

An Assessment of the Performance of Micro Enterprises in Rural Nepal over Time

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Abstract:

The lack of sustained employment opportunities has remained as the primary cause of poverty in rural Nepal. The possibility of eliminating poverty by engaging the rural population in small scale industries has been recognized by the UNDP by launching the Micro Enterprise Development Program (MEDEP). With the success of the piloting phase from 1998 to 2003 for five years, the program was expanded in an additional 15 districts for a period of four years from 2004 to 2007. However, the performance of micro entrepreneurs that were trained by MEDEP has been different in different locations of rural Nepal. The disparity in business performance is the result of differences in socio economic and market conditions among the locations. However, with the use of ANCOVA analysis, the research demonstrates that the influence of such differences on the performance of Micro Enterprises diminished over time. Using statistical analysis, the research evaluates the influence of location on the performance of micro enterprises over time. However, an empirical judgment of why the influence of differences eventually declined is beyond the scope of the research, although argument is provided to support a reasonable conjecture.

Introduction

The Nepalese economy is characterized by high dependence on the agriculture sector with little diversification. With a GNI per capita of \$440, Nepal has been classified as a low income economy by the World Bank. The UNDP classifies Nepal as a region of low human development with an HDI score of 0.428¹. Although most of Nepal's terrain is mountainous and not suited for farming, nearly 70% of the population relies on agriculture to sustain their livelihoods. Nearly one third of the national income comes from agriculture. Heavy reliance on traditional agriculture has a severe downturn of creating seasonal unemployment. Farmers are usually out of work during the months of winter and fall. As a result, majority of the population of rural Nepal is faced with low income generating opportunities. Poverty headcount ratio at \$2/day was 78% of the population in 2004².

Engaging the rural population in micro enterprises and small scale industries can be part of the solution to the problem of unemployment. In this context, the approach taken by the Micro Enterprise Development Program (MEDEP), initiated in 1998 as a joint effort of the UNDP and the Government of Nepal seems relevant. The program aims to provide vocational training to the rural population to enable them to start micro enterprises. With the success of the piloting phase (Phase I) from 1998 to 2003 for five years the program was expanded in an additional 15 districts for a period of four years from 2004 to 2007 (Phase II), and now the program covers 36 districts in its third phase from 2008.

Due to the differences in social backgrounds of the populations and geographical conditions of the districts, the performance of micro enterprises initiated by MEDEP has not been the same everywhere. Topographically, the country is characterized by high mountains and hills, but roughly 20% of the country is also plain land with tropical climate. There are also enormous differences in the social and ethnic composition of the populations that ultimately contributes to uneven development. A combination of the differences in social and geographical parameters can play significant role in determining market conditions. Ultimately, differences in market conditions lead to differences in the business performance of micro enterprises.

The research tries to analyze the influence of exogenous factors discussed above in the business performance of micro enterprises. It should be noted that in the context of the research, only the micro enterprises initiated by MEDEP are considered for analysis. By comparing the performance of micro enterprises in Phases I and II, the study shows how the influence of such factors changed over time. The study derives from a case study of two districts where the program was launched: Parbat and Dhanusha. These districts have enormous geographical and socio economic differences that create varying market conditions. Since the nature of micro enterprises established in both these districts are roughly the same, analysis can be performed to compare their performance.

¹ Economic Report. Nepal Rastra Bank. 2008/09

² World Bank

Methodology

Field trip was conducted to 4 of the 36 districts where MEDEP has been launched. Out of the 4 districts (Nuwakot, Parbat, Nawalparasi and Dhanusha), the reasons for selecting Parbat and Dhanusha for statistical analysis are as follows:

- Parbat lies in the hilly western zone and Dhanusha is in the plain land in the south east region of Nepal. Such contrasting geographical differences would allow for an apparent role of the exogenous variable 'location' on the performance of Micro Enterprises.
- Data were available for these two districts over a longer period of time as the programs were launched there in 1998 during Phase I.

The data used for the statistical analysis was accessed from MEDEP's database. MEDEP officials collected the data by using surveys and interviewing the entrepreneurs who participated in the program. Out of a total of 2245 entrepreneurs in Parbat and 2348 entrepreneurs in Dhanusha, a random sample of 725 micro entrepreneurs from each district was constructed. Each of the entrepreneurs in the random sample participated in Phase I as well as II. A homogenous sample size of the two districts allowed for an easier comparison.

The following categorical data were considered for research:

1) Per Capita Income (PCI) before participating in entrepreneur training: Measured in Nepalese Rupees (NRS), this variable captures the financial status of the individual before participating in the program. Although the program targeted individuals from ultra-poor economic background, data suggests that several middle income individuals were also participants.

2) Level of education: Education plays a tremendous role in business success. The following scheme was developed to quantify the level of education of the entrepreneurs:

Illiterate – 0, Primary – 1, Lower Secondary – 2, Secondary – 3, Higher Secondary – 4, In college – 5, Undergraduate degree – 6

3) Aggregate sales up to previous month: Also measured in NRS, the variable acts as a proxy for business success; higher sales imply more successful enterprise. However, it should be noted that older enterprises would obviously register higher aggregate sales. To control for time, statistical analysis for the two phases was run separately.

The following is a brief description of the districts on which the case study is based:

1) Dhanusha: Nepal is divided into 75 administrative units called 'districts'. Dhanusha is one of these districts that lies towards the south of the country and borders India. The district, with the city of Janakpur as its capital, is also a major tourist destination. The district is characterized by hot tropical climate. Dhanusha enjoys plain land suitable for agriculture. The southern districts of the country comprise a geographical region known as the Terai. Due to favorable climate and fertile soil, the Terai region is popularly known as the granary of the country as most of the agricultural output of the country comes from here. Despite such factors, Dhanusha suffers from

low level of human development characterized by the prevalence of communicable diseases and high level of unemployment. HDI estimate for Dhanusha ranges from 0.400-0.449³.

2) Parbat: Parbat literally means ‘hills’ in Nepali. The district is situated in the Western Development region of the country. It is characterized by a combination of subtropical and semi-subarctic climate. Fertile land suitable for agriculture is scarce in this hilly district. Terrace farming is popular. In recent years, many residents of this district have migrated to countries such as Malaysia, Saudi Arabia and India to seek employment. Thus, remittance is a significant source of income for Parbat. Parbat too suffers from low level of human development characterized by a traditional rural economy. HDI score for Parbat ranges from 0.450-0.499³.

Descriptive statistics of the sample:

Location	Phase	Variables	N	Minimum	Maximum	Mean	Std. Deviation
Parbat	I	Location	725	1	1	-	-
		PCI before MEDEP	725	150.00	22730.00	4538.13	2881.87
		Sales up to previous Month	725	0.00	2787500.00	141322.53	256414.61
		Education rating	725	0	5	3.3	0.6
		Valid N	725	-	-	-	-
	II	Location	725	1	1	-	-
		PCI before MEDEP	725	150.00	22730.00	4538.13	2881.87
		Sales up to previous Month	725	0.00	406200.00	21696.74	33767.76
		Education rating	725	0	6	2.3	0.7
		Valid N	725	-	-	-	-
Dhanusha	I	Location	725	2	2	-	-
		PCI before MEDEP	725	1000.00	24000.00	5029.71	3109.17
		Sales up to previous Month	725	0.00	6639350.00	216467.94	421980.92
		Education rating	725	0	6	2.9	0.9
		Valid N	725	-	-	-	-
	II	Location	725	2	2	-	-
		PCI before MEDEP	725	1000.00	24000.00	5029.71	3109.17
		Sales up to previous Month	725	0.00	19333200.00	61820.46	593599.39
		Education rating	725	0	6	2.6	0.9
		Valid N	725	-	-	-	-

³ UN Nepal Information Platform

Findings

Analysis of Covariance (ANCOVA) is performed to investigate the role of “location” on business performance of micro enterprises. Analysis of covariance is a statistical technique that combines regression analysis and analysis of covariance. It can be helpful in nonrandomized studies in drawing more accurate conclusions. Here, the study is nonrandomized as the participating individuals were selected according to a definite guideline developed by the administrative body of MEDEP. One way ANCOVA involves one independent categorical variable, one dependent continuous variable, and one or more covariates⁴. In this study, the dependent variable is S (Sales up to previous month (in NRS.)), and the independent variable is Region or Location. The covariates for the study are level of education and Per Capita Income before participating in MEDEP.

Choice of covariates:

A potential covariate is any variable that is significantly correlated with the dependent variable. Covariates must be significantly correlated with the dependent variable. In this study, both level of education (E) and per capita income (PCI) have shown significant correlations at the 0.01 level (2-tailed) as is summarized by the following table:

Parbat, Dhanusha	E	PCI
S	0.454	0.477

The numerical values are the Pearson Correlation figures. MEDEP selected a variety of individuals to participate in their training programs. These participants varied enormously in their level of education, ranging from illiterate to college graduates. There were individuals in the sample having a PCI of 0, indicating that they had completely no source of income before. A positive correlation between S and E and S and PCI implies that individuals having a higher level of education and more money at their disposal are more likely to register more sales. This is consistent with theory; more education and know how leads to entrepreneurial success. Similarly, individuals with larger PCI can make larger investments which would lead them to making higher sales.

The Dependent variable:

Aggregate sales in NRS serves as the dependent variable in the study. From the categorical data made available from MEDEP’s database, another possible dependent variable that could be considered was aggregate quantity sold. However, since the products of entrepreneurs are of a wide variety, comparing quantities would not be appropriate due to lack of homogeneity.

⁴ Pallant, Julia. *SPSS Survival Manual*. Allen & Unwin. 2007

The Independent Variable:

The primary research question being investigated is the role of the exogenous factor “Location” in determining business success. This is modeled by considering ‘L’ (Location) as the independent variable. The 2 Locations are Parbat and Dhanusha.

While investigating the role of location on business success, the ANCOVA model controls for the differences in the level of education and Per Capita Income. Controlling for the effects of the differences of education level and per capita income on aggregate sales allows deriving a better conclusion about the influence of location solely on business success.

ANCOVA is run on SPSS (Statistical Package for Social Sciences) for Phases I and II separately.

Null Hypothesis (H_0): The performance of micro entrepreneurs does not differ significantly according to location. In other words, there is no significant influence of location on business success of micro enterprises.

Alternative Hypothesis (H_A): The performance of micro entrepreneurs differs according to location.

Running the test on SPSS, the following results were obtained:

Phase I:

Source	Significance Level	Partial Eta squared
Corrected Model	.000	.470
Intercept	.605	.000
PCI before MEDEP	.152	.020
Education Level	.000	.170
Location	.000	.355

The results of this one-way analysis of covariance are presented as follows:

A one-way analysis of covariance was conducted to compare the role of location on the performance of micro entrepreneurs for phase I. Preliminary checks were conducted to ensure that there was no violation of the assumptions of normality, linearity, homogeneity of variances, homogenous of regression slopes, and reliable measurement of the covariate. After adjusting for the influence of E and PCI as possible factors that would have contributed for the difference, there was seen a significant difference between the two Locations in regards to aggregate sales, (Significance =.000, which is less than 0.05). A partial Eta Squared value of 0.355 indicates that 35.5% of the variance in the dependent variable is explained by the difference in Location. We reject the null hypothesis for Phase I.

Source	Significance Level	Partial Eta squared
Corrected Model	.430	.080
Intercept	.361	.011
PCI before MEDEP	.060	.032
Education Level	.381	.015
Location	.211	.010

For Phase II, after adjusting for the influence of E and PCI as possible factors that would have contributed for the difference, we do not see a significant difference between the two locations in regards to aggregate sales (Significance =.211, which is greater than 0.05). We fail to reject the null hypothesis for phase II. A partial Eta Squared value of 0.010 indicates that only 1% of the variance in the dependent variable is explained by the difference in Location.

The Null Hypothesis was rejected for Phase I, and for Phase II, we fail to reject it. The difference in results suggests that in case of Phase I, the independent variable Location played a more significant role in business performance than Phase II. Phase I denotes the period of time from 1998 to 2003 whereas Phase II denotes 2004 to 2007. A less significant role of location in the latter phase suggests that a relatively more proportionate business performance is seen in the two locations as time progresses. This implies that some factors that caused uneven development of micro enterprises in the two locations in the past were mitigated.

Conclusion

Ray (2010) suggests that balanced growth is an abstraction, and economic growth has been fundamentally uneven in developing countries. Here, the business performance of micro enterprises can be considered as a component of economic growth. In coherence with uneven growth manifested amongst the different sectors of a developing economy, the performance of micro enterprises can be expected to be uneven in accordance to the location where they are established. However, the results of the research indicate that in the second phase, location of the micro enterprise was less important of a factor in determining business success. It is interesting to note that such difference in significance levels took place in a short period of time. Since the sample size was large, the results of the statistical analysis are highly significant. Some possible reasons why such phenomenon was observed in the research might include the following:

Development of infrastructures such as transportation and communication might have taken place in the two locations. Such development might lead to the two locations becoming more equally suitable for industrial growth. This would create the effect of inducing similarity in the performance of micro and small scale industries in the two districts. The development of infrastructure implies that the nature of the variable “location” may have intrinsically changed between Phases I and II.

More cultural exchange might have taken place between the two locations over time. Such cultural exchange can have the result of inspiring a similar trend of fashion or taste in the two districts. Thus, cultural exchange may have made demand conditions in the two regions more similar and homogenous. The upshot of homogenous demand conditions would be similarity in the performance of micro enterprises that produce the same goods.

The positive externalities created by the establishment of micro enterprises in Phase I might have affected the performance of micro enterprises in Phase II. The Micro Enterprise Development Program (MEDEP) provided entrepreneurship training to individuals in Parbat and Dhanusha. One positive spillover effect of the training was that the trainees went on to train other individuals in the local community. As a result, the level of vocational knowledge in the two districts must have risen manifold. Since the program was launched with approximately the same input in Phase I, it is reasonable to expect that by Phase II, the spillover effects must have culminated to similar levels. This would finally lead to creating similar supply conditions, by the virtue of which the micro enterprises in the two locations would exhibit similar performances.

An empirical judgment of why the influence of location on micro enterprise performance declined over time is beyond the scope of this research. Perhaps a thorough investigation into this matter would be a topic for future research.

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