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Nexus Between Poverty and Access to Essential Service Centers in Education, Health, and Markets

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ABSTRACT

Among the service offering firms, education, health and market are the most important centers. The accessibility of these centers, if made easy, then the life style of people may be uplifted, and on the contrary, may decline when there is limited accessibility to those centers resulting into increased poverty. In this study, the sample from 5,988 households of Nepal Living Standard survey 2010/11 has been taken. This study incorporates analysis done through Descriptive statistics and consumption quintile group. The maximum time taken to reach higher secondary school is the highest (1920 minutes) from any particular house followed by the maximum time taken to reach public hospital/ primary health care (PHC) and market center (1440 minutes). It takes three to six times more to reach social service centers in rural areas than in urban areas. It takes double time to reach the market center in Hill than in Terai, and almost 4 times in Mountain than in Terai. Also, the odds of household being poor in within the reach of 30 minutes is lower compared to that of beyond the reach of 30 minutes. The odds of household being poor of beyond the reach of 30 minutes is almost the double of within the reach of 30 minutes. From the quintile consumption groups, the male literacy rate of poorest quintile is approximately the double of the female literacy rate of poorest quintile group. This study found out that there is a direct negative relationship between social service centers and walking distance. It is concluded that as per capita expenditure quintile goes up from poorest to richest, the walking distance time decreased. Hence, the findings of the study advise the policy makers to boost the amount of money invested in infrastructure, health care, and education to reduce the poverty in Nepal.

1. INTRODUCTION

Poverty is not only being deprived of food, cloths, and shelter but is the state of being deprived of schooling, health, and market services etc. also. Providing fundamental public amenities including public health, education, infrastructure is a major responsibility of the government to reduce poverty. It is significant in and of itself, even though it is conceivable that having access to these services will boost the output of the underprivileged (Karnani, 2017).

Education generates verity of benefits to reduce poverty. These benefits are direct and indirect (Thapa, 2013). According to Thapa (2013) and other researchers cited there, the education provides direct benefits in the forms of higher income, more stable employment and better working condition. Similarly, indirect advantages include the enhancement of institutions and values for a higher standard of living, as well as people's empowerment via knowledge (ADB, 2003). Therefore, education is one of the most important dimensions of reducing poverty. However, poverty has been a significant barrier to education access and utilization in many emerging nations (Pokharel, 2015).

One of the pivotal keys to emancipate the circular relationship of poverty and education is the investment on education (ADB, 2003). Education is a component of basic need that contributes to generating income to reduce poverty (Thapa, 2010). Both at the micro and macro levels, household poverty and education are related. Macroeconomically, countries with large populations of uneducated or poorly educated people cannot advance and significantly expand their productivity. Their standard of living is consequently low (Thapa, 2013). Moreover, researchers have discovered that education is the primary determinant of household poverty. For instance, The Nepal Living Standard Survey 2010/11 (NLSS III) has demonstrated that higher level of educations has an inverse relationship with income poverty and that lower income was associated with lower levels of family head's education (CBS, 2011). At the individual or household level, those who lack literacy tend to be less productive, take on lower-paying jobs, and maintain extremely poor living standards often below the poverty line.

Use of social services including the education has been shown to be negatively correlated with travel time or distance to the service center, which represents a significant access barrier (Peters et al. 2017). More time and money are spent on travel, particularly for the impoverished, when service facilities are located far away. Therefore, geographic access is crucial to accessing service centers.

Geographically, Nepal is demarcated into Mountain, Hilly and Terai region. The topography of Terai is plain, but other two regions have tough and sloped land with high rocky hills. People's habitats in these regions are not unified, but thin and scattered. To connect with another habitat, people need to map through high hills, rivers and Rocky Mountains. Building infrastructures for school, hospital, etc. in these areas are very expensive. In addition, people need to surpass long distance and geographical complexities to access these amenities. As a result, disable, aged, children and weak females are far from the benefits of development.

Marginalized and Dalits in Nepal do not go to school because of geographical complexity, long distance to travel from their houses and lack of awareness. Increasing illiteracy is causing unemployment.

A poor household cannot learn about or adopt new technologies, sell labor, acquire credit, market its output, acquire inputs, insure against risks, or find affordable consumer goods without strong access to markets (Taylor et al. 2009). The greater the household's access to the market and public services, the easier it is to market products in relatively big towns. This is due to the fact that being close to marketplaces offers better chances for purchasing food and selling pastoral goods. This makes it possible to purchase and sell a wider variety of things at more affordable costs. Additionally, this lowers transaction costs and increases the likelihood that a household would use the market's services. Therefore, there is a decreased likelihood of sliding into poverty if one is closer to service providers.

With the best of my knowledge no study has identified the relationship between social service centers and poverty using descriptive statistics and per capita expenditure quintile over the nationally representative data of NLSS III. Once the relationship between access to service centers and poverty has been established, policy makers may be able to address poverty related issues in the country. Therefore, the objective of this study is to establish the relationship between the access to service centers and poverty.

2. DATA AND METHODS

This study uses descriptive research method exclusively based on data collected during Nepal Living Standard Survey 2010/11 (NLSS-III) that was conducted by Central Bureau of Statistics (CBS) government of Nepal. The Nepal Living Standard Survey (NLSS) provided data on income, housing expenditure and other characteristics of households such as demography, education, health, access to service center etc. The central bureau of statistics (CBS) conducted Nepal living standard survey (NLSS- III) in 2010/2011 to estimate time and distance to nearby schools, health posts, and market centers from people's houses. Using 5988 households' data based on the cross-sectional sample of NLSS-III (for detail; please see NLSS 2010/11 Statistical Report Volume One). The consumption quintiles were presented into five groups: from poorest to richest. Finally, various service centers were presented in terms of per capita expenditure quintile.

3. RESULTS AND DISCUSSIONS

Descriptive statistics including per capita expenditure quintile group analyzed by using SPSS statistical packages (version 20) are dealt in the following sub-sections.

Descriptive statistics of accessibility of service centers

The mean, median, standard deviation, skewness, minimum and maximum time taken from each house to service centers (access to school, access to health, and access to market) in minutes are described in Table 1.

Table 1

Descriptive Statistics of Accessibility of Service Centers Measured in Terms of Time (Irrespective of Transport Mode – Foot or Vehicle) (Minutes) to Reach There

Indicators of social service centers	Mean	Median	Std. Deviation	Skewness	Minimum	Maximum
Access to PS	12.09	10	22.2	28.001	0	1200
Access to SS	31.05	15	45.5	4.945	0	969
Access to HSS	50.61	30	79.4	5.738	0	1920
Access to HP/SHP	31.49	15	49.9	5.229	0	960
Access to market center	80.63	30	124.6	3.463	0	1440

PS = primary school, SS = secondary school, HSS = higher secondary school, HP = health post and SHP = sub-health post

The mean time in reaching primary school from each house is the shortest (twelve minutes) and the mean time in reaching public hospital/primary health care (PHC) from each house is the longest (hundred and ten minutes). The mean time taken to reach market center is the second longest (eighty-one minutes) followed by the time to reach higher secondary school from each house (fifty-one minutes). However, the mean time to reach secondary school and health post/sub health post (SHP) are the same.

In the case of standard deviation, the time to reach public hospital/primary health care (PHC) has the highest standard deviation followed by the time to reach to market center. The primary school is the lowest dispersed while secondary school and health post/sub-health post (SHP) are seemed to be dispersed the same. The maximum time taken to reach higher secondary school is the highest (1920 minutes) from any particular house followed by the maximum time taken to reach public hospital/primary health care (PHC) and market center (1440 minutes). As far as the walking distance is concerned, the average time in minutes from each house to social service centers in rural/urban areas as shown in table 2.

Table 2

Accessibility of Service Centers Measured in Reaching Average Time in Minutes by Rural/Urban

Indicators of social service centers	Rural	Urban	Total
PS	16	5	12
SS	43	9	31
HSS	71	13	51
HP / (SHP)	45	6	31
Market center	114	18	81
N	3900	2088	5988

According to NLSS III data, out of 5,988 households 3900 households reside in the rural area and the remaining 2088 households reside in the urban area. It takes about 16 minutes for children to reach a primary school in rural area compared to 5 minutes to reach the same type of school in the urban areas. Likewise, it takes about 45 minutes to reach the health post/ sub-health post in the rural area whereas these posts are 6 minutes away in the urban area on average. Similarly, it takes about 114 minutes to reach the nearest market center from home in the rural area and that time is 18 minutes in the urban areas. It takes three to six times more time to reach social service centers in rural areas than in urban areas.

Similarly, the average walking distance time in minutes from each house to social service centers in ecological belts are shown in Table 3.

Table 3

Accessibility of Service Centers Measured in Terms of Average Time (Minutes) by Ecological Belts

Indicators of social service center	Terai	Hill	Mountain	Total
PS	11	13	14	12
SS	22	36	47	31
HSS	33	59	87	51
HP/SHP	21	37	44	31
Market center	46	95	175	81
N	2376	3204	408	5988

Results from Table 3 implies that there is no difference in time taken to reach primary school in all three ecological belts: Terai, Hilly, and Mountain. But it takes double time to reach the health post/sub-health post in Mountain region than in Terai. Similarly, it takes double time to reach the market center in Hill than in Terai and almost 4 times in Mountain than in Terai.

Descriptions of the five social service centers, such as their categories, distributions of individual over two categories, odds of households being poor of each social service centers are presented in Table 4.

Table 4

Weighted by Individuals Odds of Household being Poor

Indicators of social service centers	Description of Household level dichotomous social service centers	% of poor	% of non-poor	Odds of household being poor
Access to PS	Within the reach of 30 minutes	24.35	75.65	0.32
	Beyond the reach of 30 minutes	38.91	61.09	0.64
Access to SS	Within the reach of 30 minutes	20.84	79.16	0.26
	Beyond the reach of 30 minutes	35.37	64.63	0.55
Access to HSS	Within the reach of 30 minutes	17.96	82.04	0.22
	Beyond the reach of 30 minutes	33.92	66.08	0.51
Access to HP/SHP	Within the reach of 30 minutes	20.79	79.21	0.26
	Beyond the reach of 30 minutes	34.41	65.59	0.52
Access to market center	Within the reach of 30 minutes	16.27	83.73	0.19
	Beyond the reach of 30 minutes	32.10	67.90	0.47

It is clear from the Table (4) that odds of household being poor has decreased within the reach of 30 minutes of all social service centers. Also, the odds of household being poor in within the reach of 30 minutes is lower compared to that of beyond the reach of 30 minutes. The odds of household being poor of beyond the reach of 30 minutes is almost the double of within the reach of 30 minutes.

Consumption quintile group of accessibility to service centers

There is a general consensus that literacy lowers poverty. Elevated rates of poverty are correlated with the global illiteracy rate. Rich people appear to have a greater literacy rate than those in poverty. Nepal's literacy rate by gender and sex ratio of working age population within per capita expenditure quintile group is presented in Table 6. The consumption quintile group of literacy rate by gender and sex ratio of working-age population and of each house to service centers (access to school, access to health, and access to market) in minutes are also listed in Table 5.

Table 5

Literacy Rate by Gender and Sex Ratio of Working-age Population within Quintile Group

Indicators of working-age population	Quintile Group based on per capita expenditure					Total
	First	Second	Third	Fourth	Fifth	
Male literacy rate (%)	61.3	70.4	76.8	85.4	90.5	78.4
Female literacy rate (%)	31.4	41.4	51.2	58.8	72.0	52.6
Gender gap	1.95	1.70	1.50	1.45	1.26	1.49
Sex ratio (%)	73.2	80.3	76.6	78.4	82.3	78.4

Table 5 shows that literacy rate increased with per capita expenditure quintile of both sexes. This indicates that the literacy rate of the poorer is lower as compared to that of richer. The male literacy rate of poorest quintile is approximately the double of the female literacy rate of poorest quintile group.

Similarly, the quintile group based on per capita expenditure is a popular measure of social service center for human capital investment. The average walking distance in relation to per capita expenditure quintile is shown in Table 6.

Table 6

Average Walking Distance in Minutes to Service Centers for Each Quintile Group

Service Centers	Quintile Group based on per capita expenditure					Total
	First	Second	Third	Fourth	Fifth	
Primary school	17	15	12	11	8	12
Secondary school	48	39	35	27	17	31
Higher Secondary school	82	62	58	44	25	51
Health post /sub-health post	48	37	36	26	19	31
Market center	134	101	85	67	42	81

Comparative figures of Table 6 on walking distance time and the social service centers by per capita expenditure quintiles based on NLSS III showed that as per capita expenditure quintile went up from poorest to richest the walking distance time rate decreased. Therefore, there is a direct negative relationship between social service centers and walking distance.

This study identifies average walking distance in minutes to service centers for each quintile group and individuals' odds of household being poor in Nepal with within the reach of 30 minutes and beyond of each social service center. The demarcating value of this numeric variable was set at 30 minutes of walking distance because it was recognized to be important in reducing poverty. This value divides the households into two groups: one group has access to social service centers beyond 30 minutes, while the other group has access within 30 minutes. It was found that as per capita expenditure quintile went up from poorest to richest the walking distance time rate decreased and the odds of household being poor of beyond the reach of 30 minutes is almost the double of within the reach of 30 minutes. There is no better position of the enrollments of the students in the secondary and higher secondary level than in the primary and basic education level. Morrisson (2002) reported that in the world's poorest nations, parents—particularly those of girls—occasionally choose not to send their kids to school or, in the case of rural children—drop them out when they're 8 or 9 years old so that the children can help them out in their house work.

As far as the literacy rate is concerned, it increased with per capita expenditure quintile of both sexes (Table 5). Morrisson (2002), argued that children of literate parents tend to be healthier, enroll in school, do not leave school earlier, and perform better in school that

resulted in higher earning potential than the ones of illiterate parents. Omoregbee et al. (2013) discovered that the chances of less educated farmers being poorer than those of better educated were higher in Nigeria which aligns with findings of Acharya et al. (2022); Teka et al. (2019); Imam et al. (2018); Botha (2010).

In the case of dispersion, public hospital/primary health care (PHC) was the highest among all amenities followed by market center. The primary school was the lowest dispersed while secondary school and health post/sub-health post (SHP) seemed to be similarly dispersed. The maximum time that takes to reach higher secondary school was 1920 minutes from any particular house followed by public hospital/primary health care (PHC) and market center (1440 minutes). Morrisson (2002), claimed that rural schools and health facilities are ill-equipped and that the standard of education and medical personnel was lower there than in cities.

Results described above indicated that funding for schools and health centers in villages and in poor urban neighborhoods need to be increased for improving quality of services. It is vital to increase budget allocations for new supplies and equipment to draw and retain good educators, nurses, and physicians in schools and medical facilities. Qualified workers cannot be attracted to rural regions if incomes are lower than in metropolitan areas. Even with comparable pay, it can be difficult to fill positions since most physicians and teachers would rather work in big cities than in impoverished, isolated villages.

4. CONCLUSION AND IMPLICATION

Average walking distance to service centers for each quintile group and individuals' odds of household being poor in Nepal within the reach of 30 minutes and beyond of each social service centers was calculated in minutes in this study. It is concluded that as per capita expenditure quintile goes up from poorest to richest the walking distance time decreased. Also, odds of household being poor of beyond the reach of 30 minutes is almost the double of within the reach of 30 minutes.

To improve the quality of service, more funding is needed for health facilities and schools in impoverished rural neighborhoods and communities. It is vital to increase budget allocations for new supplies and equipment to attract and retain good educators, nurses, and physicians in the schools and medical facilities in these areas. It is advised that policy makers boost the amount of money invest in infrastructure, health care, and education to reduce the poverty in Nepal.

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