8. Clark, Ximena, Dollar, D. and Micco,A. (2004). Port Efficiency, Maritime Transport Costs, and Bilateral Trade. Journal of Development Economics ,2004,75 (2), 417-450.

9. Coyle, J.J., Bardi, E.J., & Cavinato, J.L. Transportation. New York: Western Publishing Company; 1982.

10. Directorate of Economics and Statistics, Government of Meghalaya (2010-2011). Statistical handbook Meghalaya. Shillong: Government of Meghalaya.

11. Donaldson, Dave . Railroads of the Raj : Estimating the Impact of Transportation Infrastructure. American Economic Review (Forthcoming).

12. Feyrer, James . Distance, Trade, and Income - The 1967 to 1975 Closing of the Suez Canal as a Natural Experiment, 2011, Meeting Papers 1438, Society for Economic Dynamics.

13. Government of Meghalaya. (2008). State of infrastructure in Meghalaya (Chapter VI).

14. Hummels, David and Skiba,A. . Shipping the Good Apples Out? An Empirical Confirmation of the Alchian-Allen Conjecture. Journal of Political Economy,2004, 112 (6), 1384-1402.

15. Kar, P.K. Rural Transportation: A case study of North Balasore of Orissa ,nd.

16. Kohli, S.C. and Thakur, V.P. . Strategy for Power Planning in Vadilal Dagli (eds.) Infrastructure for the Indian Economy, Vora and Company, Bombay; 1970.

17. Kuznets, S. Economic Growth of Nations. Cambridge: Cambridge University Press; 1971.

18. Limao, Nuno and Venables, A.J. Infrastructure, Geographical Disadvantage, Transport Costs, and Trade. World Bank Economic Review,2001; 15 (3), 451-479.

19. Nayak,P . Infrastructure: Its development and impact on agriculture in North East India. Journal of Assam University,1999, Vol. IV(1): 59-65.

20. Nurkse, R. Problems of Capital Formation. Cambridge: Cambridge University Press; 1962.

21. Panchmukhi, P.R. The Impact of Irrigation on Rural Development. Delhi: Concept Publishing House Private Limited; 1979.

22. Pant, N., & Verma, K.K.. Farmers' Organisation and Irrigation Management. Delhi: Ashish Publishing House; 1983.

23. Ramaswamy N.S. Rural Transport in India, n.d.

24. Rao, B.V.. Economic Development- Causes and Consequences. Delhi:Ashish Publishing House; 1985.

25. Robinsons, J . The Generalisation of the General Theory. Rate of Interest and Other Essays, London; 1952.

26. Schumpeter, J.A. . History of Economic Analysis. London: George Allen; 1954.

27. Sen, A.K.. Economic Approaches to Education and Manpower Planning. Indian Economic Review , 1966 (New Series 1).

28. Singh, K. . Rural development principles, policies and management. Sage Publication. Third edition,2009.

29. Storeygard, A. Farther on down the Road: Transport Costs, Trade and Urban Growth in Sub-Saharan Africa. Working Paper, Tufts University; 2012.

30. Suri, T. Selection and Comparative Advantage in Technology Adoption. Econometrica,2011,79 (1), 159-209.

31. Tinbergen, J. Development Planning, translated from Dutch by N.D. Smith, London; 1967.

Tables and Figures

Table 1: Sources: Website: http://agmarket.nic.in/

Market-wise, Commodity-wise Daily Report on: 26/11/2013									
NR: Not Reported									
Market Centre	Arrivals	Unit of Arrivals	Origin	Variety	Grade	Minimum Price	Maximum Price	Modal Price	Unit of Price
Shillong (East Khasi Hills, Meghalaya)									
Arecanut (Betelnut/Supari	500	Tonnes	NR	Other	-	15000	30000	22500	Rs/Quintal
Banana	3.5	Tonnes	NR	Other	Large	3000	4000	3500	Rs/Quintal
Beetroot	0.3	Tonnes	NR	Other	-	3500	4000	3500	Rs/Quintal
Betel leaves	250	Tonnes	NR	Other	-	8000	15000	11500	Rs/Quintal
Brinjal	1	Tonnes	NR	Other	-	2200	2400	2300	Rs/Quintal
Cabbage	8	Tonnes	NR	Other	-	1600	1800	1700	Rs/Quintal
Carrot	7	Tonnes	NR	Other	-	3000	3400	3200	Rs/Quintal
Cauliflower	12	Tonnes	NR	Local	-	2000	2400	2200	Rs/Quintal
Fieldpea	1.3	Tonnes	NR	Other	-	4000	6000	5000	Rs/Quintal
Fish	50	Tonnes	NR	Other	-	12000	13000	12500	Rs/Quintal
Ginger	2	Tonnes	NR	Other	-	6000	9000	7500	Rs/Quintal
Green Chilly	0.4	Tonnes	NR	Other	-	6500	7500	7000	Rs/Quintal
Orange	4	Tonnes	NR	Other	Large	3000	3600	3300	Rs/Quintal
Potato	20	Tonnes	NR	Other	-	2200	2800	2500	Rs/Quintal
Pumpkin	2	Tonnes	NR	Other	-	NR	2600	2500	Rs/Quintal
Raddish	5	Tonnes	NR	Other	-	1300	1500	1400	Rs/Quintal
Rice	1	Tonnes	NR	Other	-	3400	3600	3500	Rs/Quintal
Squash (Chappal Kadoo)	2.5	Tonnes	NR	Other	-	600	800	700	Rs/Quintal
Tomato	15	Tonnes	NR	Local	-	2300	2700	2500	Rs/Quintal
Turnip	1	Tonnes	NR	Turnip	-	1000	1200	1100	Rs/Quintal

Table 2: Sources: Website: http://agmarket.nic.in/

Market-wise, Commodity-wise Daily Report on: 26/11/2013									
NR: Not Reported									
Market Centre	Arrivals	Unit of Arrivals	Origin	Variety	Grade	Minimum Price	Maximum Price	Modal Price	Unit of Price
Mawkyrwat (South West Khasi Hills, Meghalaya)									
Banana	0.3	Tonnes	NR	Other	Medium	4000	4500	4250	Rs/Quintal
Black Pepper	0.15	Tonnes	NR	Other	-	18000	18500	18250	Rs/Quintal
Cabbage	0.1	Tonnes	NR	Other	-	2000	2500	2250	Rs/Quintal
Ginger	0.2	Tonnes	NR	Other	-	18000	18300	18150	Rs/Quintal
Orange	1.8	Tonnes	NR	Other	Medium	2500	3000	2750	Rs/Quintal
Potato	1	Tonnes	NR	Other	-	3000	3300	3150	Rs/Quintal
Pumpkin	0.5	Tonnes	NR	Other	-	2500	2800	2650	Rs/Quintal

Table 3: Sources: Directorate of Economics & Statistics, Govt of Meghalaya; PWD and Planning Department

Sl.no	District	National Highway in Km	State Highway in Km	Major District Road in Km	Other District Road in Km	Village Road in Km	Urban Road In Km	Total Length in Km	Road Density (Per 100 sq,km)
1	East Garo Hills	28.18	84.00	185.52	179.72	104.57	-	581.99	22.36
2	West Garo Hills	104.28	318.47	175.11	527.35	295.66	-	1420.87	38.26
3	South Garo Hills	104.00	82.40	-	85.18	192.63	-	464.21	25.09
4	East Khasi Hills	157.92	163.80	284.64	847.94	439.66	194.10	1788.05	65.07
5	Ri-Bhoi	65.00	110.00	96.25	558.84	92.11	-	922.20	37.67
6	West Khasi Hills	66.46	266.55	189.26	377.51	478.99	-	1378.77	26.28
7	Jaintia Hills	77.44	109.00	288.25	888.18	184.96	-	1547.84	40.53
8	Total	603.28	1134.22	1219.03	3164.72	1788.56	194.10	8103.93	36.46